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DETERMINANTS AND BARRIERS TO THE USE OF HEALTHCARE SERVICES AMONG WOMEN OF CHILDBEARING AGE IN DEGEMA

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ABSTRACT

Background: Despite the increasing availability of primary healthcare facilities in rural communities in Rivers State, South-South Nigeria, utilization of healthcare services is still sub-optimal. This study was designed to assess the determinants and barriers to the utilization of healthcare services amongst women of child bearing age in Degema Local Government Area (LGA) in Rivers State of Nigeria.

Materials and Methods: A descriptive cross-sectional study was conducted among 400 randomly selected women of child bearing age (15-49 years) who were resident in selected community in Degema LGA in Rivers State. Validated self-administered questionnaire was used to obtain information from respondents. Data was analysed using the version 25.0 of the Statistical Package for Social Science (SPSS) statistical software. Descriptive and inferential statistics were performed with the level of statistical significance set at $p < 0.05$.

Results: Out of 376 respondents who completed the study, about half (51.9%) were married and 199 (52.9%) were between 31-45 years, the mean age was 31.8 ± 8.6 years. About 97% had utilized at least one of the services provided by the health facility in their community, while immunization service (66.4%) was the most utilized. Utilization of healthcare services showed significant relationship with respondents' marital status ($p < 0.001$), level of education ($p, 0.005$), and occupational status ($p < 0.005$). Distance of health facility from residential area, unavailability of money for transport to health facility and unavailable of transport means to health facility were the 3 most frequently reported barriers to utilization of healthcare services.

Conclusion: Utilizing of healthcare services has been shown to be greatly hindered by distance of the health facility from residential area. Government and policy makers are therefore charged to put into consideration distance of health facility from residential area and adequate transport means when sighting health facility for community use.

KEY WORDS: Determinant, barriers, utilisation, healthcare services, women of child bearing age

INTRODUCTION

Health is defined not just as the state of absence of disease condition or any infirmity, but as a state of complete physical, mental and social well-being (Nordqvist, 2017). It represents a major determinant of socio-economic development because all human endeavours require sound minds in sound bodies for full realization of aspirations (Enemuoh, 2021; Musah & Kayode, 2018). As the saying goes, "Health is Wealth." In view of this, the United Nations (UN) renewed her commitment to health and well-being for all in 2015 via the adoption of primary health care (PHC) as an effective, efficient and equitable approach towards enhancing health, thus making it an important approach towards achieving Universal Health Coverage (UHC) and the

health-related Sustainable Development Goal (SDG) (Pettigrew et al., 2015; Puras, 2016; WHO, 2018). In Nigeria, since the adoption of PHC as the bedrock of the nation's healthcare system, it has witnessed a series of evolution geared towards repositioning and revitalizing it so as to improve utilisation (Aigbiremolen et al., 2014). Despite this, there has been poor and low level of utilisation of available healthcare services in the nation, with women and children seen as the most vulnerable to the brunt of this low level of utilisation.

According to an estimate made by the World Health Organisation (WHO), about 303,000 mothers died in 2015 due to maternal causes during pregnancy and childbirth, with two



thirds of this death (201,000) occurring in Sub-Saharan Africa (SSA). Nigeria has the second highest mortality rate in the world, with a maternal mortality rate (MMR) is 630 deaths per thousand live births, with marked variation across the six geopolitical zones and between urban and rural areas (Onasoga et al., 2014). The Federal Ministry of Health (FMoH) has hinged this gruesome state of the maternal health to lack of utilisation of maternal health services during pregnancy, childbirth and the first month after delivery, despite the existence of national programs for improving maternal and child health in Nigeria (FMoH, 2005). Babalola and Fatusi (2019) did also report that the use of such services remains low in SSA, especially, where only 58% of women have attended at least one antenatal clinic (ANC) during pregnancy, 39% of births are attended to by a skilled professional, 35% of deliveries take place in a health facility and 43.7% receive postnatal care (WHO et al., 2012).

Several factors have been implicated in the lack of utilisation of quality health care services, of which cultural perception of illness, religious beliefs of individual women and co-existence of maternal health services with indigenous health care services, in most rural communities have been identified (Addai, 2020). Some other identified factors affecting the utilisation of healthcare services include cost of services, socio-demographic and educational level of the client, women's level of autonomy in making health care decisions, physical accessibility to health care services, and the type of health services rendered, disease pattern and healthcare workers attitude (Onah et al., 2016; D'Ambruoso et al., 2017). Gaining understanding of these factors would be of immense benefit in policy formulation towards improving uptake of healthcare services, especially in developing countries, particularly among vulnerable populations and rural communities in poor-resource settings (WHO, 2013; Topp & Abimbola, 2018). Hence, this study is aimed as exploring the determinants and Barriers to the use of healthcare services among women of child bearing age in Degema LGA of Rivers state.

METHODS AND MATERIALS

Study Design and setting

This survey adopted the descriptive cross-sectional technique and was conducted in Degema Local Government Area (LGA) in Rivers State, Nigeria. Degema is one of the oldest LGAs in Rivers state and has an area of 1,011 km², with a projected population of about 385,756 as at 2021. The LGA occupies the South-Western axis of the State and it is bounded to the North by Asari Toru and Emohua LGAs, to the east by Bonny, Okrika and Port Harcourt LGAs to the South by the Atlantic Ocean, and to the West by Akuku Toru and Abua/Odual LGAs. The LGA has seven health facilities, one health post and one Zonal Hospital. The health facilities are Model Primary Healthcare Centre Obu-ama, Model Primary Healthcare Centre Bakana, Model Primary Healthcare Centre Tombia, Community Health Centre Degema, Primary Healthcare Centre Usokun, Primary Healthcare Centre Augoru-ama and Primary Healthcare Centre Bukuma.

Study Population

The study was conducted amongst women of child bearing age between the ages of 15 and 49 years, who have lived in a community in Degema for 5 years or more.

Sample Size and Technique

The sample size for the study is 400 this was gotten by applying the descriptive studies sample size determination formula, with the prevalence of women's utilization of healthcare services in Nigeria, given as 38% (Adedokun & Uthman, 2019), at 95% confidence level, and addition of 10% non-response rate. The study adopted the use of the multi-stage sampling method in recruiting the respondents for the study

Study Instruments

The instrument used to gather data for the study was a pre-tested, structured questionnaire "Determinants and barriers to the utilisation of health care services amongst women of child bearing age in Degema." The questionnaire collected information in line with the objective of the study.

Statistical Analysis

Data from the study was first entered into the Microsoft Excel Spread Sheet (2016), cleaned and validated, after which it was exported into the version 24.0 of the Statistical Package for Social Sciences (SPSS) Statistical Software for statistical analysis. Descriptive statistics was performed and reported using tables and charts where necessary. Continuous variable outcomes were summarized as mean and standard deviation, while categorical variable outcomes were summarized as frequencies and percentages. For inferential statistics, the Chi-Square test was used to test for statistical significance, at 95% confidence level, and the probability level of $p < 0.05$ was considered as statistically significant. The multivariable logistic regression model was conducted to assess the strength of the statistically significant outcomes, and this was reported as odds ratio.

Ethical Consideration

Ethical approval for the study was obtained from the Research Ethics Committee of the University of Port Harcourt. Permission to conduct the study was obtained from the head or leadership of the community before community entry. Informed consent was also obtained from each respondent before administering the questionnaire. All the information provided by respondent in course of the work was treated with confidentiality. For the sake of animosity, names were not asked or used to identify any respondent. Access to information about this study was not granted to unauthorized persons.

RESULTS

Socio-demographic Characteristics of the respondents

The result of the socio-demographic characteristics of the women as presented in table 1 revealed that more than half 199 (52.9%) of the women were aged between 31 and 45 years, with



the mean age as 31.8 ± 8.6 years. About half (51.9%) of the respondents were married, among whom 158 (68.1%) had the monogamous type of marriage. Most of the women were

Christians (84.8%), had completed secondary level of education (43.6%), had business as their occupation (38.0%) and had four children or more (31.9%).

Table 1: Socio-demographic characteristics of respondents

Variables	Frequency (n=376)	Percent
Age (years)		
30 or less	175	46.5
31-45	199	52.9
Over 45	2	0.5
Mean age \pm SD (years)	31.8 \pm 8.6	
Marital status		
Single	115	30.6
Married	195	51.9
Divorced/Separated	20	5.3
Widowed	17	4.5
Cohabiting	29	7.7
Types of marriage (n=232)		
Monogamous	158	68.1
Polygamous	74	31.9
Education level completed		
No formal	48	12.8
Primary	33	8.8
Secondary	164	43.6
Tertiary	131	34.8
Religion		
Christianity	319	84.8
Islam	27	7.2
African traditional worshipper	29	7.7
Others	1	0.3
Occupation of mother		
Civil servant	65	17.3
Private practice job	61	16.2
Oil firm	22	5.9
Farming	34	9.0
Business	143	38.0
Not employed	51	13.6

Utilization of healthcare services in Degema LGA

The study found that 97.0% of women of child bearing age had utilized at least one of the services of the healthcare facilities in Degema LGA. According to figure 1 below, 219 (58.2%) of the

respondents utilize the services of the healthcare facilities in Degema LGA regularly, 146 (38.8%) utilized the services rarely or occasionally, while 11 (2.9%) never utilized it.

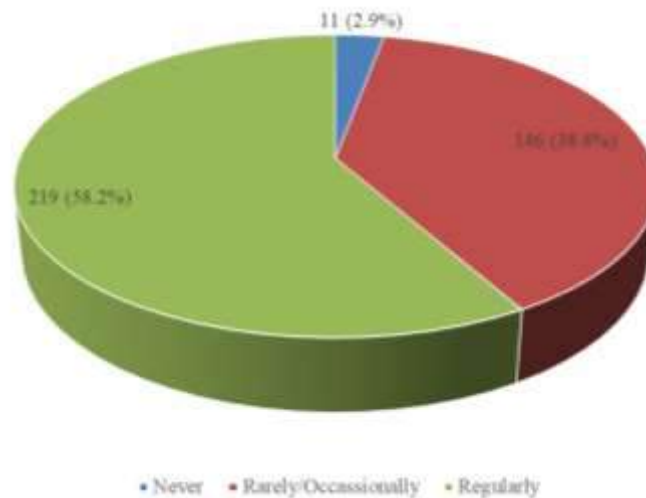


Figure 1: Utilization of healthcare services of health facilities in Degema LGA

Determinants to utilization of healthcare services

Table 2 presents the response of the attitude of the respondents towards the utilisation of healthcare services. According to the result, most of the respondents agreed that high awareness about the existence of healthcare services in Degema LGA can enhance women of child bearing age to utilize the services (32.4%), availability of health insurance scheme can enhance women of child bearing age towards utilizing healthcare services in the LGA (33.0%) and having money to pay transport is a factor that enhances women of child bearing age towards utilizing health care services in Degema LGA (39.6%). Similarly, 42.3%, 31.1% and 33.8% respectively, agreed that availability of healthcare services are factors that can enhance the utilization of healthcare services amongst women of child bearing age in the LGA; that the quality of healthcare services is a factor that can enhance the utilization of healthcare services

amongst women of child bearing age in the LGA and that low cost of healthcare services are factors that can enhance the utilization of healthcare services amongst women of child bearing age in Degema LGA. Also, 29.3% agreed that the health status of women of child bearing age is a factor that can enhance the utilization of healthcare services in Degema LGA, while 36.7%, agreed that access to healthcare services is a factor that can enhance the utilization of healthcare services amongst women of child bearing age in Degema LGA (Mean=3.09, SD=1.41). However, 35.1% of the respondents disagreed that the working age of women of child bearing age can enhance the utilization of healthcare services in the LGA, while 30.9% strongly disagreed that language factor can enhance the utilization of healthcare services by women of child bearing age in the LGA.

Table 2: Determinants to utilization of healthcare services amongst women of child bearing age in Degema LGA

Item	Strongly Disagree (%)	Disagree (%)	Indifferent (%)	Agree (%)	Strongly Agree (%)	Mean (SD)
High awareness about the existence of healthcare services in Degema can enhance women of child bearing age to utilize the services	65 (17.3%)	52 (13.8%)	71 (18.9%)	122 (32.4%)	66 (17.6%)	3.22 (1.46)
Availability of health insurance scheme can enhance women of child bearing age towards utilizing healthcare services in Degema	55 (14.6%)	109 (29.0%)	37 (9.8%)	124 (33.0%)	51 (13.6%)	3.02 (1.32)
Having money to pay transport is a factor that enhances women of child bearing age towards utilizing health care services in Degema	94 (25.0%)	51 (13.6%)	41 (10.9%)	149 (39.6%)	41 (10.9%)	2.98 (1.41)
Availability of healthcare services are factors that can enhance the utilization of healthcare services amongst women of child bearing age in Degema	35 (9.3%)	30 (8.0%)	78 (20.7%)	159 (42.3%)	74 (19.7%)	3.55 (1.17)
The quality of healthcare services is a factor that can enhance the utilization of healthcare services amongst women of child bearing age in Degema	53 (14.1%)	100 (26.6%)	48 (12.8%)	117 (31.1%)	58 (15.4%)	3.07 (1.33)



Low cost of healthcare services are factors that can enhance the utilization of healthcare services amongst women of child bearing age in Degema	87 (23.1%)	63 (16.8%)	41 (10.9%)	127 (33.8%)	58 (15.4%)	3.02 (1.43)
The health status of women of child bearing age is a factor that can enhance the utilization of healthcare services in Degema	108 (28.7%)	64 (17.0%)	47 (12.5%)	110 (29.3%)	47 (12.5%)	2.80 (1.44)
Access to healthcare services is a factor that can enhance the utilization of healthcare services amongst women of child bearing age in Degema	79 (21.0%)	61 (16.2%)	41 (10.9%)	138 (36.7%)	57 (15.2%)	3.09 (1.41)
The working age of women of child bearing age can enhance the utilization of healthcare services in Degema	56 (14.9%)	132 (35.1%)	47 (12.5%)	103 (27.4%)	38 (10.1%)	2.83 (1.27)
Language factor can enhance the utilization of healthcare services by women of child bearing age in Degema	116 (30.9%)	93 (24.7%)	46 (12.2%)	88 (23.4%)	33 (8.8%)	2.55 (1.37)

Perceived Barriers to utilization of healthcare services amongst women of child

Some of the perceived barriers to utilization of healthcare services among women of child bearing age in Degema LGA are presented in Table 3. According to the result, 27.9% strongly disagreed that there was poor awareness of women of child bearing age about the existence of healthcare services in their community, while 43.4% and 48.7% respectively, agreed that distance of the healthcare centre from residential area was a

barrier to utilization of healthcare services in their LGA and that not having available means of transport was a barrier. Also, 29.5% agreed that not being able to get permission from husband is a barrier, while 30.9% and 35.1% strongly disagreed that doctors and nurses/midwives, respectively, were not always available in the healthcare centre. Furthermore, 44.1% disagreed that religious believe was a barrier, while 36.4% agreed that not having good equipment in health facilities in their LGA was a barrier.

Table 3: Perceived Barriers to utilization of healthcare services

Item	Strongly Disagree (%)	Disagree (%)	Indifferent (%)	Agree (%)	Strongly Agree (%)	Mean (SD)
Poor awareness about the existence of healthcare services in Degema hindered women of child bearing age from utilizing the service	105 (27.9%)	74 (19.7%)	34 (9.0%)	101 (26.9%)	62 (16.5%)	2.84 (1.49)
Distance of the Healthcare centre from residential area hindered women of child bearing age from utilizing the healthcare services in Degema	34 (9.0%)	96 (25.5%)	34 (9.0%)	163 (43.4%)	49 (13.0%)	3.26 (1.23)
Not having money to pay for transport hindered women of child bearing age from utilizing the healthcare services in Degema	33 (8.8%)	89 (23.7%)	34 (9.0%)	183 (48.7%)	37 (9.8%)	3.27 (1.18)
Not having available means of transport hindered women of child bearing age from utilizing the healthcare services in Degema	75 (19.9%)	57 (15.2%)	37 (9.9%)	164 (43.6%)	43 (11.4%)	3.11 (1.36)
Not being able to get permission from husband hindered women of child bearing age from utilizing healthcare services in Degema	70 (18.6%)	82 (21.8%)	86 (22.9%)	111 (29.5%)	27 (7.2%)	2.85 (1.24)
Women of child bearing age were hindered from utilizing healthcare services in Degema because doctors were not always available	116 (30.9%)	70 (18.6%)	31 (8.2%)	115 (30.6%)	44 (11.7%)	2.74 (1.46)
Women of child bearing age were hindered from utilizing healthcare services in Degema because nurses/midwives were not always available	132 (35.1%)	66 (17.6%)	32 (8.5%)	103 (27.4%)	43 (11.4%)	2.63 (1.48)
Women of child bearing age were hindered from utilizing the healthcare services in Degema because of their religious believe	92 (24.5%)	166 (44.1%)	33 (8.8%)	63 (16.8%)	22 (5.9%)	2.35 (1.19)



Women of child bearing age were hindered from utilizing the healthcare services because the healthcare facilities do not have good equipment	69 (18.4%)	97 (25.8%)	39 (10.4%)	137 (36.4%)	34 (9.0%)	2.92 (1.31)
Women of child bearing age were hindered from utilizing the healthcare services in Degema because the clinic schedule was not flexible	79 (21.0%)	89 (23.7%)	48 (12.8%)	89 (23.7%)	71 (18.9%)	2.96 (1.44)

Relationship between social demographic characteristics and utilization of healthcare services

Table 4: Relationship between social demographic factors and utilization of health care services

	Utilization of healthcare services (n=376)				p-value
	Never (%)	Rarely/Occasionally (%)	Regularly (%)	□ 2	
Age group					
30 years or less	4 (2.3%)	72 (41.1%)	99 (56.6%)	2.666 [#]	0.750
31-45 years	7 (3.5%)	73 (36.7%)	119 (59.8%)		
Over 45 years	0 (0.0%)	1 (50.0%)	1 (50.0%)		
Marital Status					
Single	4 (3.5%)	55 (47.8%)	56 (48.7%)	29.531 [#]	<0.001*
Married	6 (3.1%)	64 (32.8%)	125 (64.1%)		
Divorced/Separated	1 (5.0%)	15 (75.0%)	4 (20.0%)		
Widowed	0 (0.0%)	8 (47.1%)	9 (52.9%)		
Cohabiting	0 (0.0%)	4 (13.8%)	25 (86.2%)		
Education level completed					
No formal	4 (8.3%)	20 (41.7%)	24 (50.0%)	23.674 [#]	<0.001*
Primary	2 (6.1%)	3 (9.1%)	28 (84.8%)		
Secondary	2 (1.2%)	74 (45.1%)	88 (53.7%)		
Tertiary	3 (2.3%)	49 (37.4%)	79 (60.3%)		
Religion					
Christianity	9 (2.8%)	123 (38.6%)	187 (58.6%)	4.117 [#]	0.822
Islam	1 (3.7%)	11 (40.7%)	15 (55.6%)		
African traditional worshipper	1 (3.4%)	11 (37.9%)	17 (58.6%)		
Others	0 (0.0%)	1 (100.0%)	0 (0.0%)		
Occupation of mother					
Civil servant	2 (3.1%)	23 (35.4%)	40 (61.5%)	26.778 [#]	<0.001*
Private practice job	0 (0.0%)	27 (44.3%)	34 (55.7%)		
Oil firm	0 (0.0%)	11 (50.0%)	11 (50.0%)		
Farming	2 (5.9%)	10 (29.4%)	22 (64.7%)		
Business	3 (2.1%)	44 (30.8%)	96 (67.1%)		
Not employed	4 (7.8%)	31 (60.8%)	16 (31.4%)		
Occupation of husband					
Civil servant	0 (0.0%)	21 (26.3%)	59 (73.8%)	49.491 [#]	<0.001*
Private practice job	0 (0.0%)	22 (46.8%)	25 (53.2%)		
Oil firm	2 (6.5%)	16 (51.6%)	13 (41.9%)		
Farming	0 (0.0%)	8 (25.8%)	23 (74.2%)		
Business	1 (1.2%)	21 (25.0%)	62 (73.8%)		
Not employed	8 (7.8%)	58 (56.3%)	37 (35.9%)		

*=Statistically significant;

#=Fisher's Exact



The Chi-Square test showed a statistically significant relationship between utilization of healthcare services and respondents' marital status, education and occupation. It was found that 56 (48.7%) of single women utilized healthcare services in Degema as compared against 125 (64.1%) of married, 4 (20.0%) of divorced/separated, 9 (52.9%) of the widowed and 25 (86.2%) of cohabiting women (Fisher's Exact=29.531; $p < 0.001$). Among the women assessed, 24 (50.0%) of those who had no formal education utilized the healthcare services in the LGA regularly as compared against 28 (84.8%) of those with primary, 88 (53.7%) of those with secondary and 79 (60.3%) of those with tertiary education (Fisher's Exact=23.674; $p < 0.001$). Similarly, the occupational status of respondents and their husband also showed statistical significance (Fisher's Exact=26.778, $p < 0.001$ and Fisher's Exact=49.491, $p < 0.001$ for mother's and husband's occupation respectively).

DISCUSSION

Utilization of healthcare services

Over four-fifth (97.0%) of the women utilized at least one of the healthcare services of the healthcare facilities in Degema LGA, more than half of whom utilized the services regularly. This is similar with the study of Okeke et al. (2019), which was conducted in the northern part of Nigeria. However, the result from this study is much higher than the 7.5% and 18.9% reported in the studies of Muhammed et al. (2013) and Nwankwo et al. (2017), in Northwest and Southeast Nigeria respectively. It was also seen to be lower in comparison with the results of 76.8%, 89.5% and 89.4% utilisation reported in the studies of Adam (2014), Adebayo and Asuzu (2015) and Otovwe and Elizabeth (2017) in South-South, Southwest and North-Central Nigeria respectively. Also, Nwokoro et al. (2022) reported that only 46.2% of the women in their study reported utilisation of PHC services the last time they were sick. The high utilisation of health care services observed in this study may be attributable to the high level of education of the respondents reached in this study.

Determinants to utilization of healthcare services

The study identified awareness about the existence of healthcare services in Degema LGA, availability of the healthcare services, and access to the healthcare services as the most frequently reported facilitators of utilization of healthcare services among women of child bearing age in the LGA. In a study conducted by Okeke et al., (2019), the most frequent reasons women gave for utilizing antenatal care service included; for assessment of foetal vitality and positioning, health problems, and general wellbeing. while Nwokoro et al. (2022) in a similar study reported that affordability of health services, inadequacy of healthcare staff, shorter hospital waiting time and satisfaction with PHC services during previous visit influenced utilisation of PHC services. Okeke et al., (2019) also noted that affordability of maternal health service enhanced utilization of the services. Studies have also documented that, women who live in a community where free maternal health services are offered, are

more likely to utilize the facility than those who live in the catchment area of a fee-charging facility.

Barriers to utilization of healthcare services

It was also found that not having money to pay for transport to the healthcare facility, distance of the healthcare facility from residential area, and not having available means of transportation to the healthcare facility as the most frequently reported barriers to utilization of healthcare service among women of child bearing age in Degema. In a community-based cross-sectional study conducted among women in Jos, Nigeria, the reasons given for non-utilization of antenatal care services included long distance from a health facility, lack of financial means, lack of partner's consent, the state of good health and lack of time (Okeke et al., 2019). Aluku and Ekendo (2020), in their study among women of reproductive age in a community in South-South Nigeria identified awareness as a major barrier to the utilization of maternal health care services, while Nwokoro et al. (2022) in a similar study reported that poor quality health services, unavailability of medical doctors, long patient waiting time and unavailability of drugs were the barriers to the utilisation of healthcare services. Ige and Nwachukwu (2010) also reported that patient waiting time and availability of essential drugs have also been reported to be important indicators of patient satisfaction with primary health care services, while lack of knowledge of the benefits of antenatal care was identified as a factor for low utilization of antenatal care services (Simkhada et al., 2009). Birmeta et al. (2013) quantified the relationship between utilization of antenatal care service and knowledge by showing that the odds of utilizing antenatal care service was more than three times for those with better knowledge of danger signs of pregnancy than those with poor knowledge.

Relationship between social demographic characteristics and utilization of healthcare services

Utilization of healthcare services among women of child bearing age in Degema LGA showed statistically significant relationship with marital status, education level and occupation of the women and their husbands. This finding corroborates with findings of others studies which showed that income level is a significant determinant of utilization of primary health care services among women of childbearing age (Oladipo, 2014; Habtom, 2017; Okonofua et al., 2018; Aluku and Ekendo, 2020). Okeke et al., (2019) showed in their study that women with high educational level were more likely to utilize antenatal care services and deliver at the health facility, which is also in agreement with finding of this study. Oluwamotemi et al., (2020) in their study found utilization of antenatal care services to be significantly associated with some moderating factors such as age, marital status, income, age at first marriage and level of knowledge. Tiruaynet and Muchie (2019) further revealed in their study that economic status contributed significantly to the utilization of antenatal care among pregnant women in Benishangul Gumuz Region in Western Ethiopia. In another Ethiopian study, it was shown that the likelihood of utilizing



antenatal care decreased as the family income dropped (Birmeta et al., 2013). However, contrary to this study, Aluku and Ekendo (2020), Dahiru and Oche (2015) and Onasoga, et al (2012) reported that age was a significant determinant of primary healthcare services utilization, while a Pakistani study by Khan et al., (2013) also reported it as a determinant factor.

CONCLUSION AND RECOMMENDATION

Utilization of healthcare services provided by health facilities in Degema LGA is poor among women of child bearing age in the LGA. It has also been greatly hindered by distance of the health facility from residential area. Nevertheless, there is significant relationship between marital status, education and occupation of mother and husband with utilization of healthcare services among women in Degema LGA. Hence, consideration regarding the distance of health facility from residential area and adequate transport means should be made a priority when sighting health facility for community use.

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SUBCOLLOQUIAL MESURATIVE PHRASEOLOGICAL UNITS AS A SEMANTIC CENTER

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ANNOTATION

The article examines the most frequent lexical and phraseological units with the numerals "one" and "two" used in the subcolloquial mesurative phraseological units of the French, Uzbek and Russian languages as a semantic center. An analysis of the generality and specificity was carried out in the meanings of the subcolloquial mesurative phraseological units of the compared languages. This analysis involves the study of the semantics of subcolloquial mesurative phraseological units, the mechanisms of nomination and associative links existing in them, the consciousness and properties of the mentality of the three cultures.

The considered subcolloquial mesurative phraseological units of the compared languages fully reflect the linguistic personality of the French, Uzbek and Russian cultures, reveal their value in the picture of the world and contribute to the definition of their commonality and specificity.

KEY WORDS: *mesurative, subcolloquial, numerals one and two, lexico-phraseological units, symbol, extralinguistic, quantity*

A subcolloquial mesurative phraseological unit is a phraseological unit in which a complex definition consisting of a numeral, less often an adverb, and a noun acts as a quantitative attribute that distinguishes the represented object from many similar ones.

A subcolloquial mesurative phraseological unit consists of a numeral + mesurative + noun, where a noun acts as a semantic center, and a numeral and complex definition consisting of a mesurative acts as a definition. As the main one in the study, the term *mesurative* was adopted, proposed by M.M. Kopylenko [4, 178]. Mesurative (lat. Mensura - "measurement", "measure", "value") is a dependent noun, which, defining the core word, characterizes it quantitatively.

Various teachings and religious trends have dealt with the problem of the numeral. "There is no and there can be no ambiguity in the numerals... these same numerals, becoming components of a phraseological unit, change their basic functions, abstracting away, begin to denote either an extremely small or an extremely large number, or have no numerical value at all, or different numerals enter into synonymous relationships with each other, etc." [5, 5]. In comparison

with other parts of speech, the numerals are less inherent in polysemy, both when used independently and as part of a phraseological unit. However, in a phraseological unit, the numeral loses its numerical meaning, being used in a figurative meaning.

"All numbers come from one, which is equivalent to the mystical, undetected and dimensionless "Luminous Point" and "Higher Power". This number denotes spiritual unity, a common foundation for all beings" [12, 376]. V.Z. Panfilov believes that the initial stage in the process of abstract cognition of a discrete quantity is the formation of the concepts "one" and "more" [9, 340].

The research reflects a variety of interpretations associated with the symbolism of the numeral. In each of these interpretations, the numeral is given properties inherent in either the divine essence, or nature, or man. Belief in a particular number, characteristic of different cultures and religious traditions, was not only often mentioned in religious books, but also found its reflection in architectural monuments and works of art. People of different cultures and religions had not only similar, but also common views. In many ancient



cosmological systems, the universe is based on one or more elements, one or more simple elements. There are serious similarities in the quantitative definitions of the elements. There are basically four of them: earth, water, air and fire. Many modern scientists support the opinion of A. Forke about the four elements [11, 244].

In order to carefully consider the symbolic meanings of numerals in phraseological units in the French, Russian and Uzbek languages, analyze the process of revising the semantics of numerals in the phraseologies of the studied languages and to determine the common and different features of the meanings of subcolloquial mesurative phraseological units in the extralinguistic aspect, we will try to classify them into different groups.

The symbolism of numbers is manifested in world culture in different ways [2, 34]. The culture of the French and Russian peoples differs from the culture of the Uzbek people in socio-historical, religious and other conditions, and this is reflected in the phraseological fund of these peoples. Taking into account the extralinguistic factors that determine the national-cultural specifics, we will try to identify the general and national-specific properties of the symbolism of numbers of genetically different languages. Extralinguistic factors are understood as abstract-sensory representations of different systems, which are reflected and influenced in the language of the people.

As mentioned above, when numerals are used independently, in order to express quantity, they denote the exact number of objects, and when they are used as part of phraseological units as their integral component, they, acquiring a new lexical meaning, perform figurative functions, have a bright stylistic connotation, expressiveness and unique imagery.

Now we will consider the cases of using numerals as part of phraseological units of comparable languages in their own meaning, i.e. expression of the number of objects and phenomena, every day or other events.

1. Numerals in the composition of mesurative phraseological units in the studied languages in their proper meaning are used in cases related to mathematical calculations and computations.

Expression in French *comme deux et deux font quatre* [1, 343]; in Russian *как дважды два четыре* [6,

129] is equivalent to the Uzbek *ikki karra ikki - to'rt* and has the meaning "simple, easy, undoubtedly, reliably to prove, explain, assert convincingly".

2. In the expression of quantity in its direct meaning, the semantics of the numeral is preserved: *one, two* - "a little, in a small amount, approximately";

in French: *un pas* - one step; *un ou deux mots* - a few words;

in Uzbek: *bir qadam* means close distance, close address; *bir chimdim yer* - a small area, place; *bir tutam* [10, 40] - very short, a little time; *bir (ikki) og'iz (gap) so'z* - a few words; *bir damda (bir damning ichida)* - instantly, instantly, immediately, now, immediately; *bir lahzada, bir zumda, bir onda* - in an instant; *bir dunyo* - very much;

in Russian: *один шаг* means a very close, not far distance; *на один зуб* - used ironically or simply about a very small amount of food; *на два слова* - (invite, call) to talk briefly about something.

3. Taking into account the universal meanings, let us consider their use in mesurative phraseological units in a figurative meaning.

In the compared languages, the numerals *one, the first* in phraseological units denote "the beginning of something", "primacy":

in French: *numéro une* - the very first; *premier coup* - first look; *premier main* - first hand; *premier mot* - the first word; *premier mouvement* - first movement; *premier pas* - first step;

in Uzbek: *bir boshdan* - from the very beginning; *bir chekkadan* - in order, in a row; *birinchi qadam* - the first step and others;

in Russian: *номер один* - main, most important, first; *первый шаг* is from the very beginning, immediately.

4. This numeral is used in the composition of the subcolloquial mesurative phraseological units of the compared languages in the meanings "unity", "the same", "the same, equal":

in French: *les uns et les autres* [1, 1074] - everything, anyone; *mille et un* - thousands, all together; *l'un dans l'autre* - to each other; *l'un quelconque* - all together; *n'être qu'un; ne faire qu'un* - to connect, merge into one, make up a single whole;



in Uzbek: *bir go'r* - everything is the same, the same, no difference; *bir turlik*, *bir hil* - one and the same, the same; *ularning hamiri bir*; *hamiri bir joydan olingan* - the same, very similar, of the same cut; *zuvulasi bir yerdan olingan* - the same, one cut; *bir bog'ning mevasi*; *tuprog'i bir joydan olingan* [10, 260] - one berry field; *bir yerdan chiqmoq*, *bir joydan chiqmoq* - of the same opinion; *bir tugunga kelmoq* - come to a common decision, agreement.

In Russian: *один в один* - exactly the same (in size, quality, etc.). As a rule, it is used with the approval of someone, something: *из одного (и того же) теста* - one cut, in character, outlook, in the way of life to someone completely similar; *одним (тем же) миром мазаны* - smears are one feature, of the same sort, similar in qualities, properties, in position; *под одну масть* - similar in some features, the same; *дышать одним воздухом* - 1) live together, hand in hand, with common interests; 2) be in the highest circles.

5. The numeral "one" expresses the smallest unit in the composition of the subcolloquial mesurative phraseological units of the studied languages and gives the phraseological unit the meaning of limitation. In the phraseological units of the studied languages, the numeral "one" acquires the meanings of a plurality, a minority, or its absence:

in French: *être sans un* - without anything; *pas un* - not a penny; *n'en avoir pas un* - not have a penny, sit penniless, very cheap; *pas un iota* - not one iota, not at all, not at all; *Dieu sait* - God knows; *n'en avoir pas la queue d'un* - not to have a penny;

in Uzbek: *bir tutam* - lasting for a very short time, instantly; *bir og'iz so'z* - a few words; *bir tomchi*; *daryodan bir tomchi* - a drop in the ocean, very little; *bir pul*, *bir tiyin (bir tiyinlik foyda)* - a penny, useless; *bir pul bo'lmoq* - to be nullified; *bir pulga arzimaydi* - not worth a penny, not worth a penny; *bir chimdim* - a pinch, one pinch, a little, a little; *bir shingil* - to say a little, a little; *bir chimdim non yo'q* - there is not even a piece of bread at home;

in Russian: *один на другом сидит (сидят)* - about crowding of people; about buildings built next to each other; *ни один черт* - absolutely nothing; *ни на (одну) йоту* - not at all, not at all; *ни на (один) момент* - for a very short time; *ни в одном глазу (глазе)* - at all,

not at all; does not work on him (often about alcohol intake); *один бог знает (ведает)* - no one knows; *раз – два (да) обчелся* - very few, you can count on one hand; *раз за разом* - regularly, one after another, continuously, consistently.

6. The number "one" in the composition of subcolloquial mesurative phraseological units has the meaning of loneliness or kinship:

in French: *un à un* - himself, alone, one by one; *une seule* - oneself, one; *vous êtes unique!* - you are inimitable, you are single; *un parent éloigné* - distant relative; *un proche parent* - close relative;

in Uzbek: *bir jon (bir tan)* - a loner, living, working alone; alone; *qoni bir* - native, relative, blood on the father's side; *bir onadan tug'ilgan*, *bir onani emgan*, *bir tug'ishgan* - maternal relatives, brother (elder, younger), sister (older, younger), blood relatives;

in Russian: *один-одинёшенек (одна-одинёшенька)* - all alone; completely alone; *в одиночку* - 1) without partners; without the participation of others, without the help of others, on their own; 2) himself alone, separately from the others, one at a time; *одной крови (с кем-либо)* - about relatives.

7. In the subcolloquial mesurative phraseological units of the Uzbek language, the number "one", losing the meaning of quantity, expresses the meaning of the qualitative enhancement of action. For example: *bir dam olmoq*; *bir nafas olmoq*, *bir nafasini rostlab olmoq* - to rest; *bir rozi qilmoq* - to express gratitude, to say thank you, to pay with good for good, to reward for services, to thank; *bir urush (bir marta urmoq)* - hit hard; *bir gap bor* - there is something essential, serious.

8. Also in the subcolloquial mesurative phraseological units of the Russian and Uzbek languages there are combinations with the number "one", meaning "end of life, death":

in Uzbek: *bir holda yotmoq (bir holatda yotmoq)* - to be in a serious condition; about a seriously ill person; *bir oyog'i yerda*, *bir oyog'i go'rda bo'lmoq* - life is running out, with one foot in the grave; *bir oyog'i go'rda*; *bir oyog'i bilan go'r ustida osilib turmoq* - to be on the edge of the grave;

in Russian: *стоять одной ногой в могиле* - to live the last days of life, to be close to death. Usually about a sick and old person; *одной ногой в гробу* -



about the imminent death of someone, to be one foot in the grave.

9. In the compared languages, subcolloquial mesurative phraseological units with the “one” component express the concepts of time, age:

in French: *sous un jour nouveau* - in a new light, in a new form; *un jour plein* - during the day; *d'un jour à l'autre* - if not today, then another day, from day to day; *tout d'un temps* - at once, instantly;

in Uzbek: *bir ozdan so'ng* - after some time, a little time later; *bir kuni bo'lmasa, bir kuni* - if not today, then another day, one day, one fine day, someday, sooner or later; *bir-ikki haftadan keyin* - in a few weeks; *bir qarich* [10, 41] - 1) very young, almost a child; one inch tall; 2) a small area, a piece; 3) short distance; *bir-ikki yaktakni ortiqroq yirtgan (kiygan)* - an older person with a lot of life experience;

in Russian: *день - два* - in the near future.

10. These numerals in the studied languages, together with subcolloquial mesurative phraseological units, mean instantaneousness, immediacy, speed, instantaneousness of occurring phenomena or actions performed:

in French: *tout d'un temps* - at once;

in Uzbek: *bir zarb bilan ishni tugatmoq* - to finish the work in one fell swoop; *bir damda (damning ichida); bir lahzada; bir nafasda* - in the blink of an eye; instantly; in an instant; very quickly; *bir og'iz* - to say a few words;

in Russian: *в (за) один прусецт* - immediately, at once, right away, straight away, instantly; *за один прудых* - quickly, quickly, in one movement, in one sitting; one (in one fell swoop) [6, 295]; *кончатъ /одним/ разом* - stop, interrupt something abruptly; *одна нога здесь – другая там* - very quickly; run fast, run with all your might.

The reason for the low productivity of composite numerals in subcolloquial mesurative phraseological units in the compared languages is associated with the semantics and nature of the morphological structure of numerals, their complication reduces phraseological productivity.

Thus, we examined the most frequent lexical and phraseological units with the numeral “one” used in the subcolloquial mesurative phraseological units of the

French, Uzbek, Russian languages as a semantic center. The study of subcolloquial mesurative phraseological units made it possible to conclude that the numeral can express not only quantitative concepts, but also qualitative properties. When analyzing the subcolloquial mesurative phraseological units in the languages under consideration, the meaning of the symbolic number was not determined.

The universality of the meanings of the numbers of the compared languages is manifested in the fact that the cultures of the three nations are not related to each other, not only by similarity in terms of the symbolism of the number “one”, but also by anthropocentric views of the world and the universal system of human development. The peculiarities of the interpretation of the symbolism of numbers are manifested when it comes to abstract-theoretical views and internal figurative-sensory changes in the culture of three nations, i.e. in the events taking place in human life, in natural disasters and historical upheavals that determine the evolution of the concept of number and a change in attitude towards it [8, 170].

In Uzbek phraseology, subcolloquial mesurative phraseological units with the “one” component, used with the verb and used in a figurative sense, have been identified. In these examples, the numeral denotes the intensity, quality of the action and loses its quantitative meaning: *bir rozi qilmoq; bir minnatdorchilik bildirmoq* - express gratitude, say thank you, pay good for good, reward for services, repay; *bir urmoq (bir urishtirib qo'ymoq)* - to hit hard or (jokingly) when a person is offended by someone; *bir gap bor* - means: a serious conversation is ahead with someone or something is hidden in the basis of this.

The analysis carried out involves the study of the semantics of subcolloquial mesurative phraseological units, the mechanisms of nomination and associative links existing in them, the consciousness and properties of the mentality of the three nations, i.e. extralinguistic factors. The value orientations of nations are reflected in the personal and social life of a person and in the awareness of his place in the world. Socio-historical, natural-geographical, religious-ethical and other views of the three nations influenced the semantics of numerals



in the composition of subcolloquial mesurative phraseological units.

This semantic classification is compiled on the basis of common semantic features, thanks to this, volumetric blocks are distinguished on the basis of a commonality of meanings that express conceptual, objective similarity of phenomena. The results of the study are interesting material, in the future they can be used when transforming sentences and replacing one language unit with another. First of all, this concerns the choice of the necessary language structure from the set of existing ones, i.e., the ability to express meaning more accurately and stylistically correct.

Subcolloquial mesurative phraseological units with the components “one” and “two” express the concepts of time, age:

in French: *entre deux âges* [1, 344] - middle age; *de deux jours l'un* - every other day, every two days;

in Uzbek: *bir kuni bo'lmasa, boshqa kuni* [10, 38] - if not today, then tomorrow; one day; *bir-ikki haftadan keyin* - in a few weeks; *bir-ikki yaktakni ortiqroq yirtgan* - an older person with extensive life experience;

in Russian: *день - два* - the nearest future; *без двух дней кто* - became almost someone.

The number “two” in the composition of the mesurative phraseological unit is polysemantic and can express “lack of choice, indecision, hopelessness”:

in French: *être assis (se trouver) entre deux chaise* [1, 343] - sit down, find yourself between two chairs, fall through, sit in a puddle ≈ chase two hares and not catch one; *être cul entre deux selles* - to hesitate, to be indecisive; inability to come to a final opinion; *jouer (miser) sur les deux tableaux* - to play a double game; bet on two horses;

in Uzbek: *bir kesak bilan ikki quyovni urmoq* - to chase two hares, simultaneously pursue two goals; *ikki kemanding boshini tutmoq* - chasing two hares, simultaneously pursuing two goals; *ikki o'yning (hayolning) o'rtasida hayinchak (arg'imchoq) uchmoq*; - to stop half way, not to bring any business to the end; *ikki o'ylanib qolmoq*; *ikki o'yda (hayolda) bo'lmoq* - to hesitate, to be indecisive; *ikki o'rtada qolmoq* - to be between two fires; *ikki qo'lini burniga tiqib qolmoq* - stay (or sit) on the beans, stay with a nose, be left with nothing;

in Russian: *знаться за двумя зайцами* - simultaneously pursuing two goals; *сидеть между двух стульев (двумя стульями)* - in their behavior, actions to be guided by opposite thoughts, views, etc.

Subcolloquial mesurative phraseological units of the French and Uzbek languages with a “two” component also denote hypocrisy, duplicity, someone's two-faced, hypocritical behavior:

in French: *à deux envers* - a hypocrite; *avoir deux cordes à son arc* - to resort to different tricks; have different means to achieve the goal;

in Uzbek: *ikki yuzlik* - a sucker, a hypocrite, a double-dealer, a traitor, a pretender, a bigot;

in Russian: *двуличный Янус* [6, 130] - a double-dealing, a hypocritical person whom you cannot rely on.

In addition to the listed meanings, the number “two” in the composition of the subcolloquial mesurative phraseological units of the languages under consideration expresses the unknown:

in French: *entre les deux* - half-and-half; *c'est entre les deux* - neither this nor that; middle for half; neither two nor one and a half; neither yes nor no; Yes and no; *ne (or n'en) faire ni une ni deux* - do not think for a long time, do not hesitate; without thinking twice, immediately make a decision; *ça (or cela) fait deux (also c'est deux)* - is another matter; they are not the same, they are different things; these are not compatible things;

in Uzbek: *ikki tayin* - it is not known whether it will be or not; *ikki jahon ovora* - neither this nor that; neither fish nor fowl;

in Russian: *ни два ни полтора* - it is not known which; neither this nor that; neither fish nor fowl; *бабушка /еще/ надвое сказала* - it is not yet known whether it will succeed or not; whether it will, or not, it is unlikely to be.

In the compared languages, there are subcolloquial mesurative phraseological units with a “two” component, which mean:

performing two actions at the same time: *nager entre deux eaux* - decomp. hold with the hare and hunt with the hounds; *на два фронта* - simultaneously on two fronts, in two regions, in two directions;

about the actions, activities of smb.: *chasser courir deux lièvres à la fois* [1, 209] - to chase two hares; *bir o'q bilan ikki quyovni ovlamoq* [10, 37] -



убить двух зайцев [6, 130] - simultaneously perform two different jobs, achieve two goals.

Comparison of the mesurative phraseological units of the French, Uzbek and Russian languages with the number “two” indicates that a large number of phraseological units with the component “two” in French and Russian are used in the meaning of “simultaneously pursue two goals”, and in the Uzbek language subcolloquial mesurative phraseological units with this component have the meanings of unknown, uncertainty, abstractness.

Thus, among the French, Uzbek and Russian subcolloquial mesurative phraseological units with the number “two” there are general thematic groups, these are: “lack of choice, instability, indecision”, “concept of time”, “hypocrisy, duplicity, hypocrisy, pretense”, “instantaneousness, momentum, speed of actions performed” and specific groups, for example: in the French and Russian languages “simultaneous performance of two actions”, “similarity, identity”, in the Uzbek language “hostility, enmity, anger, hatred, anarchy, disorganization, fragmentation, uncertainty”.

The concepts associated with numbers have their etymological roots and reflect a certain cultural and historical experience of people. “The concept of number arose from the counting of individual objects and played a large role in the practical activities of people, in which a certain cultural and historical experience of a person is fixed” [3, 47]

So, the analysis of the subcolloquial mesurative phraseological units of the French, Uzbek and Russian languages allows us to conclude that the choice of images is often associated with the national consciousness of each nation, the reflection of which is recorded in the language.

The meanings of “lack of choice, indecision, hopeless situation, withdrawal” can be observed in the subcolloquial mesurative phraseological units of the French, Uzbek and Russian languages at the number “two”. In the studied languages, the numbers “one” and “two” express the concept of time and reflect the instantaneousness and speed of actions performed.

The number "two" has a binary opposition and serves as a symbol of a volatile nature, concern, contradiction, antagonism, opposition.

The number, being a universal symbol, plays a big swarm in symbolism, in rituals, in myths. This connection is perceived by all nations in the same way, since the symbols reach the feelings and emotions of all people, regardless of their race and cultural background. In any language, numerals, in addition to expressing quantity, are characterized by symbolic meaning, a symbol of metaphysical reality, it allows a deeper understanding of the world. Interest in numbers and the interpretation of universality is observed in the cultures of many nations of the world. This phenomenon is associated with myths about the creation of the world, society and the person himself, and with rituals [7, 22].

The research results and the interpretation of the symbolism of numbers have revealed surprising similarities in different cultures. For example, "zero", due to its round shape, can serve as a symbol of the eternity of existence, disappearance, the state of death of a person. The number *zero* expresses not only unity, but also the first impulse, the beginning of action.

Numerals in the phraseological units of the French, Uzbek and Russian languages are used both in direct and figurative meanings. When designating measure, length, weight, etc. they are used in their direct meaning.

Despite this, the meaning of individual symbols may differ in their own characteristics in different cultures. Taking into account the extralinguistic factors that determine the national specificity of the numerical components, their commonality and specificity were revealed in the symbols of the numbers of subcolloquial mesurative phraseological units of unrelated, genetically different French, Uzbek and Russian languages. In the studied languages, numerical symbols appear in a peculiar form. Various systems of abstract theoretical views and sensory representations, different historical destinies of the three nations are reflected in the language. For example, the number “one”, opening an account in mesurative phraseological units, denotes the beginning of an action, acquires the meaning of “union”, homogeneity, small or large amount, or its absence, the end of the life path.

The numeral is a linguistic reflection of the category of quantity, expressing the most common features of life. The category of quantity in this study is



considered as an abstract category, which has found its expression, first of all, in the lexical and grammatical category of the numeral, as a generalized category of thinking. This category of quantity goes through stages of formation, ranging from the determination of the same number of specific objects, to the loss of object meaning by objects and the acquisition of the highest degree of abstractness.

Numerals as a lexico-grammatical group are united according to a common semantic feature, are subject to the concept of quantity and sequence, have a stable and unchanging composition and a limited number of derivatives. This indicates their unproductiveness. Numerals, forming a separate group of words, indicate the number (cardinal numbers) or the order of the sequence (ordinal numbers) of units at the paradigmatic level.

This distinguishes them from the lexical and grammatical classes of nouns, adjectives, adverbs, and in the context the difference between numerals increases: ordinal numbers do not affect the morphological form of the noun they define, while quantitative numbers concretize the plural expressed by the noun paradigm. Ordinal numbers acquire qualitative characteristics, and quantitative numbers express both a definite and an indefinite number. Numerals cannot include words with the meaning of cardinal numbers, i.e., subcolloquial mesuratives, because, in addition to the meaning of the numeral, they have additional semantics – the meaning of objectivity.

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EXCEPTIONAL ABILITIES AND INDIVIDUALS WITH AUTISM. A HISTORICAL ACCOUNT

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ABSTRACT

This paper examines the historical account of individuals with autism and their exceptional abilities (savant skills). It has been mentioned in some research journals regarding the exceptional abilities of individuals with autism spectrum disorder (ASD). These occurrences transpire when individuals with intellectual disabilities, including ASD, may exhibit certain capacities of talent or genius that may differ from the adaptive living skills. One in ten persons with ASD has savant abilities in varying degrees. Academics and scholars used to believe that exceptional abilities or savant skills were irrelevant or insignificant. Nevertheless, savant syndrome has gained more interest in recent years. It is an area for further exploration in terms of research. Academics and scholars are currently trying to comprehend and appreciate the intricacies of the human mind. The savant syndrome is about describing individuals with intellectual difficulties (including ASD) who may also experience and possess astonishing aptitudes in arithmetic, reading, calendar calculations, music or art

KEYWORDS: *exceptional abilities, autism, savant syndrome*

SAVANT SYNDROME

Savant Syndrome is a rare condition in which the individual with different developmental challenges, including ASD, may display areas of brilliance or ability that are in contrast to that individual's general functioning (Finocchiaro, 2015; Pring et al., 2012; Rohan, 2010; Treffert, 2014; Treffert & Wilson, 2016). In addition to ASD, savant syndrome can occur amongst individuals with other developmental disorders, for example, Tourette's syndrome (Darius, 2010; Strauss, 2014). The first account of savant syndrome appeared in a scientific journal in 1783, about an individual called Jeremiah Buxton who was very good at mathematical calculation (Treffert, 2009). Survey studies carried out by Rimland (1978) and Hill (1977) revealed a higher incidence of savant syndrome in populations with ASD than in populations with intellectual impairment.

HISTORICAL ACCOUNTS OF SAVANTS

One of the most famous individuals with ASD is the fictional character by the name of Raymond Babbitt. This character was portrayed by Dustin Hoffman (a Hollywood actor) in the 1988 movie, called the Rain Man. The original inspiration for the movie Rain Man was a real-life savant called Kim Peek. Kim Peek passed away on December 19, 2009 at the age of 58. By the time of his death, Kim had memorized over 6000 books and had an encyclopaedic and in-depth knowledge of geography, music, literature, history, sports and nine other areas of expertise (Hughes, 2012; Peek & Hanson, 2008;

Treffert, 2009; Treffert, 2014; Treffert & Wilson, 2016).

The amalgamation of visual impairment, intellectual challenges and being a musical prodigy is over-represented throughout many reports with regard to the savant syndrome (Denis, 2014; Treffert, 2014). Some of the reports dated as far back as the 19th century. A prominent person was Thomas Wiggins Bethune (1849-1908), also known as 'Blind Tom'. Tom was blind and was born a slave. He travelled together with his Master to different parts of the world to perform (Allen, 2015). Other famous musical savants who are visually impaired include Derek Paravicini, Leslie Lenke, Rex Lewis-Clack and Ellen Boudreaux. Derek, Leslie and Rex were also diagnosed with ASD. This triad of musical genius, visual impairment and intellectual difficulties occurs regularly in savant syndrome (Denis, 2015; Poulin-Charronnat, 2014; Treffert, 2014).

There are few reports of female savants. Some of the more prominent female savants include Henrietta Seth, Ellen Boudreaux, Flo and Kay Lyman (Jeon, 2016). The case of Nadia has generated significant debate about the possible 'trade-off' of special abilities and talents for the acquisition and attainment of language and social skills (Treffert, 2012; Treffert, 2014). Treffert (2014) reported that Nadia was a nonverbal child with ASD who displayed noteworthy artistic prowess in her drawings. However, as she was taught to increase her area of spoken language and social skills, her talent for drawing slowly diminished.

Treffert (2012, 2014) also describes a blind musical savant with ASD called Ellen Boudreaux. In addition to



possessing savant-like qualities in her musical prowess, Ellen displays precise spatial location abilities. Despite her visual impairment, Ellen is able to manoeuvre around rooms without running into objects. While walking, Ellen makes little chirping sounds. This is similar to active sonar, a technique that uses the emission of sounds and listening for echoes. Ellen also has an extremely accurate internal clock. When she was a young girl about eight years old, her mother helped her to overcome her fear of the telephone by persuading her to listen to the automatic time recording (the 'time lady') on the telephone. From that experience, Ellen is now able to tell the exact hour and minute at any time of the day without seeing a clock (Treffert, 2012).

One of the first explanations of savant syndrome was provided in a scientific research paper that appeared in the German psychology journal called *Gnothi Sauton* in 1783 (Deerrose, 2011). This report described the case of Jedediah Buxton who was a human calculator with a superior memory (Deerrose, 2011; DePriest, 2015). Rush (1789), the father of American psychiatry, also provided and delivered one of the earliest accounts of the savant syndrome when he described the speed of mental calculation by a savant named Thomas Fuller. He described Thomas Fuller as someone who had poor comprehension of language and yet could perform complex calculations. Thomas Fuller was once asked the question of how many seconds a man had lived given his age of 70 years, 17 days and 12 hours. Within 90 seconds, Thomas Fuller was able to give the precise answer of 2,210,500,800. He even factored in the 17 leap years that were included during that period (Erickson, Early, Wink, & Erickson, 2013).

One of the first detailed descriptions of savant syndrome was given in London in 1887. At the invitation of the Medical Society of London, Dr J. Langdon Down gave that year's prestigious Lettsomian Lecture. In that address, he revealed that during his 30 years as a medical doctor at the Earlswood Hospital, he had come across a group of patients that he described as interesting and fascinating as they possessed skills that were above their cognitive levels (Puente, Heller, & Sekely, 2016). He said that there was an interesting group of cases for which the term 'idiot savants' had been given and that he had observed their gifts and talents. He then presented ten cases of these individuals that showed many similar and comparable features to cases of savant syndrome. Dr. Down recounted that one of his patients had committed to memory The rise and fall of the Roman Empire verbatim and could recite it backward or forward. He also noted that there were children who drew with extraordinary skills but possessed a childlike mind. He also commented on other children in his case notes who exhibited musical talents, displayed arithmetical genius or presented precise timekeeping skills. The skills and abilities highlighted by Dr. Down are today classified as savant syndrome. Individuals in this category exhibit a combination of special abilities and prodigious type memory.

In the 19th century, the word 'idiot' was a generally accepted term to depict an individual with an intellectual disability or having an intelligence quotient (IQ) of below 25.

IQ is defined as the ability to comprehend elaborate ideas, adapt to the surroundings, overcome challenges, and learn from experience (Yu et al, 2016). The word 'savant', meaning a knowledgeable person, was derived from the French word *savoir*. Dr. Down amalgamated these two words and created the term 'idiot savant' by which the condition was generally known over the next century. While descriptive, the term was misleading since almost all cases occur in individuals who possess an IQ higher than 40 (Bennett & Heaton, 2017; Treffert, 2014). In the interest of precision and to promote self-worth, the term 'idiot savant' has now been replaced by the term 'savant syndrome', which is extensively used in most research journal papers. Savant syndrome is preferred over the term 'autistic savant' because approximately 50% of individuals with savant syndrome have ASD and the other 50% of the reported savants usually have an injury or impairment to the central nervous system (CNS) due to damage or disease (Bennett & Heaton, 2017; Strauss, 2014; Treffert, 2014).

Dr. Tredgold (1914), who was a medical doctor at Earlswood Hospital, penned a very comprehensive and wide-ranging explanation of savant syndrome in his textbook called *Mental Deficiency*. In this popular textbook, Dr. Tredgold described over 20 cases from various clinicians (Strauss, 2014). In 1978, Hill provided a review of the research literature published between 1890 and 1978. This paper also included 60 reports, which involved over 100 individuals with savant skills (Treffert & Rebedew, 2015).

In 1978, the researcher Rimland provided a summary of the data he had gathered on savant skills and special abilities. He had a sample population of 5400 children, out of which 531 were labelled as having ASD. In 1988, Dr Darold Treffert (1988), a researcher who has been studying savants for over 30 years, provided an updated review and evaluation, which contained more details on all the earlier reported cases. He advised and recommended that the name of the condition be altered to savant syndrome.

In 1989, Treffert first published the book, *Extraordinary People*. In this book, he summarized cases that spanned a century, displaying clarifications, observations and research findings and verdicts since Down's 1887 account of this syndrome. In her book, *Bright Splinters of the Mind*, the author Hermelin (2001) summarized the outcomes and verdicts developed from 20 years of research performed by her co-workers and herself.

INCIDENCE OF INDIVIDUALS WITH ASD WHO HAVE SAVANT SKILLS

Rimland (1978) looked at the incidence of savant skills in 5,400 children with ASD whose parents had indicated that their child had a special skill or talent. Rimland collated his data from a questionnaire that the parents had completed. According to Rimland, 531 children with ASD or approximately 10% were reported to have special skills or talents. Other researchers have reported that at least ten percent of the ASD population showed some form of savant skills (Bennett & Heaton, 2017; Bouvet et al., 2014; Meilleur



et al., 2015; Rieznik & Sigman, 2017). Savant skills occur more frequently in males than in females, with an approximate ratio of six to one (Baron-Cohen et al., 2013; Simard-Meilleur, Jelenic, & Mottron, 2014; Treffert, 2014). It was also reported by some researchers in the field of ASD that there is a high incidence of individuals with ASD among the general population of savants. Other researchers have noted that one in 2000 people with intellectual and developmental disabilities has savant skills (Meilleur et al., 2015; Simard-Meilleur et al., 2014; Treffert, 2014; Ward, 2017). Savant skills in the areas of mathematics, art, memory and music have also been noted to be ten times more common in individuals with ASD than in other groups with learning challenges (Bennett & Heaton, 2017; Meilleur et al., 2015; Treffert & Rebedew, 2015).

The definition of a savant can be ambiguous due to the lack of epidemiological investigations, inconsistencies in definitions, a wide variation in diagnostic procedures, and the different age and ability levels of the cases reported over the years. The incidence of savant skills among individuals with ASD is rare (Bennett & Heaton, 2017; Meilleur et al., 2015; Treffert & Rebedew, 2015), and there is little valid information on the incidence rates.

The frequency of savant skills reported amongst individuals with ASD varies between reports (Bennett & Heaton, 2017; Hughes et al., 2017; Shuqin, 2013). There have been a few surveys on this phenomenon. Hill conducted a survey in 1977, and Rimland carried out another one in 1978.

In Hill's study, it was reported that there was an approximate 0.06% occurrence of savants who were intellectually impaired. This incident rate was based on the replies to a survey of 300 public residential facilities for individuals with special needs. This rate of 0.06% is based on the reporting of 54 savants within a population of 90,000 residents. By comparison, in Rimland's study, the findings suggested a 10% occurrence of savant skills amongst the population of individuals with ASD. This suggests that the prevalence of savant skills amongst individuals with ASD is higher than in the population of the intellectually impaired.

There were differences between the two studies that need further critical examination. In Hill's study, caregivers were surveyed, whilst in Rimland's study, parents were surveyed. It was noted by Heaton and Wallace (2004) that parents might sometimes give a more biased positive opinion when reporting their children's skills. It was also noted that in Hill's study, the terminology of savant was not clearly defined, and therefore many of the supervisors in the different institutions had their own operational definitions and interpretations of what a savant should be (Heaton & Wallace, 2004).

Another challenge in accurately determining the co-existence of ASD and savant syndrome is the changes in diagnostic criteria and practice over the past 25 years. Therefore, there is a possibility that many savants with intellectual disabilities were diagnosed before the advent of the ASD diagnostic label (Heaton & Wallace, 2004).

CONCLUSION

Individuals with ASD who display savant skills are a paradox. How can individuals with ASD, who appear to be intellectually challenged in their general independence skills, display savant skills that are far more developed than those of individuals with higher intelligence? What is it about ASD that predisposes individuals with ASD to savant skills? (Bennett & Heaton, 2017; Hiniker, Rosenberg-Lee, & Menon, 2016; Meilleur et al., 2015).

Due to improved diagnostic tools and the expanded definition of ASD, the number of individuals diagnosed with ASD has increased over the past years (Hansen, Schendel, & Parner, 2015; Kroncke, Willard, & Huckabee, 2016; Rudra et al., 2014). Researchers (Bennett & Heaton, 2017; Finocchiaro, 2015; Hughes, 2012; Meilleur et al., 2015; Quirici, 2015; & Treffert, 2014) have implied that there is a higher incidence of savant skills among individuals with ASD. There is no single theoretical framework that offers any logical explanation concerning individuals with ASD who display savant skills. A framework that attempts to explain this phenomenon is the weak central coherence theory, which suggests that a specific perceptual-cognitive style, loosely described as a limited ability to understand context, underlies the central disturbance in ASD (Happé, 2013; Riches, Loucas, Baird, Charman, & Simonoff, 2016; Vanegas & Davidson, 2015). One explanation offered by the weak central coherence theory is that for many individuals with ASD who exhibit savant skills, the manner in which they achieved their savant skill could be from preliminary and initial attention to certain details and segments. This initial attention would lead to the subsequent construction and assembly of integrated pictures, music, calendar structure and the attainment of foreign languages (Happé, 2013; Skorich et al., 2016; Vanegas & Davidson, 2015).

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EMPLOYEE BEHAVIOR IN THE FACE OF COVID-19: STRESS AND COPING MECHANISM

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ABSTRACT

This study investigated the psychological state of employees under the COVID-19 pandemic, the attendant job stress and corresponding coping mechanisms adopted to remain sustainable. The pandemic situation brought operating difficulties and challenges to many industries around the world, and organizational managers are challenged to have the ability to adapt to disasters and recover from such emergencies. We found that through the factors of the organizational culture, the abilities to organize and manage operations, the adaptation capacity as well as coping mechanisms of the organizations affects the development of organizational resilience and consequently sustainability of businesses. Workplace stress is bound to happen more regularly as there may be many stressors in life which range from personal to work-related especially as imposed by the outbreak of COVID-19 pandemic; therefore, it is recommended for modern organizational managers that there should be social support coming from the workplace as integral in helping the employees cope with stress of such nature.

KEYWORDS: *Employee Job Stress, COVID-19 Impacts and Coping Mechanisms.*

INTRODUCTION

The COVID-19 pandemic has affected people worldwide visibly seen in its effect on structures, systems and strategies of organizations; also its impact on people's health and restrictions on people's lives have now spurred organizational managers into strategic actions to ensure survival and sustainability (Edelheim, 2020; Sandhu & Wolf, 2020).

The idea of coping and its mechanism emanates from the concept of resilience and is originated from ecology, and defined as the system that absorbs changes and can continue to develop under disturbances and changing conditions (Holling, 1973).

In the field of business administration, organizations develop resilience in response to competitors' strategy changes and emergent events (Williams & Shepherd, 2016). An organization's capabilities and strategies to face crises affect its sustainable development and increase its chance of survival after crisis (Prayag *et al.*, 2018).

Natural disasters not only cause deaths and injuries to the people, but also change people's living environment and daily routines, resulting in their psychological threat and undermining their subjective well-being (Bonanno *et al.*, 2010; Sandhu &

Wolf, 2020). The Fukushima Daiichi nuclear disaster in 2013 has resulted in serious impacts on the lives and psychological well-being of the disaster victims (Murakami *et al.*, 2020).

From extant research, scholars have seldom studied how disaster threat perceptions may affect the individuals in corporate workplaces, as well as the negative impacts on employees' organizational performance (De Clercq *et al.*, 2017; Toker *et al.*, 2015).

Numerous studies have been conducted among health professionals to evaluate the impact of the pandemic related to job stress, depression, anxiety and insomnia; however, there are not many studies addressing the level of employee fear, irritation and stress, and depression related to uncertainty among the employees in organizations today.

After the outbreak of COVID-19, there are an increasing number of researches on employees' loyalty in organizational citizenship behavior, life satisfaction, and depression (Park *et al.*, 2021; Yan *et al.*, 2021).

The COVID-19 pandemic has affected people's daily life, social life, and consumption patterns (Kim, 2020). For example, people's perception of threats under COVID-19 has increased



the amount and frequency of their alcohol consumption (Rodriguez *et al.*, 2020).

Prior studies also attempt to understand whether fake news content during the COVID-19 pandemic affects people's fears (Ljungholm & Olah, 2020; Sheares *et al.*, 2020). People feel anxious about threat perception, particularly under the threat of COVID-19 (Paredes *et al.*, 2021). Previous literature has suggested that people's anxiety arises from the spread of the epidemic when they do not believe that the epidemic can be controlled effectively, and they would perceive the epidemic as a threat (Goodwin *et al.*, 2021).

Prior researches show that COVID-19 affects people's emotions such as extreme anxiety, fear of disease, depression and psychological stress (Gibson & Janikova, 2021; Phillips & Kucera, 2021; Lewis & Zauskova, 2021). Therefore, it is a very reasonable speculation that people's fear of disease affects their emotions and then affects employees' work psychology; thus, resulting to job stress which forms a negative relationship between the individual and the environment and consequently the work outcomes.

When the individual perceives the job stress to be overwhelming, physical and mental problems may occur (He *et al.*, 2020). French and Kahn (1962) are the first to introduce the concept of job stress into business management. Job stress is produced by the discrepancy between personal ability, external resources, and the job's requirements (French, 1974). Parker and DeCotiis (1983) further defined job stress as an employee's awareness or feeling of personal dysfunction as a result of perceived conditions and the employee's psychological and physiological reactions to feeling uncomfortable, undesirable, or even threatened in the workplace.

COVID-19 has triggered various psychological phenomena such as moral harm, extreme anxiety, fear of disease, depression and acute stress and the epidemic affects the work of corporate personnel insecurity, job instability and job satisfaction (Nemțeanu & Dabija, 2021). This study therefore will help to make up for the gap in the above research. The review of work stress impact resulted from the pandemic and the consequent effect on work outcomes also includes coping mechanisms into the discussion, which is one of the contributions of this research in the academic field. Furthermore, this research can better understand the impact of the epidemic on human psychology, and expand the application of knowledge in the fields of human resource management and stress management in organizations. The findings can provide managerial implications to modern day organizations.

LITERATURE REVIEW

Theoretical Framework

Conservation of Resource Theory (CORT)

The underpinning theory used in the present study is Conservation of resource theory (CORT) given by Hobfoll (1989). The theory explains that people feel stressed when their existing valuable resources are under threat and the new additional resources seem to be unreachable. It could help in understanding how the stressful events like COVID-19 pandemic influences employees and their work and family. Under CORT, all work-related conditions like objects, conditions, personal characteristics are called resources.

Moreover, the theory categorizes 74 resources into different categories, for example, primary resources (like food, shelter or clothing), secondary resources (like social support, belongingness the group, hope and optimism) and tertiary resources (like social status and luxurious life style) (Hobfoll & Wells, 1998). For the present study, the resource list consisted of resources like social support, time, hope and optimism as these resources are threatened by the current crisis leading to stress.

The Conservation of resource theory (CORT) has received a wide acceptance across countries (Halbesleben *et al.*, 2014; Hobfoll *et al.*, 2016; Lin *et al.*, 2019). Studies have tested the theory and found that providing resources like training to enhance the skills of employees (in the form of resource gain) actually result in lower stress and heightened self-efficacy (Chen *et al.*, 2009). The CORT has been applied to promote the public health by proposing a framework to prevent resource loss and maintain the gain by engaging in healthy behavior (Hobfoll & Schumm, 2009).

Similarly, Brummelhuis and Bakker (2012) applied the CORT to examine the work-home conflict of resources and found that personal resources like time and energy can be utilized to improve the overall outcome.

The Concept of Employee Job Stress

Job stress is defined as employee's personal subjective feelings toward the environment. When important goals and results are not achieved, the employees may feel both physical and psychological stress. Moreover, job stress is also the main reason for employees' poor physical and mental health (Parker & DeCotiis, 1983; Haver *et al.*, 2019).

Prior research also verified that employees in the service industry have higher job stress, especially frontline employees, and job stress affects their job satisfaction (Cheng & Yang, 2018; Tongchaiprasit & Ariyabuddhiphongs, 2016).



Specifically, work stress leads to signs of tension, such as physical and mental fatigue, which can cause further conditions, such as obesity, hypertension, diabetes, sleep disorders, anorexia, and muscle stiffening, when symptoms get worse and chronic stress develops (Sobnqwi *et al.*, 2004). In addition, stress can exacerbate mental health issues and cause mental illnesses such as depression (Moudon, 2009). When employees are exposed to stress, direct damage to the company may occur. Tongchaiprasit and Ariyabuddhiphongs (2016) argued that work stress can reduce job satisfaction and increase turnover intention; Kim *et al.* (2015) explained that stress has a negative effect on job attitude; and Akgunduz (2015) reasoned that work stress negatively affects overall job performance. In other words, work stress can be said to be a detrimental negative factor that causes not only physical and mental damage in employees, but also directly affects the company performance.

Perceived Impacts from COVID-19

The impacts of COVID-19 on workers and workplaces across the globe have been dramatic. This broad review of prior research rooted in work and organizational psychology, and related fields, is intended to make sense of the implications for employees, teams, and work organizations. This review and preview of relevant literatures focuses on (a) emergent changes in work practices (e.g., working from home, virtual teamwork) and (b) emergent changes for workers (e.g., social distancing, stress, and unemployment). This broad-scope overview provides an integrative approach for considering the implications of COVID-19 for work, workers, and organizations while also identifying issues for future research and insights to inform solutions.

Emergent Changes in Work Practices

At the same time that COVID-19 abruptly upended normal work routines, it also caused an acceleration of trends that were already underway involving the migration of work to online or virtual environments. A key difference, though, is that WFH was previously often responsive to employee preferences but COVID-19 forced many into Mandatory Work from Home (MWFH), making it difficult to generalize prior findings.

Work from Home (WFH)

A Gartner (2020) survey of 229 human resources (HR) departments showed that approximately one half of the companies had more than 80% of their employees working from home during early stages of the COVID-19 pandemic and estimated substantial long-term increases for remote work after the pandemic. The need for millions of workers to WFH in response to COVID-19 has accelerated recent remote work trends facilitated by the rise of connectivity and communication technologies. While “remote work” is a broader category because it can include “work from anywhere” (i.e., not

necessarily home), it is known that some such as professionals who need to perform complex tasks that require little interaction with peers actually prefer and are more productive if they WFH (Allen *et al.*, 2014). Yet as large numbers of workers are forced to WFH, many face challenges due to such fundamental issues as not having space in one’s home to attend to work. For example, employees who live with others also face a larger set of challenges than those who live alone because they need to navigate others’ space as well.

Employees often find it challenging to maintain boundaries between work and non-work (Ramarajan & Reid, 2013). The forced confinement of workers during the COVID-19 pandemic has further complicated this issue.

While WFH might sound appealing if it offers a safe harbor, the absence of separation between one’s work and home and the lack of commutes to provide a transition between the two domains can become a burden too. Given the likelihood that COVID-19 will accelerate trends toward WFH past the immediate impacts of the pandemic (Gartner, 2020), it is clear that the diversity of work arrangements will need to be studied. Future research should examine whether and how the COVID-19 quarantines that required millions to WFH affected work productivity, creativity, and innovation.

Independent from challenges that individuals can face when WFH, it is also notable that (a) the reluctance of many employers to adopt WFH before COVID-19 stemmed from a perceived lack of control that employers would have over employees who were out of sight and reach and (b) there is ample reason to expect that new modes of surveillance will accompany various WFH arrangements. Indeed, even before COVID-19, employers were adopting and developing technologies to monitor employees’ whereabouts (e.g., with socio-metric sensors; Bhave *et al.*, 2020). Although managing-by-walking-around is not feasible when people are working remotely, the rapidly expanded usage of videoconferencing has allowed for virtual sight lines. Yet these virtual sight lines are fraught with a risk as they increase perceived stress and invade privacy. There is also evidence that such remote and automated monitoring can lead to the centralization of decision-making and (in the absence of countervailing action) contribute to lower creativity among employees working in lower organizational levels (Nell *et al.*, 2020).

Virtual Teamwork

Increased virtual teamwork emanated as a result of COVID-19 and has been observed to affect helping and pro-social behavior in organizations. As COVID-19 has accelerated the expansion of virtual teams, it will be valuable for organizational managers to track and study innovations that may enable such teams to



function optimally. For example, the intersection of remote work with a global crisis brings up questions of how emotions, such as anxiety and stress, can best be communicated and regulated in the unique setting of virtually connected work where social and emotional cues are relatively limited (Lindebaum *et al.*, 2018).

On the other hand, there are prior studies showing that teams operating online tend to be more effective at brainstorming than face-to-face teams (DeRosa *et al.*, 2007). In contrast, research focused on individual performance has shown that remotely interacting teammates appear to miss the creative benefits that can flow from frequent face-to-face interactions (Allen *et al.*, 2015). The rapid growth in virtual teams offers an opportunity to examine new questions as well as develop interventions to help improve teamwork in virtual settings; and, in that pursuit, close attention needs to be paid to the multidimensional ways in which virtuality varies among remote teams (Mak & Kozlowski, 2019). The burgeoning area of research on teamwork in health care settings (Salas *et al.*, 2018) where doctors and nurses in emergency rooms have long been working with each other behind masks offers a valuable model for teamwork that is not directly face to face.

Virtual Leadership and Management

The role of leaders to determine organizational outcomes that have a broad impact on employees at all levels is especially clear in the crucible of a crisis and certainly vital in fundamental ways. With the COVID-19 crisis requiring millions of employees across different hierarchical levels to WFH, it is reassuring to know that leadership can also work effectively from a distance (Antonakis & Atwater, 2002). Prior research shows that successful leaders are those skilled in a domain to make the right decisions and provide reassurance through a balanced mix of optimism and realism regarding the future. In other words, effective leaders strive (in any time period) to project vision a symbolic state of affairs with which the collective identifies—and to reify it (Antonakis *et al.*, 2016).

Another possibility, which future research should examine, is that the move to high-virtuality work arrangements will foster more participatory relationships given that physical cues of dominance (e.g., size) are less salient in virtual environments.

Research on the effectiveness of leaders during and after the COVID-19 crisis should examine an array of activities, including the degree to which remote leaders are persuasive if they (a) clearly state their values that will guide institutional actions, (b) understand and openly discuss the travails and hopes of their collectives, (c) clearly communicate an ambitious vision of the direction that the unit will head toward, and (d) demonstrate confidence that strategic goals can be achieved.

These skills are referred to as charisma (Antonakis *et al.*, 2016) and require domain expertise as well as training and investment. Indeed, crises can bring about changes in leadership styles (Stoker *et al.*, 2019); thus, firms can expect to be better prepared by ensuring that they have adequately invested in professional development. Future research should estimate if and how organizational commitments to employees' professional development during the crisis pay later dividends. At a more basic level, it will be important to assess how COVID-19-induced changes in training programs (i.e., moving online) will affect the accessibility, efficiency, and efficacy of such programs (Cascio, 2019; Salas *et al.*, 2012).

Among the more specific leader-subordinate activities that will be important to consider in relation to COVID-19 is how assessment and appraisal systems will function. For example, without being able to directly monitor subordinates in the way that office settings allow, there may be a shift to results-focused assessment, which prior research shows to be generally effective (Pritchard *et al.*, 2008).

Over longer spans of time, though, working remotely may reduce the opportunities for subordinates to gain feedback from leaders and prior research suggests that a lack of learning opportunities is associated with lower organizational commitment and higher risk of turnover (Vandenberghe *et al.*, 2019). In addition, future research should examine how trust can be built remotely with online interactions so that newcomers are not disadvantaged due to the lack of face-to-face interactions with their supervisors (Dunbar, 2018).

Emergent Changes for Workers

In addition to the immediate impact of COVID-19, there is also likely to be a diverse range of social-psychological, health-related and economic costs of the pandemic for individuals, including for those (a) whose work was made virtual or remote, (b) who continued as "essential" workers, and (c) who were laid off either temporarily or permanently.

While the previous section on work practices focused on those whose work was made virtual, this section as well as the rest of this article have broad relevance for everyone affected by COVID-19, including essential workers and those who have been laid off.

Coping Mechanisms and Resources

In the face of these attendant realities, coping mechanisms at the disposal of organizational managers include proactive organizational resilience, which is to build organizations' readiness for changes, and reactive organizational resilience, which is to respond to and recover from crises (Jia *et al.*, 2020). In addition, some scholars have defined resilience as leadership and management, core competence of staff, market sensitivity,



situational awareness, and preparedness plans (Tibay *et al.*, 2018).

Resilience of an enterprise during a crisis is very important for coping mechanisms, crisis management and survival of the enterprise. Organizational resilience affects the organization's adjustment of operating strategies during a crisis, and also affects employees' work experience and pressure in the organization (Tibay *et al.*, 2018). Scholars have indicated that companies should focus on building complete resilience of mobility, rather than building step-by-step planning capability (Somers, 2009).

Organizations demonstrate their resilience in an uncertain environment by adjusting their strategies, cooperating with their strategic partners, employee participation, continuous innovation and learning, and changes in management as the environment changes (Melian-Alzola *et al.*, 2020)

Accordingly, stress management is essential for consistent performance, and leaders help staff members cope with stress during uncertain situations (Jyoti & Bhau, 2017). The role of leaders influences workplace stress. Supportive leadership behaviors help subordinates manage stress and deal with ambiguous situations (Abbasi, 2018). Moreover, training programs enable individuals to shift the mindset for stress management (Jamieson *et al.*, 2018) by being mindful about the current situation rather than reacting emotionally. A "stress optimism mindset" can be developed to positively manage stress level (Crum *et al.*, 2017).

Meanwhile, employment insecurity due to the economic crisis during and after the pandemic was observed as a potential stressor (Giorgi *et al.*, 2020; Wilson *et al.*, 2020) that adversely affected employee wellbeing and productivity. These findings underpin the relevance of examining the integrated effect of leadership behaviors, e-training, and employment security to manage academic staff's stress level and performance during the phase of virtual transformations. However, there is a gap in the current literature on leadership behavior, e-training, and employment security for academic staff during the pandemic crisis.

A review of the available literature revealed that research on leadership behaviors in the educational context is scarce. Most studies have been conducted in traditional and non-virtual scenarios (Hallinger *et al.*, 2020). Rare studies examined different aspects of leadership behaviors and practices in the educational context, for instance, instructional leadership (Liu & Hallinger 2017), contextual leadership (Noman *et al.*, 2016), and the role of leadership in financial management (Myende *et al.*, 2018). Meanwhile, there is a lack of studies, which addressed

the role of leaders in managing performance of academic staff at the virtual workplace.

Based on the statement of Wieczorek and Manard (2018), more research is required on leadership experience with respect to the challenges posed by emerging policies and economic strains (Hallinger *et al.*, 2020).

A conceptual framework is developed based on the input-process-output (IPO) model and integrated with the JD-R theory. This conceptual model extends the understanding that tolerance of work transition, complexity, work burden, skill discretion, and the physical environment are job demands during the pandemic crisis that cause employees stress, anxiety, and burnout. Meanwhile, leadership behaviors, e-training, and employment security are some of the job resources that serve as input in the process of stress management; hence, productivity, adaptability, and performance are key outputs.

FINDINGS

When organizations face an externally unfavorable business environment, organizational leaders and managers put up resilient strategies in order to cope with the realities of turbulence and this consequently would elicit a positive impact on employee psychology. Therefore, business managers are expected to always promote resilience in order to effectively respond to changes in the environment, and more importantly, enhance morale of employees. During an epidemic such as the COVID-19 case, companies can reduce the work pressure, job stress of employees, thereby increasing job satisfaction and reducing turnover.

Previous research found a significantly positive relationship between coping mechanisms and resilience of organizations. We corroborate in the same view, thus, through the factors of the organizational culture, as well as the abilities to organize and manage operations, the adaptation capacity of the organizations affects the development of resilience and sustainability of organizations.

CONCLUSION

COVID-19 has brought operating difficulties and challenges to many industries around the world, and organizational managers must have the ability to adapt to disasters and recover from emergencies. The uncertainty arising from the pandemic is the main factor that causes the stress of employees. High stress level affects productivity, reduces employee job satisfaction and organizational trust, which may result in the failure of the entire organization. Therefore, organizations need to tackle the problem through identifying employee stress level, its causes and finding solutions to resolve the situations. Thus, the need for various modifications for organizations and individuals to cope



up in the face of this turbulence to have an insight on how to adapt to these changes and challenges has become more than ever before necessary.

Recommendations

Workplace stress is bound to happen more regularly as there may be many stressors in life which range from personal to work-related especially as imposed by the outbreak of COVID-19 pandemic; therefore, it is recommended for modern organizational managers the following;

- i) There should be social support coming from the workplace as integral in helping the employees cope with stress.
- ii) There should be a strong social network at the workplace can play a crucial role in addressing high-stress levels.
- iii) It is pertinent to establish a trustworthy relationship and create a conducive work environment for openness. An environment with strong social bonds among the employees who empower and support each other will undoubtedly help reduce stress levels through sharing.
- iv) Though the findings suggest that managerial support is valued the most, formal employee assistance programs were non-existing in almost all the organizations.
- v) The wellbeing of the employees could be significantly impaired if the organization does not have strategies to reduce the stressful conditions in their company.
- vi) There should be flexibility and IT assistance as the main elements of support provided by organizations by actually investing in fostering creativity and being more compassionate with the employees.

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UNDERSTANDING CUSTOMER SATISFACTION OF ELECTRONIC BANKING: AN EMPIRICAL STUDY IN DAKSHINA KANNADA DISTRICT OF KARNATAKA STATE

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ABSTRACT

Since e-banking plays a critical role in boosting organisational profitability and customers' satisfaction and loyalty, the quality of e-banking services is crucial in e-banking studies. Today, the growing digitalization forces the service sector, such as banks, to offer e-banking services or online banking in order to gain a competitive advantage and dedicate much market share for themselves. When analysing the significance of e-banking services in the present-day context, the objective of the study is to investigate the factors influencing customer satisfaction with e-banking. The research indicates there is a negative influence on privacy and a positive association between the dependent and independent variables related to website quality, service quality, security, and customer satisfaction.

KEYWORDS: E-banking, Website/Content, Service Quality, Security, and Privacy.

I. INTRODUCTION

The development of the technology-based system has created a completely new way for businesses to interact with their customers. The service sector, more specifically the banking sector, has seen a significant change as a result of this innovation in how they interact with their customers. In order to attract tech-savvy customers, improve business opportunities, and maintain customer loyalty, the banking industry has made the most of this expansion by building a range of distribution channels (Raza et al., 2020). The rapid advancement of information and telecommunications technology transcends time and space, considerably improving and facilitating the execution of financial or banking activities throughout the world. This integration has resulted in the rise of Electronic banking.

Electronic banking is a kind of banking activity that offers and executes financial services to both individuals, businesses and corporate organisations via the use of telecommunications media (electronic support). Electronic banking entails carrying out financial transactions using information and communication technology.

Customers may access information and services related to banking, as well as interactive communications and other advantages, all while having access to worldwide connection.

The services eliminate paper documents and manual processing of bank transactions. It provides online payment methods that allow for direct transfer of funds, and e-banking greatly accelerates financial transactions and adopting innovative business models. It keeps minimum operating expenses. Finally, the development of a creative image for the banking system that offers its customers the newest technical solutions (Milan et al., 2011). Customers receive advantages from the e-banking system in the form of high-quality services. E-banking offers cashless services such as ATMs, mobile banking, phone banking, internet banking, Electronic Fund Transfer (EFT), debit and credit cards, NEFT, and RTGS (Prasad* et al., 2019).

II. LITERATURE REVIEW

Elizabeth (1999) researched the most recent electronic services offered by retail banks in the UK and the Republic of Ireland. She also identified how the banks implemented their innovative offerings, their organisational approach to innovation, and their perception of the market both now and in the future. The adoption of three E-Banking technologies, including automatic bill payment, phone banking, and personal computer banking, was examined by Kolodinsky (2004). The study found that adoption is influenced by six factors: relative benefit, complexity/simplicity, compatibility, observability, risk tolerance, and product engagement. The



study came to the conclusion that while trialability, simplicity, observability, risk, and safety are not significant with E-Banking technologies, relative, advantage, and compatibility are significant. Yang et al. (2007) highlighted the present trend and growth of E-Banking application in rural regions, as well as the economic impact on local financial institutions. The findings revealed that small and local community banks now have a lower percentage of E-Banking customers' awareness. As a result, the researcher agrees with the notion that the introduction of new E-Banking services would lower banks' operational costs, save time, eliminate paper, and boost customer happiness. Small and community banks should accelerate their efforts to adopt new technologies such as mobile banking, online banking, and anyplace banking, among others. Tsoukatos (2008) analysed the fundamental factors of consumers' perceptions of E-Banking services, investigated the impact of service improvement on customer satisfaction, and assessed banks' performance in key E-Banking excellence categories. Personalized service, innovation, accessibility and convenience, and transaction security were highlighted as four electronic banking aspects in the study. The survey discovered that customers' perceptions of banks fall short of being in sync with their customers' expectations across all services, and it also indicated that specific emphasis should be placed on increasing ATM security and educating new customers. Ching Poon (2008) investigated customer adoption of electronic banking services in Malaysia. The study identified eleven characteristics, including ease of use, accessibility, feature availability, bank management and image, security, privacy, design, content, speed, and taxes and charges. According to the findings, out of 10 variables, accessibility, ease of use, design, and content are the most important sources of satisfaction, while privacy and security are the most important sources of dissatisfaction. However, the availability of features, speed, service prices, and bank management are all threats to the viability of E-Banking services. As a result, the researcher must determine the level of satisfaction with security in E-Banking services. Gbadeyan and Akinyosoye (2011) examined how the quality of e-banking services affected users' decisions about which banks to use. The approach of stratified sampling was used. It was determined that E-Banking has developed into a significant phenomenon in the banking industry and will continue as information and communication technology develops further. According to the study, several security measures should be implemented, including the usage of alphanumeric one-time passwords, encrypted software installation, frequent password changes, customer identity card verification systems, and one-time passwords. These, according to Wang & Emurian (2005), can provide the user with a good impression of the website and may significantly affect their level of satisfaction when using

it. In particular, website design refers to all customer-interactive elements of the website, such as user navigation, providing adequate information & customer order processes, information content, information nature, & the type of graphics are other components of this indication that in turn favourably affect e-satisfaction. Sathiyavany. N and Shivany. S (2018) E-services must be distinguished from conventional, physical services. When it relates to this issue, traditional services have the following features: availability of core services, facilitating services, supporting services, and complementary services; and quality is determined by how well customers perceive the services. In contrast, e-services have features that allow for highly personalised internet communication based on multiple factors. According to research by Kua et al. (2009) on consumer demands for international electronics, buyers pay a lot of attention to issues of security and privacy while making purchases.

III. OBJECTIVES OF THE STUDY

To investigate the impact of demographic characteristics on various parameters that contribute to satisfaction.
To investigate the factors influencing customer satisfaction with e-banking.

IV. HYPOTHESES OF THE STUDY

Hypothesis 1: web design and content quality has a significant effect on customer satisfaction.
Hypothesis 2: service quality has a significant effect on customer satisfaction.
Hypothesis 3: perceived security has a significant effect on customer satisfaction.
Hypothesis 4: perceived privacy has a significant effect on customer satisfaction.

V. METHODOLOGY

Nationalized banks i.e. State bank of India, Bank of Baroda and Canara bank customers in the Dakshina Kannada district were treated as the population study, which is treated as an infinite population in this study, constituting the statistical population of the current study. 400 people are selected as the sample size, and their data form the base of the research. Convenience random sampling was employed in this investigation due to the homogeneity of the units in the statistical population. In this strategy, there is a fixed and equal probability that each member of the statistical population will be chosen to participate. In order to evaluate the reliability of the scale, the reliability coefficient was determined. The Cronbach's alpha value, which was found to be 0.79, it showed the general acceptability of the reliability of this scale.

VI. ANALYSIS AND INTERPRETATION

A. Percentage Analysis

Table 1: Respondents' Demographic characteristics

	Demographic profile	Frequency	Percentage
Age	18-30	191	47.75
	31-40	135	33.75
	41-50	48	12.00
	Above 51	26	6.50
Gender	Male	248	62.00
	Female	152	38.00
Education	Below graduate	152	38.00
	Graduate	223	55.75
	Above graduate	25	6.25
Occupation	Private sector	261	65.25
	Government sector	91	22.75
	Self-employee/ Business	48	12.00

Source: primary survey

The above table, the respondents are categorised according to their age, gender, education and occupation. Here it is clearly shown that the majority of respondents are between 18-30

ages, in gender where majority are male, in education qualification where they belonged to graduate and whereas majority responded comes under private sector.

B. Descriptive Statistics

Table 2: Descriptive statistics of research variables

Variable	Quantity	Min.	Max.	Mean	Standard Deviation	Variance
Website and Content	400	1.49	5.00	3.612	0.853	0.728
Service quality	400	1.70	5.00	3.561	0.847	0.720
Perceived Security	400	1.00	5.00	3.705	0.805	0.648
Perceived Privacy	400	1.50	5.00	3.816	0.785	0.617

The attributes of a sample or data set, such as a variable's mean, S.D., are described or enumerated using descriptive statistics. Based on the above findings, it can be concluded

that, out of all the variables, the variable relating to Perceived Privacy has the greatest mean (3.816), while the variable relating to Service quality has the lowest mean (3.561).

C. Inferential Statistics

Table 3: Hypotheses and results

Series. No	Hypothesis	Path coefficient	Significance	Result
H1.	Web design and content quality has a significant effect on customer satisfaction.	0.302	4.281	Confirmed
H2.	Services quality has a significant effect on customer satisfaction.	0.655	10.773	Confirmed
H3.	Perceived security has a significant effect on customer satisfaction.	0.175	2.187	Confirmed
H4.	Perceived privacy has a significant effect on customer satisfaction.	0.052	0.744	Rejected

Hypothesis 1 Results showed a strong and substantial relationship between website content quality and customer satisfaction, with an impact factor of 0.302 and a T-value of 4.281(P-Value=0.05). Therefore, it is advised that banks enable customers to discover their preferred bank website content in the E-banking website and also exert effort to make the content of the website relevant. It is advised that banks make their website easy to navigate and work to uphold the promises stated on their e-banking website.

Hypothesis 2 results showed a strong and substantial relationship between website content quality and customer

satisfaction, with an impact factor of 0.655 and a T-value of 10.773(P-Value=0.001). It is advised to banks that the E-banking system should be prepared to respond to customers' requests and that banks endeavour to ensure that the e-banking system gives each customer individual attention.

Hypothesis 3 results showed a strong and substantial relationship between website content quality and customer satisfaction, with an impact factor of 0.175 and a T-value of 2.187 (P-Value=0.05). Therefore, it is advised that banks take the required security precautions to safeguard the information of their e-banking customers. They should also work to



develop an e-banking website that can authenticate users' identities in order to meet security goals.

VII. DISCUSSION & CONCLUSION

The objective of the study is to find out the link with factors of website quality, service quality, security, and privacy between customers satisfaction. Impact of E-banking on customer satisfaction is taken into consideration. The sample size was 400 who were users of E-banking. The independent variables were set as website quality, service quality, security, and privacy. Whereas, dependent variables were customer's satisfaction. After the research, we have found that there exists a positive relationship between dependent and independent variables on website quality, service quality, security and

Hypothesis 4 results showed a negative relationship between Perceived privacy and customer satisfaction, with an impact factor of 0.052 and a T-value of 0.744.

negative impact on privacy. Based on the findings, it can be concluded that the customers in the Dakshina Kannada Taluk of Karnataka, build their perceptions based on the interactivity of the E-service.

Every culture places a high value on customer service since it has shaped how consumers perceive E-banking and, therefore, how they use it. For managers and e-retailers looking to capture the retailing sector, this study report is helpful.

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PERCEIVED STRESS, JOB SATISFACTION, AND ORGANIZATIONAL SUPPORT: A CAUSAL MODEL ON COMMITMENT OF WORKERS IN TOURISM INDUSTRY DURING COVID-19 PANDEMIC

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ABSTRACT

The primary purpose of this study is to recognize what model best fits organizational commitment. The study surveyed 400 respondents who answered a validated adapted questionnaire. The study employed mean, Pearson R, regression and SEM as statistical tools. The study revealed that the highest level of COVID-19 induced stress is perceived self-efficacy. On the other hand, the study shows the high level of organizational support in terms of individual as a person, and individual's productive worth. Moreover, organizational commitment is described as high. Meanwhile, the results suggests that the variables are correlated with one another. Furthermore, organizational support is the exogenous variable that best influences organizational commitment. There are five alternative models tested to achieve the best fit model of organizational commitment. The findings suggest that organizational commitment of tourism workers was best anchored organizational support.

KEYWORDS: COVID-19 induced stress, job satisfaction, organizational support, organizational commitment, quantitative, correlation, regression, SEM, Davao City, Philippines

INTRODUCTION

The lack of organizational commitment is brought by decreased job satisfaction and lack of organizational support (Al-Jabari, & Ghazzawi, 2019). When employees are not committed to the organization, it gives adverse influence on an organization's effectiveness and lack of performance among team members. Dysfunctional and less committed employees fail to make decisions leading to slower organizational development (Agarwal & Soni, 2018). Poor organizational commitment may lead to absenteeism, low employee productivity and poor team players. Employees who feel less committed are susceptible to leave the organization (Gössling, Scott, & Hall, 2020).

On the other hand, ambiguity and volatility are the new patterns in today's work setting. Take for example, the unpredictability brought by COVID-19 causes a heightened level of anxiety and stress for employees as they try to reach their professional goals. COVID-19 pandemic has tremendously impacted the various components under the umbrella of the tourism industry. Tourism workers in various sectors such as hoteliers, airline personnel, entertainers, travel intermediaries and many more are losing their organizational commitment as

results of the 2019 pandemic reducing employment hours and salaries and workers' unpaid leaves (Fernandes, 2020). Even the cruise ship sector has fallen dramatically as the industry is struggling to stay in operation where employees' job satisfaction is affected leading to the loss of organizational commitment (Gössling, Scott, & Hall, 2020). It is not surprising that the tourism workers are facing high level of anxiety, stress, and difficulties. Front-liners in the tourism industry are facing pressure in dealing with customers in this time of pandemic like the wearing of latex gloves and face masks to mitigate the anxiety of getting the virus. With this, employees' commitment to the organization is affected (Hartman, & Nickerson, 2020).

Despite the efforts of the public authority in providing advice and updated information on COVID-19, few efforts have been directed towards studying the impact of COVID-19 pandemic to tourism employees. Several studies were focused on the effect of stress to job satisfaction, organizational support and organizational commitment, however, there were few studies related to the stress-induced impact brought by the COVID-19 pandemic. Studies that investigated the perceived level of stress among tourism/ hospitality employees during the COVID-19 pandemic remain limited. In the light of these views,



the researcher is driven to establish the influence of stress-induced impact of COVID-19 pandemic towards job satisfaction and organizational support. Further, the researcher is prompted to determine which domain of job satisfaction and organizational support best influence organizational commitment. Lastly, the researcher aims to recognize what model best fits organizational commitment.

METHOD

Presented in this table is the methodology that enabled the researcher to come up with accurate findings. This portion consists of research design, research locale, population and sample, research instrument, data collection statistical tools, and ethical consideration.

The researcher utilized a quantitative, non-experimental research design using the descriptive-correlational technique. Quantitative researches were being used to determine how and why things differ; and examine how these vary from one variable to another variable. Correlational research was also used in this study to determine the relationship between the variables. Further, the design allowed the researcher to collect much more data than doing experiments and determine the strength and direction of the relationship (Curtis, Comiskey, & Dempsey, 2016). The primary objective in utilizing quantitative, non-experimental design is to establish the influence of COVID-19 induced stress on organizational trust, job satisfaction and self-esteem and the influence of organizational trust, job satisfaction and self-esteem on organizational commitment.

Davao City is a highly urbanized city in the island of Mindanao in the Philippines. It is the largest city in the Philippines in terms of land area, and the most populous city in

the country outside Metro Manila. It is geographically situated in the southeastern portion of the island of Mindanao on the northwestern shore of Davao Gulf opposite of Samal Island.

The researcher had 400 respondents out of the 4,424 tourism frontliners in Davao City (Department of Tourism-Davao, 2022). The sample size satisfied the requirement of social science research as stated by Pinsonneault and Kraemer (1993), and higher than the acceptable range as proposed by Sekaran where a sample size larger than 30 and less than 500 is the most appropriate for social researches (Noor, 2011). Further, the number of respondents appears to be acceptable in the recommended sample size when calculated using raosoft.

In this research, the researcher adapted the questionnaires based on the readings and researches from books and the internet. Also, the instrument was subjected to Cronbach Alpha test to establish the reliability of the questionnaire.

Statistical Tools

Mean, Pearson r, regression and SEM were used in giving the solution to the problem.

Ethical Consideration

The researcher observed full ethical standards in the conduct of the study following the study protocol assessments and standardized criteria, particularly in managing the population and data.

RESULTS

Presented in this chapter are the results and interpretations of the data gathered.

COVID-19 Induced Stress

Table 1

Level of the COVID-19 Induced Stress

Indicators	SD	Mean	Descriptive Level
Perceived Helplessness	0.83	2.45	Low
Perceived Self-efficacy	0.77	2.29	Low
Overall	0.74	2.37	Low

Table 1 presents the level of feeling stressed in this time of COVID-19 pandemic which is measured by two indicators, namely: perceived helplessness and perceived self-efficacy. These two indicators generated an overall mean of 2.37 described

as low. This means that the feeling of being stressed in this time of COVID-19 pandemic in terms of perceived helplessness and perceived self-efficacy is seldom manifested.



Job Satisfaction

Table 2
Level of Job Satisfaction

Indicators	SD	Mean	Descriptive Level
Pay	0.85	3.76	High
Promotion	0.94	3.71	High
Supervision	0.87	3.91	High
Fringe Benefits	0.85	3.84	High
Contingent Rewards	0.86	3.90	High
Operating Conditions	0.82	3.73	High
Co-workers	0.86	3.79	High
Nature of Work	0.82	4.06	High
Communication	0.76	4.03	High
Overall	0.71	3.86	High

Table 2 shows the level of job satisfaction, which is measured by pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, co-workers, nature of work, and communication. These indicators obtained an overall rating of 3.86 described as high. This means that tourism workers in Davao City are highly satisfied in terms of pay (m=3.76), promotion (m=3.71), supervision (m=3.91), fringe benefits (m=3.84), contingents rewards (m=3.90), operating conditions (m=3.73), co-workers (m=3.79), nature of work (m=4.06), and

communication (m=4.03).

Organizational Support

Table 3 shows the level of organizational support in terms of individual as a person, and individual's productive worth. The overall rating for organizational support is 3.76 which is described as high. This means that the overall organizational support is often manifested.

Table 3
Level of Organizational Support

Indicators	SD	Mean	Descriptive Level
Individual as a Person	0.75	3.92	High
Individual's Productive Worth	0.85	3.60	High
Overall	0.75	3.76	High

Organizational Commitment

Table 4 shows the level of organizational commitment in terms of affective commitment, normative commitment, and continuance commitment. These indicators generated an overall

mean of 3.77 which is described as high. Affective commitment (m=3.78), normative commitment (m=3.79), and continuance commitment (m=3.74) are described as high.

Table 4
Level of Organizational Commitment

Indicators	SD	Mean	Descriptive Level
Affective Commitment	0.79	3.78	High
Continuance Commitment	0.77	3.79	High
Normative Commitment	0.81	3.74	High
Overall	0.75	3.77	High

Significance on the Relationship between COVID-19 Induced Stress and Job Satisfaction

Exhibited in Table 5.1 is the significance on the relationship between COVID-19 induced stress and job

satisfaction. With an overall r-value of -0.557 ($p < 0.05$), it shows that there is a strong negative relationship between COVID-19 induced stress and job satisfaction.



Table 5.1

Significance on the Relationship between COVID-19 Induced Stress and Job Satisfaction

COVID-19 Induced Stress	Job Satisfaction									
	pay	promotion	Supervision	Fringe benefits	Contingent rewards	Operating conditions	Co-workers	Nature of work	Communication	Overall
Perceived Helplessness	-.606	-.050	-.488	-.556	-.485	-.607	-.602	-.512	-.553	-.655
Perceived Self-efficacy	-.598	-.534	-.528	-.575	-.544	-.557	-.590	-.580	-.613	-.683
Overall	-.651	-.559	-.548	-.612	-.555	-.630	-.645	-.590	-.630	-.723

Significance on the Relationship between Organizational Support and COVID-19 Induced Stress

Reflected in Table 5.2 is the significance on the relationship between organizational support and COVID-19 induced stress. With an overall r-value of $-.624$ ($p < 0.05$), it shows that there is a strong negative relationship between

organizational support and COVID-19 induced stress. The alternative hypothesis, according to which there is a significant relationship between the variables, is accepted in place of the null hypothesis. The findings imply that there is a correlation between the organizational support and COVID-19 induced stress.

Table 5.2

Significance on the Relationship between Organizational Support and COVID-19 Induced Stress

Organizational Support	COVID-19 Induced Stress		
	Perceived Helplessness	Perceived Self-efficacy	Overall
Individual as a Person	-.569**	-.632**	-.648**
Individual's Productive Worth	-.652**	-.643**	-.700**
Overall	-.658**	-.685**	-.726**

Significance on the Relationship between Job Satisfaction and Organizational Commitment

Reflected in Table 5.3 is the significance on the relationship between job satisfaction and organizational commitment. With an overall r-value of $.598$ ($p < 0.05$), it shows that there is a strong positive relationship between job satisfaction and organizational commitment. The null hypothesis which states that there is no significant relationship between

organizational commitment and job satisfaction is rejected.

The findings imply that there is a correlation between the factors. When the indicators of job satisfaction were correlated with the indicators of organizational commitment, r-values ranged from $.313$ to $.704$ with $p < 0.05$, hence, it is significant. Simply put, job satisfaction affects organizational commitment.

**Table 5.3***Significance on the Relationship between Job Satisfaction and Organizational Commitment*

Job Satisfaction	Organizational Commitment			Overall
	Affective Commitment	Continuance Commitment	Normative Commitment	
Pay	.625** .000	.313** .000	.382** .000	.440** .000
promotion	.593** .000	.547** .000	.621** .000	.587** .000
supervision	.577** .000	.571** .000	.598** .000	.582** .000
fringe benefits	.587** .000	.620** .000	.625** .000	.611** .000
contingent rewards	.625** .000	.623** .000	.630** .000	.626** .000
operating conditions	.548** .000	.631** .000	.644** .000	.608** .000
co-workers	.563** .000	.602** .000	.641** .000	.602** .000
nature of work	.674** .000	.597** .000	.648** .000	.640** .000
communication	.698** .000	.650** .000	.704** .000	.684** .000
Overall	.610** .000	.573** .000	.611** .000	.598** .000

Significance on the Relationship between Organizational Support and Organizational Commitment

Reflected in Table 5.4 is the significance on the relationship between organizational support and organizational commitment among the tourism workers in Davao City. It can be gleaned from the result that there is a strong positive relationship

between organizational support and organizational commitment as reflected by the $p < 0.05$ and a correlation coefficient of .787. Hence, the null hypothesis that there is no significant relationship between organizational support and organizational commitment is rejected.

**Table 5.4***Significance on the Relationship between Organizational Support and Organizational Commitment*

Organizational Support	Organizational Commitment			
	Affective Commitment	Continuance Commitment	Normative Commitment	Overall
Individual as a Person	.797** .000	.742** .000	.773** .000	.771** .000
Individual's Productive Worth	.714** .000	.773** .000	.751** .000	.746** .000
Overall	.755** .000	.758** .000	.762** .000	.768** .000

Significance of the Influence of COVID-19 Induced Stress, Job Satisfaction, Organizational Support on Organizational Commitment

Shown in Table 6 is the influence of COVID-19 induced stress, job satisfaction, organizational support towards organizational commitment. If COVID-19 Induced Stress is moved 1 unit higher, organizational commitment will also move -.056 unit higher. Also, if job satisfaction is moved 1 unit higher, organizational commitment will also move .273 higher. Further, if organizational support is moved 1 unit higher, organizational commitment will also move .619 higher. The overall correlation

value is .878. The effect of the entry of the variables in the model can be explained by around 77 percent, meaning, approximately 77 percent of the COVID-19 induced stress, job satisfaction, and organizational support felt by the tourism workers in Davao City can be explained by their organizational commitment. The model is also valid because the homogeneity test is met having F value of 444.535. Job satisfaction is undoubtedly the exogenous factor that has the greatest impact on organizational commitment.

Table 6*Significance on the Influence of COVID-19 Induced Stress, Job Satisfaction and Organizational Support on the Organizational Commitment*

Exogenous Variables	Organizational Commitment			
	B	β	t	Sig.
Constant	.521		2.248	.025
COVID-19 Induced Stress	-.056	-.055	-1.479	.140
Job Satisfaction	.273	.257	6.075	.000
Organizational Support	.619	.616	14.487	.000
R	.878			
R ²	.771			
ΔR	.769			
F	444.535			
ρ	.000			



Best Fit Model of Organizational Commitment

The analysis of the interactions between stress brought on by COVID-19, job satisfaction, and organizational support to the organizational commitment of tourism workers in Davao City is highlighted in this section. To find the organizational commitment model with the best fit, five alternative models were investigated. Additionally, the evaluation of fit served as a benchmark for approving or rejecting the model. Generally speaking, the researcher established the causality relationship between the latent variable and the other latent variables. It also establishes the connection between endogenous and exogenous factors. When a structured model shows a good fit, it confirms that the model's inferences about the empirical relationships between variables are accurate. The amount and direction of the link are included in the model parameter.

In this work, five hypothesized models were developed and tested. Variable screening was carefully observed to place emphasis on the data's normality. In the creation of the models, variables having interval or ratio data were counted. This study's generated models were supported by theories.

Direct effects are denoted by arrows that lead directly from a predictor variable indicated on the right side to the dependent variables shown on the left side of the conceptualized models for this study.

The links between the predictor and the dependent variables that are mediated by through one or more factors are known as indirect effects. The coefficients for all path combinations that connect the predictor variable on the left with a dependent variable on the right are cross-multiplied to determine

the magnitude of the indirect effects, which are then totaled. The sum of a predictor variable's direct and indirect effects on the dependent variable represents the predictor variable's overall impact.

The generated structural model 5 in standardized solution is pictured out in the appended tables. Results denoted that the latent variable organizational support has a significant contribution to the latent variable organizational commitment. It could be observed from the data that the organizational support has a significant correlation to the organizational commitment.

It could be viewed that there are direct effects of predictor variables to the dependent variable which is the organizational commitment of tourism workers in Davao City. Organizational support obtained the highest total effect (.902). Also, COVID19 induced stress garnered a total effect of -.018. Lastly, -.357 is the effect that job satisfaction has on organizational commitment.

Revealed in the appended table are the effects of among latent variables and between measured and the latent variable was estimated to produce regression weights. Results showed that the latent variable organizational support has a significant effect on the endogenous variable, organizational commitment.

Furthermore, the displayed table clearly illustrates the importance of organizational support as a predictor of organizational commitment. Thus, the findings suggest that organizational commitment of tourism workers were best anchored on organizational support.

Table 7

Direct and Indirect Effects of the Independent Variables on Organizational Commitment of Best Fit Model

Variables	Direct Effect	Indirect Effect	Total Effect
COVID-19 Induced Stress	-.018	-	-.018
Job Satisfaction	-.357	-	-.357
Organizational Support	1.255	-.353	.902

Shown in Table is the assessment of Model 5 using goodness of fit indices where Chi-Square divided by the degrees of freedom (CMIN/DF) is 1.520; Normed Fit Index (NFI) is .992; Tucker-Lewis Index (TLI) is .994; Comparative Fit Index (CFI) is .997; Goodness of Fit Index (GFI) is .985; Root Means Square of Error Approximation (RM SEA) is .036 and P of Close Fit (Pclose) is .790. Given that all indices had satisfied the predetermined criteria in comparison to the measured model fit value, the goodness of fit result of model 5 is highly acceptable. The goodness of fit measures was met by these indices. Additionally, this suggests that the resulting model 5 is a very

well-fit model.

All included indices must constantly fall within the permitted limits in order to choose the best fit model. The p-value should be more than 0.05 and the chi-square/degrees of freedom number should be less than 5. The approximation value for the root mean square error must be less than 0.05, and the related Pclose value must be higher than 0.05. The other indices, including the goodness of fit index, Tucker-Lewis index, normed fit index, and comparative fit index, must all be higher than 0.95.

**Table 8***Estimates of Variable Regression Weights in Generated Best Fit Model*

			Estimate	S.E.	Beta	C.R.	P-value
COVID19_Induced_Stress	<---	Organizational_Support	-.815	.048	-.860	-16.864	***
Job_Satisfaction	<---	Organizational_Support	.945	.058	.966	16.247	***
Organizational_Commitment	<---	COVID19_Induced_Stress	-.018	.082	-.017	-.219	.826
Organizational_Commitment	<---	Organizational_Support	1.225	.201	1.238	6.081	***
Organizational_Commitment	<---	Job_Satisfaction	-.357	.191	-.353	-1.867	.062
PSE	<---	COVID19_Induced_Stress	1.000		.869		
PEH	<---	COVID19_Induced_Stress	.995	.055	.811	17.922	***
IPW	<---	Organizational_Support	1.000		.837		
IAP	<---	Organizational_Support	.933	.044	.879	21.411	***
PAY	<---	Job_Satisfaction	1.000		.820		
FRB	<---	Job_Satisfaction	.973	.056	.793	17.418	***
AFC	<---	Organizational_Commitment	1.000		.891		
COC	<---	Organizational_Commitment	1.057	.037	.918	28.591	***
NOC	<---	Organizational_Commitment	1.040	.034	.945	30.627	***

*Legend:**PEH-perceived helplessness**PSE-perceived self-efficacy**PRO-promotion**SUP-supervision**FRB-fringe benefits**COR-contingent rewards**OPC-operating conditions**COW-co-workers**NOW-nature of work**COM-communication**IAP-individual as a person**IPW-individual's productive worth**AFC-affective commitment**COC-continuance commitment**NOC-normative commitment***Table 9***Goodness of Fit Measures of Structural Best Fit Model*

INDEX	CRITERION	MODEL FIT VALUE
P-value	> 0.05	.072
CMIN/DF	0 < value < 2	1.520
GFI	> 0.95	.985
CFI	> 0.95	.997
NFI	> 0.95	.992
TLI	> 0.95	.994
RMSEA	< 0.05	.036
P-Close	> 0.05	.790

Legend:**CMIN/DF** - Chi-Square/Degrees of Freedom**NFI** - Normed Fit Index**TLI** - Tucker-Lewis Index**CFI** - Comparative Fit Index**GFI** - Goodness of Fit Index**RMSEA** - Root Means Square of Error Approximation**P-close** - P of Close Fit

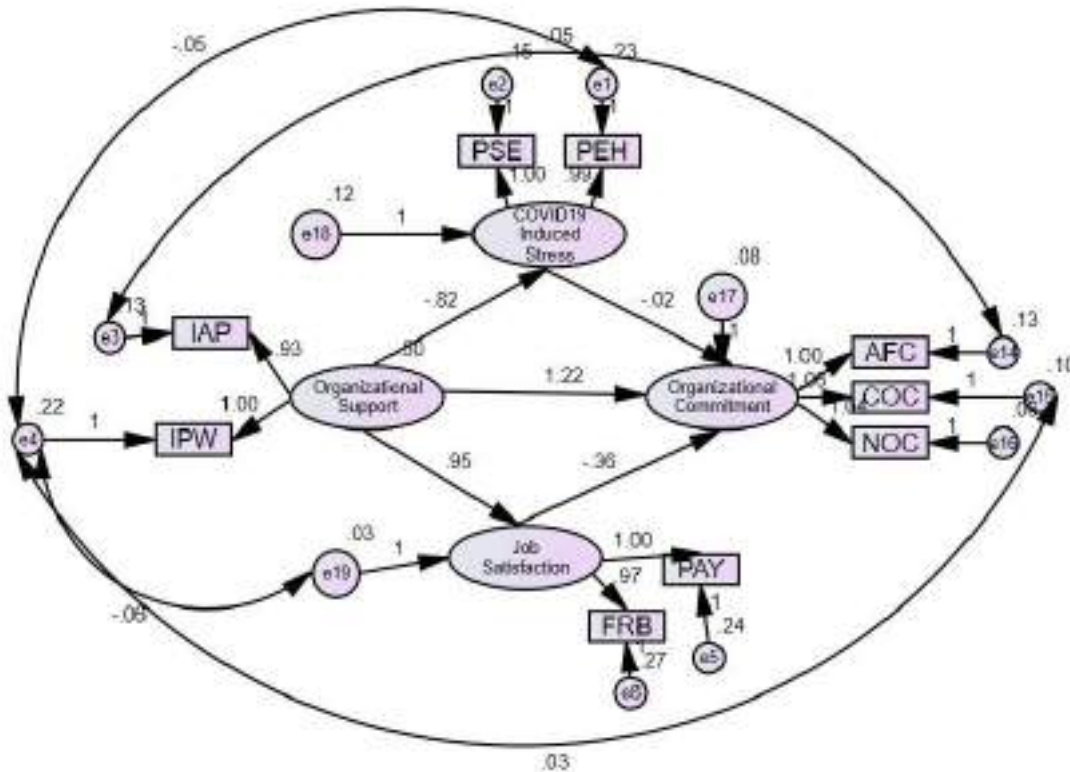


Figure 7. The Best Fit Model on Organizational Commitment

DISCUSSION

This chapter discusses the statistically supported conclusions regarding the stress caused by COVID-19, job satisfaction, organizational support, and organizational commitment of tourist workers in Davao City. With the aid of supporting principles, concepts, ideas, and theories, discussion on the importance of the connection and influence of exogenous variables on organizational commitment as well as the construct of best fit model on organizational commitment is comprehensively presented. This helped to solidify the study's conclusion and recommendation.

The analysis on the interrelationships among COVID-19 induced stress, job satisfaction, and organization support to the organizational commitment consisted of five models. The models were tested to achieve the best fit model of systems thinking. Each model has a framework that could be decomposed into two sub models which are measurement model and structural model. The measurement model represents the measure loads on each factor to their latent constructs while the structural model defines relations among the latent variables. Moreover, the assessment of fit was used as baseline for accepting and rejecting the model. Based on the findings, the

model evidently illuminates the essentials of organizational support as predictor of organizational commitment. Organizational support is an important component of organizational commitment of tourism workers in Davao City to appropriately manage the challenges on company turnover and the organization as a whole.

Hypothesized model 5 satisfied the criteria for the best fit. The best fit model showed that of the three tested variables, COVID-19 induced stress and job satisfaction were eliminated. Though in the appended level of both variables resulted to a high level, it did not guarantee its influence to organizational commitment as the model was generated.

The best fit model on organizational commitment suggests that commitment towards the organization of tourism workers is best anchored on organizational support which was measured in terms of individual as person and individual's productive worth.

Parallel to this, the outcomes of this study is in connection with the work of Kurtessis, Eisenberger, Ford, Buffardi, Stewart, and Adis (2017), which found that when an



organization treats its employees well, those employees feel compelled to reciprocate and typically do so in ways that are advantageous to the organization, creating an exchange relationship. Employees have more power, alternatives, and discretion over whether they stay with the company, therefore it stands to reason that if they believe the company has treated them well, they will likely be dedicated and stay with the company. On the other hand, if the company has not treated an employee well, that individual is less inclined to stick around.

This justifies why organizational support is the best predictor among other exogenous variables to organizational commitment.

Recommendations

Based on the results of the study, the researcher proposed the following recommendations:

Despite of the low level of stress felt by the respondents, the most challenging issue of the tourism workers in this time of pandemic is the feeling of nervousness and stressed if something happened unexpectedly. In fact, the weakest organizational support felt by the workers is the circumstance that the organization may hire someone else to replace them at a lower salary. Moreover, tourism workers seem obliged to feel committed to their company as they are anxious of what might happen if they quit their jobs without having another one lined up. These three items manifest their feeling of being not secured to the industry that they are in. This may be resolved by giving them a regular employment status to provide them a feeling of self-assurance and security. Moreover, organizations may also create activities like mental awareness programs to lessen the stress level of employees. Organizations may also develop programs and projects that will hasten employee pleasure with their work and provide employees a sense of support. This will encourage tourist workers to have a sense of devotion to their company.

One of the respondents wrote that if someone is not satisfied to his organization, it is important not to compromise his health. In addition, the too much bickering and fighting at work is one of the reasons why workers felt dissatisfied towards their job. Organizations may strengthen the peer evaluation as part of the employee performance assessment. Supervisors may keenly observe the rapport within the company to lessen, if not stop, the fighting at work.

The significant relationship among the variables: COVID 19 induced stress, job satisfaction, and organizational support of tourism workers indicates that these variables may be given focus by the management or the organization because the higher the level of these variables, the high level of organizational commitment will follow. This can be done by maintaining the good work culture of the organization while

developing a good relationship between the workers and the organization. Also, the organization may strengthen the support they are giving to their employees through promotion, increase of pay, benefits, healthier working environment and many more.

The best fit model showing organizational support as the strong predictor of organizational commitment implies that this can be of prime focus compared to other variables as mentioned above. This can be done by building a strong and good relationship to all people involved in the organization and keep tourism workers free from stress, supported, and satisfied to stay committed, thus, avoid turnover.

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REVIEW OF THE SCIENTIFIC WORK “THE INTERPRETATION OF THE PERSONALITY OF TIMUR THE GREAT IN ENGLISH AND UZBEK DRAMA”

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ANNOTATION

The author gives a review article about the importance and novelty of scientific research named “The interpretation of the personality of Timur the Great in English and Uzbek drama”

KEY WORDS: *Timur the Great, drama, interpretation, tragedy, truth, personality*

During the years of national independence of Uzbekistan, interest in the activities, personalities and services of famous historical figures who occupied a special place in the history of our country and study on the basis of objective, scientific criteria and requirements is growing. Lord Amir Timur is one of such bright figures that deserve a special attention, the person who is recognized not only in our country, but also worldwide. In particular, we all know that this wise statesman and potential globalist is highly admired in many West countries (but at the same in some other points of the world the attitudes are differ – negative, neutral and positive). In this geographical area, the Asian commander was recognized as the "liberator of Europe", Timur the Great was so widely respected and recognized that not only a statue was erected to him, but also different literary images was created in various genres of fiction.

The aim of our research work is to study dramas of Uzbek and English playwrights of different periods, revealing the image of Amir Timur summarizing the achievements and shortcomings in this area. Investigation, based on the demands and needs of the new historical-enlightenment era, we set ourselves the goal of researching and analyzing the works dedicated to the image of Amir Timur in English and Uzbek dramaturgy based on a specific scientific and theoretical concept and intend to carry out the following tasks:

- to analyze the interpretation of personality of Timur the Great in the Uzbek dramas "Amir Timur" by Tora Mirza, "The Lord of seven constellations" by Abdulla Aripov and "A Will to Generations" by Adil Yaqubov;

- to argue and react to the tragedies written not only in Uzbek, but also in English literature, mainly the works by Christopher Marlowe, Charles Saunders and Nicholas Rowe, dedicated to the personality of Timur the Great;

- identify and relate the differences and similarities between the historical figure Amir Timur and the character (hero) of Amir Timur in the dramas of the English and Uzbek representatives of literature;

- to reflect on the role of fictitious images in revealing the idea of a dramatic work.

The originals of the dramaturgical works dedicated to Amir Timur by Uzbek and English writers, created from the period of the XVI till XXI centuries were selected as the object of the research.

In world literary studies, a number of scientific studies have been carried out on the interpretation of the image of Amir Timur. In the works of literary critics such as E. Bartels, M. Burnett, S. Greenblatt, L. Hopkins, T. Pearce, S. Shepherd, W. Zunder, R. Wilson, R. Sales, C. Nicoll, P. Kocher, T. Healy¹ Christopher

¹ Bartels, Emily C. Spectacles of Strangeness: Imperialism,



Marlowe's views on the character of Amir Timur in the drama "Tamburlaine the Great" are reflected.

The deep and active interest in the personality of Amir Timur, his life and activities has not ever faded in Uzbekistan. Before acquiring independence of Uzbekistan, two dissertations were defended for the candidate of philology degree, dedicated to the interpretation of Timur's image in historical and literary works. These are Ubaydulla Uvatov's two-part research entitled "Ibn Arabshah and his work "Ajaib al-Maqdur fi Nawaib Timur"" and H. Karamatov's "Sources, originality and translation of Christopher Marlowe's tragedy "Tamburlaine the Great"². In this research of Karamatov, the issue of the interpretation of the image of Amir Timur created in foreign literature was studied for the first time in Uzbekistan, in which the original and the Uzbek translation of the drama "Tamburlaine the Great" by the English dramatist Christopher Marlowe were compared.

After acquiring the independence of our

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² Уватов У. Ибн Арабшоҳ ва унинг «Ажойиб ал-мақдур фи навоиб Темур» асари. (1305) 1887-1888) йилги Қоҳира нашри бўйича). Филол. фан. канд. дисс. Қисм 1: 240 б.; Ибн Арабшоҳ «Ажойиб ал-мақдур фи ахбори Темур» асарининг таржимаси. Филол. фан. канд. дисс. Қисм 2: 91 б. – Т., 1974; Кароматов Х.С. Истоки, оригинал и узбекский перевод трагедии Кристофера Марло «Тамерлан Великий». Автореф. дисс. канд. филол. н. - Т., 1990.

republic, doctoral and candidate dissertations were defended on the life and work of Amir Timur, his place in the history of Eurasia, interpretations of the image of Sahibkiran in works of art. Candidate dissertations of D. Rasulmuhamedova³, G. Yusupova⁴ and M. Khamraeva⁵ were defended in the field of literary studies. In particular, the scientific research of D. Rasulmuhamedova is devoted to the problems of creating the image of Amir Timur in the Uzbek dramaturgy of the period of independence. G. Yusupova conducted a detailed analysis of the image of Amir Timur and the Timurids in Uzbek novels created during the period of national independence. In M.Khamraeva's dissertation, the problems of reflecting the character of a historical person in literary prose through the character of Amir Timur were researched. In this work, the researcher also referred to the novel "Tamburlaine the Conqueror" by the English writer Hilda Hookham as a comparative object to prove how truthfully the image of Amir Timur is covered in English literature.

Our historians and scholars created a number of studies devoted to various aspects of Amir Timur's activity, his place in the history of Central Asia, Eurasia and the world.⁶

³ P Rasulmuhamedova D.T. Istiqlol davri o'zbek dramaturgiyasida Amir Temur obrazini yaratish muammolari. Filol. fan. nom. dis. avtoref. – Т., 2000. - 21 b.

⁴ Yusupova G.A. Hozirgi o'zbek romanlarida Amir Temur va temuriylar obrazining badiiy talqini. Filol. fan. nom. diss. avtoref. – Т., 2005. - 26 b.

⁵ Xamraeva M.A. Tarixiy haqiqat va badiiy talqin (nasriy asarlarda Amir Temur obrazi): Filol. fan. nom. dis. avtoref. - Т., 2010. - 22 b.

⁶ Ульжаева Ш.М. Историография эпохи Амира Темира и темуридов 50-60-х годов XX века (на примере литературы советского периода): Автореф.дисс.канд.ист.наук. – Т., 1999. - 27 с.; шу киши: Амир Темур салтанатида миллий давлатчиликнинг ривожланиши: Тарих фан. док. дисс. автореф. - Т., 2008. - 45 б.; Никбоев У.Х. Социально-экономические взгляды Амира Темира Автореф.дисс.канд.экон.наук.- Т., 1997. - 25 с.; Абиджанова Д.С. Маверауннахр эпохи правления Амира Темира в англоязычной историографии 60-90-х годов XX в. Автореф.дисс.канд.ист.наук. – Т., 2001. - 26 с.; Усмонов Б.А. Амир Темур ҳаёти ва давлатчилик фаолиятининг Россия тарихшунослигида ёритилиши (XVIII-XX асрлар). Тарих фан. ном. дисс. автореф. – Т., 2004. - 27 б.; Курбонова Д.А. Хориж музейларида сакланаётган темурийлар даврига оид тарихий ва маданий ёдгорликлар. Тарих фан. док. дисс. Автореф.. - Т., 2009. - 30 б.;



With the development of comparative literature and translation studies in our republic, various issues of English-Uzbek literary relations were studied in doctoral and candidate theses of philologists of our country and separate scientific articles were published. Issues such as the influence of the East on the development of Western science, the interpretation of great figures in the Western literary context were reflected in the researches carried out by F. Sulaymonova, N. Komilov, Sh. Karimov, H. Karomatov, M. Kholbekov, N. Otajonov, H. Boltaboev, U. Muhibova, U. Sotimov, B. Ermatov, F. Jo'arakulov, O. Dadaboev and A. Tursunov.⁷

In the research work of O. Dadaboev called "Interpretation of the personality of Amir Timur in the Western and Eastern literary context" by comparing English and Uzbek literature, the evolution of the image of Amir Timur as a result of socio-political changes is scientifically proved. A. Tursunov's PhD dissertation "Interpretation of the great figures of the East in German-language literature" deals with the issue of historical truth and literary interpretation of the German-language works written about Ibn Sina, Abu Rayhan Beruni, Amir Timur and Babur Mirza.

Academician Boriboi Akhmedov wrote the greatest work about our great countryman. Writers P. Kadirov and Muhammad Ali, academician E. Rtveldze and A. Saidov, M. Kholbekov, A. Berdimurodov and T.

Рахматуллаева А.Р. Историография жизни и деятельности Амира Темура в Узбекистане (1991-2009). Автореф. дис. канд. ист. наук. - Т., 2010. - 31 с.

⁷ Сулаймонова Ф. Шарқ ва Ғарб. – Тошкент: Ўзбекистон, 1997, Комилов Н. Тафаккур карвонлари, – Тошкент: Маънавият, 1999, Каримов Ш. Немис адабиёти тарихи. – Тошкент: 2010, Караматов Х. Истоки, оригинал и узбекский перевод трагедии Кристофера Марло «Тамерлан Великий». дисс...кан.фил.наук. – Ташкент: 1990, Холбеков М. Узбекско-французские литературные взаимосвязи (в аспекте перевода, критки и восприятия). дисс... канд. филол. наук. – Ташкент: 1991, Болтабоев Х. Хорижда Бобуршунослик. –Тошкент: 2008. Мумтоз сўз кадри. – Тошкент: Адолат. 2004, Жўракулов Ф. Абу Райхон Берунийнинг табиий-илмий ва ижтимоий-фалсафий меросининг ғарб олимлари томонидан тадиқ этилиши. Фал.фан.ном. дисс... . – Тошкент. 2007, Эрматов Б.С. АмирТемур Ғарбий Европа адиблари нигоҳида. – Тошкент: 2017, Дадабоев О. Ғарб ва Шарқ адабий контекстида Амир Темур шахси талқини. Фал.фан.док. (PhD) дисс... – Тошкент. 2019, Турусунов А. Немисзабон адабиётларда шарқнинг буюк сиймолари талқини. Фал.фан.док. (PhD) дисс... – Тошкент. 2019.

Shirinov wrote books about Amir Timur created abroad. The book of E. Rtveldze and A. Saidov is a bibliography and consists of a list of works about Timur the Great in the countries of the world. P. Kadirov and Muhammad Ali partially touch on the works about Sahibqiran created abroad. The book "Amir Timur in the eyes of Western writers" published by "DAVR PRESS" NMU in 2016 under the leadership of A. Saidov is a collection of translations of small works and excerpts from major works of Russian, European and American writers. The completed and revised second edition of the book "Amir Timur and France" by L. Keren and A. Saidov was published in 2016 by "Adolat" publishing house.⁸

We can be sure from the selected objects that the problem and topic shown in the dissertation were focused on with serious attention and a sense of responsibility. We want to show that the dramas created in English literature about Amir Timur are known only to a narrow circle of specialists dedicated to the creative life of Timur, and we also want to show that the dramas in English have not been translated into Uzbek until now. Therefore, we planned to work on the basis of the authenticity of these sources. These facts alone show that until now we have only been trying to create research on the basis of materials whose names have been mentioned, but which are not known to many.

The conclusions of the research are of great theoretical importance in terms of imagining the special situation of the dramas dedicated to the personality of the great Master Amir Timur in Uzbek literature, determining their art value, understanding the character aspects and uniqueness of the image of Amir Timur in each of them. The rules and results of the research will help to imagine and interpret the general picture of the image of the great world hero in the works created for the stage.

It is known that the famous English dramatist Christopher Marlowe's tragedy "Tamburlaine the Great" was translated into Uzbek from Russian not from English, and this work has been analyzed and researched in our national literature. However, it must be admitted

⁸ Керен Люсьен, Саидов Акмал. Амир Темур ва Франция./Тўлдирилган ва қайта ишланган иккинчи нашри. – Т.: «Адолат», 2016. – 560 бет.



that a deep study of this unique art masterpiece related to the history of our Motherland is the need of the time. At the same time, special attention is paid to literary sources that have not yet been explored. In particular, the tragedies of 17th and 18th century dramatists Charles Saunders and Nicholas Rowe are included in the scope of research.

Our main goal is to study the interpretation of the image of Sahibkiron in the English and Uzbek dramaturgy and diagnose the commonalities and differences between them. Naturally, such considerations serve to understand the reasons why figures of well known people and statesmen like Amir Timur in world literature are constantly interesting to the representatives of fiction.

The topic raised in the research has not been the object of special scientific research until now. In this sense, the subject of this dissertation is fundamentally different from existing studies, it has not been the main topic of a separate scientific research both far and near abroad, and it is considered very relevant. It should be noted separately that the issues of the interaction of Eastern and Western literature in the formation of Amir Timur's image have not yet been systematically explored in a comparative aspect. We will try to fill this gap in literary studies as much as possible. In addition, we plan to analyze from the perspective of the truthfulness, how much evidence the creators used to create the image of Amir Timur in foreign literature. This study differs from previous works in these above mentioned aspects.

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RESPONSE OF A FIRST-ORDER SERIES SYSTEM TO THE TRANSFER FUNCTION, THE LIQUID LEVEL OF TWO INTERACTING TANKS

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SUMMARY

This article presents the experimental and theoretical results of the discharge and filling of water between two torispherical tanks connected in series at different heights, the model that was used was developed with equations reported in the literature for geometries of torispherical tanks and it was necessary to develop two more equations in the laboratory to calculate the discharge and fill volumetric flows for the tanks used. The unloading and filling model was obtained with transitory mass balances resulting in two simultaneous linear differential equations where the unloading and filling heights are related as a function of the operation time. The model was solved numerically, and the experimental results were compared against those of the proposed model, finally the transfer function for this system of interacting tanks was found.

KEYWORDS: *Transient mass balances in two atmospheric interacting tanks at different heights and equal torispherical geometries. The discharge and fill model of two interacting tanks as a function of time. The volumes of partially filled torispherical tanks. The transfer function of a pulse in the discharge pipe that affects the volumetric flow within the discharge tank.*

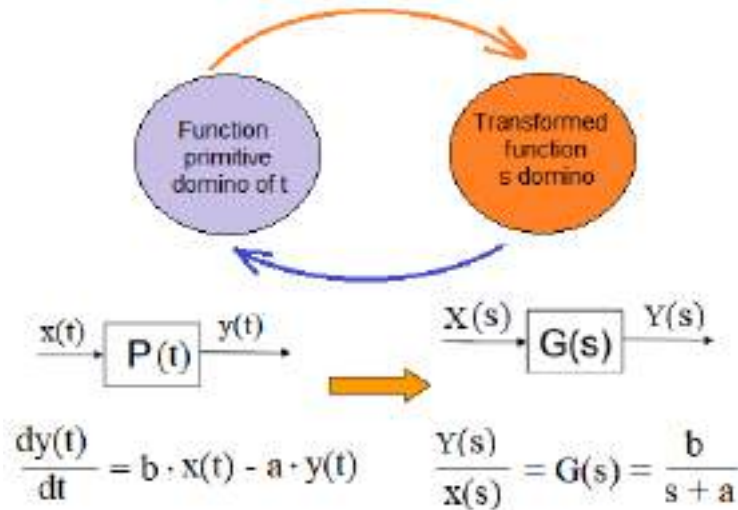
1. INTRODUCTION

The purpose of this article is to support students in the experimental field in the transfer functions of dynamics and control systems. Our study contemplates two first-order coupled linear differential equations that result from a mass balance in the discharge of water between two interacting atmospheric tanks with a difference in height Z between the bases of the tanks and with equal torispherical geometries and propose a model theoretical where the time constant and the linear resistance during operation can be known, to suppose that when the water filling volume of 611.5 liters is reached in the lower tank, a centrifugal pump located at a time $t = 0$ is put to work in the discharge line of the upper tank, causing the volumetric flow to increase by 30%, going from 65.4 L/min to $(65.4 \times 1.3) = 85.02$ L/min for a time of 0.1 min, and graph the response of the level of the water filling tank using the unit step function shifted “h” units of time to the right.

2. THEORETICAL FOUNDATIONS

2.1 The Transfer Function [1, 5, 6]

The Transfer Function is a mathematical expression that characterizes the “Input – Output” relationships of time-invariant linear systems. It is defined as the ratio of the Laplace transform of the output (response function) to the Laplace transform of the input (supplied function), under the assumption of zero (0) time initial conditions.



- To obtain the transfer function $G(s)$, introduce the deviation variables into the linear differential equation:

$$Y = y - y_s ; \text{ where } y_s \text{ is the variable in the steady state}$$

$$X = x - x_s ; \text{ where } x_s \text{ e is the variable in the steady state}$$

$$\frac{d(y - y_s)}{dt} = b(x - x_s) - a(y - y_s)$$

$$\frac{d(Y)}{dt} = b(X) - a(Y)$$

- Apply the Laplace transform to the previous differential equation to obtain the transfer function, remember that the transform of the derivative of a function is

$$\mathcal{L} \left[C_A'(z) \right] = s f(s) - C_A(z) \Big|_{z=0}$$

∴

$$s Y(s) = b X(s) - a Y(s)$$

$$s Y(s) + a Y(s) = b X(s)$$

$$Y(s)(s + a) = b X(s)$$

$$\frac{Y(s)}{X(s)} = \frac{b}{s + a} \tag{1}$$



A transfer function is a mathematical model that, through a ratio, relates the response of a system (or output signal) to an input signal (or power supply).

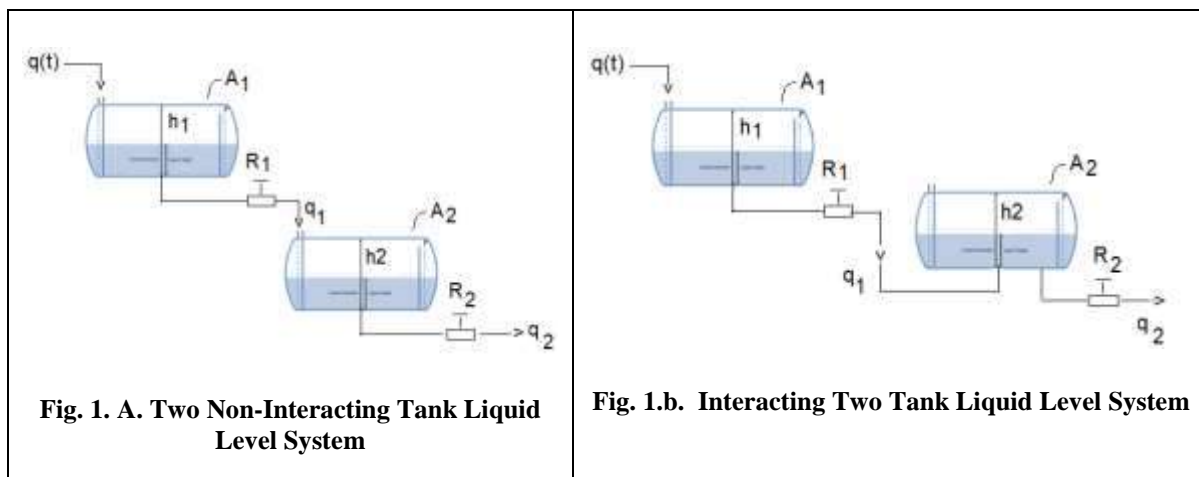
The transfer function is a linear mathematical function that uses the Laplace transform and allows to represent the dynamic and stationary behavior of any system. However, we will detail this concept.

We know that when we are in front of a process, whatever it is, this process will generally have actuators and sensors. The actuators will make the variables (pressure, temperature, liquid level, humidity, speed, etc.) begin to vary over time, while the sensors are in charge of measuring and showing how these variables are changing over time.

Obviamente nosotros vamos a querer controlar estas variables del proceso, porque simplemente no vamos a dejar que estas variables evolucionen con el tiempo de manera que avancen al azar. Por decir algo, si tenemos un horno donde estamos cocinando galletas; no vamos a dejar que la variable temperatura suba a valores muy elevados, porque el resultado sería tener galletas totalmente quemadas. Es por eso que debemos controlar la temperatura para que esta se mantenga sobre una determinada zona y nos permita obtener el producto deseado.

2.2 First order series systems [1, 5, 6]

On many occasions, a process connected in series can be represented by first-order systems, that is, they are those that can be raised and solved by first-order differential equations. To illustrate this type of system, consider the liquid level of two tanks where the outflow of the first tank is the inflow for the second tank. Two possible arrangements are shown in Figs. 1. In Fig.1-a, the outlet of tank 1 discharges directly to the atmosphere at the inlet of tank 2 and the flow through depends only on h_1 . The variation of h_2 in tank 2 does not affect the transient response that occurs in tank 1. This type of system is referred to as a non-interacting system. In contrast, the system of Fig. 1.b is shown, which is qualified as interacting because the flow through depends on the difference between h_1 and h_2 .



First-order processes are characterized by:

1. Its ability to store matter and/or energy and/or momentum
2. Its resistance is associated with the flow of mass, energy, or momentum
3. In general, the term R is a conversion factor that relates $h(t)$ to $q(t)$. This resistance is associated with pumps, valves, pipes and hydraulic accessories in general.



For Fig.1.a $\begin{cases} q(t) = \frac{h_1}{R_1} \\ q(2) = \frac{h_2}{R_2} \end{cases}$; For Fig. 1.b, we have $q(1) = \frac{h_1-h_2}{R_1}$ (2.1)

On other occasions, first-order physical systems can also be presented as the one shown in the following Fig. 2

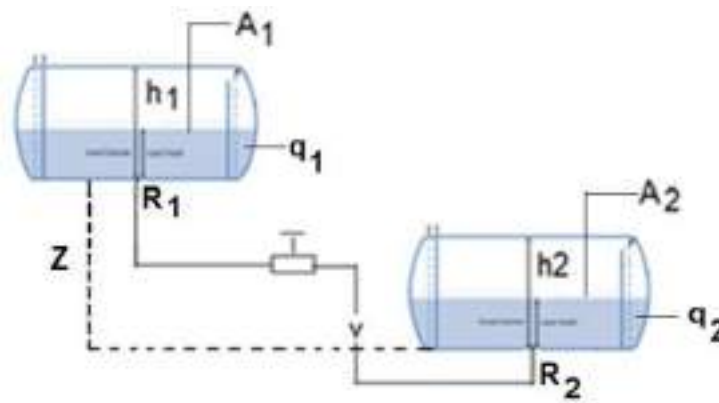


Fig. 2. Liquid discharge system between two interacting tanks without feeding and without discharge with a height difference Z, the emptying of the tank is by gravity.

In this system, the resistances R1 and are located at the bases of the tanks and the volumetric flows in the discharge and filling of water inside each of the tanks, that is:

$$q_1 = \frac{(h_1 + Z) - h_2}{R_1} ; \text{ where } q_1 = f(h_1) \tag{2.2 - a}$$

$$q_2 = \frac{(h_1 + Z) - h_2}{R_2} ; \text{ where } q_2 = f(h_2) \tag{2.2 - b}$$

In each of these equations the height Z between the bases of the tanks has been considered.

In the Appendix (7.1) the equations of the volume, the wetted area and the loading and unloading expenses of the partially filled torispherical tanks [2, 3, 4] are described to calculate the system of two tanks which are between the equipment of the Chemical Engineering Laboratory.

To analyze this interacting system, the transitory mass balances for each tank can be written:

Mass flow in – Mass flow out = Rate of mass accumulation in the tank

1.- For the tank (1), there is no incoming mass flow

$$q(t) \rho - q_1(t) \rho = \frac{d(V_1 \rho)}{dt}$$



$$-\rho q_1(t) = \frac{d(\rho V_1)}{dt}$$

$$-q_1 = \frac{d(A_1 h_1)}{dt} \quad (3)$$

It can be seen in Fig. 2 that it is a variable that is not a function of discharge time but a function of the height of the liquid level. Substituting equation (2.2-a) in equation (3) we obtain:

$$-\frac{1}{R_1} [h_1 + Z] - h_2 = A_1 \frac{d(h_1)}{dt} \quad (4)$$

2.- For tank (2), there is no outlet mass Flow

$$q_1(t) \rho - q_2(t) \rho = \frac{d(V_2 \rho)}{dt}$$

$$\rho q_1(t) = \frac{d(\rho V_2)}{dt}$$

$$q_1 = \frac{d(A_2 h_2)}{dt} \quad (5)$$

It can be seen in Fig. 2 that, is also a function of the height of the liquid level in the tank

Substituting equation (2.2-b) in equation (5) we obtain:

$$\frac{1}{R_2} [h_1 + Z] - h_2 = A_2 \frac{d(h_2)}{dt} \quad (6)$$

2.3 The transfer function for the system of two interacting tanks of the Chemical Engineering Laboratory $\frac{H_2(s)}{Q_1(s)}$

The following procedure is used for systems of linear differential equations.

1.- Apply the deviation variables to equations (2.2 -a), (4) and (6).

A deviance variable considers the interacting variables in a process initially they are in the steady state $x(s)$. This means that before a zero time there are no changes in these variables. But at zero time, the inputs to the process represented by $x(t)$ change suddenly in time deviating to the transitory regime. Therefore, to the variables in the regime transitory, the variables in the permanent regime will be subtracted to quantify the values of the changes with reference to the permanent regime, to this difference of These variables are known as deviance variables.



2.- The resulting equations are transformed to the Laplace field

3.- Finally, combine them together to eliminate unwanted variables.

$$(2.2-a) \quad q_1 = \frac{(h_1 + Z) - h_2}{R_1}$$

$$(4) \quad -q_1 = A_1 \frac{dh_1}{dt}$$

$$(6) \quad q_1 = A_2 \frac{dh_2}{dt}$$

Introducing the deviation variables in the previous equations and clarifying that the subscript “s” has been used to indicate the values of the variables in the steady state

$$\text{De (4)} \quad -(q_1 - q_{1s}) = A_1 \frac{d(h_1 - h_{1s})}{dt}; \text{ donde } Q_1 = q_1 - q_{1s}; H_1 = h_1 - h_{1s}$$

∴

$$Q_1 = -A_1 \frac{dH_1}{dt} \tag{7}$$

$$\text{De (6)} \quad (q_1 - q_{1s}) = A_2 \frac{d(h_2 - h_{2s})}{dt}; \text{ donde } Q_1 = q_1 - q_{1s}; H_2 = h_2 - h_{2s}$$

∴

$$Q_1 = A_2 \frac{dH_2}{dt} \tag{8}$$

$$\text{De (2.2-a)} \quad (q_1 - q_{1s}) = \frac{1}{R_1} [(h_1 + Z) - (h_{1s} + Z)] - (h_2 - h_{2s})$$

reducing terms

$$(q_1 - q_{1s}) = \frac{1}{R_1} [(h_1 - h_{1s}) - (h_2 - h_{2s})]; \text{ where } H_1 = h_1 - h_{1s}, H_2 = h_2 - h_{2s} \text{ and}$$

$$Q_1 = q_1 - q_{1s}$$

∴



$$Q_1 = \frac{1}{R_1}(H_1 - H_2) \quad (9)$$

Transforming equations (7), (8) and (9) to the Laplace field

$$Q_1(s) = -A_1 s H_1(s) \quad (10)$$

$$Q_1(s) = A_2 s H_2(s) \quad (11)$$

$$Q_1(s) = \frac{H_1(s)}{R_1} - \frac{H_2(s)}{R_1} \quad (12)$$

Substituting equation (11) in (12)

$$A_2 s H_2(s) = \frac{H_1(s)}{R_1} - \frac{H_2(s)}{R_1} \quad (13)$$

From equation (10) the following is obtained

$$H_1(s) = \frac{-Q_1(s)}{A_1 \times s} \quad (14)$$

Substituting equation (14) into equation (13)

$$A_2 \times s \times H_2(s) = \frac{-Q_1(s)}{R_1 \times A_1 \times s} - \frac{H_2(s)}{R_1}$$

$$A_2 \times s \times H_2(s) + \frac{H_2(s)}{R_1} = \frac{-Q_1(s)}{R_1 \times A_1 \times s}$$

Factoring the above equation, we get

$$H_2(s) \left(A_2 \times s + \frac{1}{R_1} \right) R_1 \times A_1 \times s = -Q_1(s)$$

Dividing the equation by $Q_1(s)$

$$\frac{H_2(s)}{Q_1(s)} \left(A_2 \times s + \frac{1}{R_1} \right) R_1 \times A_1 \times s = -1$$



$$\frac{H_2(s)}{Q_1(s)} = - \frac{1}{\left(A_2 \times s^2 + \frac{1}{R_1} \right) R_1 \times A_1 \times s}$$

$$\frac{H_2(s)}{Q_1(s)} = - \frac{1}{A_2 \times s^2 \times R_1 \times A_1 \times s + A_1 \times s}$$

$$\text{Yeah } \tau_1 = A_1 R_1 \quad (15)$$

where

τ_1 = System time constant

R_1 = Linear resistance at the base of the discharge tank.

Simplifying you get

$$\frac{H_2(s)}{Q_1(s)} = - \frac{1}{A_2 \times s^2 \times \tau_1 \times s + A_1 \times s}$$

$$\frac{H_2(s)}{Q_1(s)} = - \frac{1}{s \times (A_2 \times s \times \tau_1 + A_1)} \quad (16)$$

Now consider that you want to use the response of a first-order system as the unit step function. Therefore, if the volumetric flow rate changes according to a unit step translated “h” units to the right as shown by the following equation

$$Q(t) = \frac{1}{h} [u(t) - u(t-h)]$$

where $u(t)$ is the unit step function and $u(t-h)$ is the step function translated h units. Therefore, the input to the system will be expressed as the difference of step functions. The inverse function for the Laplace field is:

$$Q(s) = \frac{1}{h} \times \frac{1 - e^{-h \times s}}{s}$$

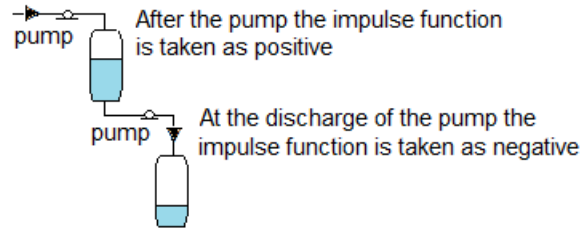
Yeah $Q_1(s) = \frac{1}{h \times s} - \frac{e^{-h \times s}}{h \times s}$ and it is substituted in equation (16) the transfer function of a unit step translated “h”

units to the right will be obtained.



If the step function is applied using the pump before the liquid enters the upper tank inlet, it will be considered as positive.

If the step function is applied using the pump after the liquid outlet from the upper tank, it will be considered as negative.



$$- H_2(s) = \left\{ -\frac{1}{s \times (A_2 \times s \times \tau_1 + A_1)} \left[\frac{1}{h \times s} - \frac{e^{-h \times s}}{h \times s} \right] \right\}$$

$$- H_2(s) = \left\{ -\frac{1}{h \times s^2 \times (A_2 \times s \times \tau_1 + A_1)} + \frac{e^{-h \times s}}{h \times s^2 \times (A_2 \times s \times \tau_1 + A_1)} \right\}$$

$$H_2(t) = - \left\{ \frac{1}{h} \left(\frac{t}{A_1} - \frac{A_2 \tau_1}{A_1^2} + \frac{A_2 e^{\frac{-A_1 t}{A_2 \tau_1}}}{A_1^2} \tau_1 \right) + \frac{1}{h} \left(\frac{-h + t}{A_1} - \frac{A_2 \tau_1}{A_1^2} + \frac{A_2 e^{\frac{-A_1(-h+t)}{A_2 \tau_1}}}{A_1^2} \tau_1 \right) \right\} \times \text{HeavisideTheta}[-h + t]$$

.....(17)

The function HeavisideTheta [-h + t] is worth 1 if the argument is > 0 and is worth 0 if the argument is < 0

3. EXPERIMENTAL DATA OF THE SYSTEM OF INTERACTING TANKS FROM THE LABORATORY OF CHEMICAL ENGINEERING

TABLE 1. Data for filling the lower tank

- a.- The reading of these quantities is from bottom to top according to the metallic scale from Figure (3)
- b.- The values reported in column (2) were taken using a small scale metallic.

Reading number	Volumes filling on the metal scale Fig.14 (L)	Heights partial fill between brands (cm)	Continuous heights tank filler (cm)	Discrete fill times (min)	Continuous fill times (min)
	(1)	(2)	(3)	(4)	(5)
23	0	0 a 100 = 9.5	92.1	5' 13" = 5.217	57.651
22	100	100 a 200 = 5.5	82.6	3' 37" = 3.617	52.434
21	200	200 a 300 = 4.5	77.1	3' 9" = 3.15	48.817
20	300	300 a 400 = 4.5	72.6	3' 11" = 3.183	45.667
19	400	400 a 500 = 4.0	68.1	2' 43" = 2.717	42.484
18	500	500 a 600 = 3.4	64.1	3' 5" = 3.083	39.767
17	600	600 a 700 = 3.5	60.7	2' 55" = 2.917	36.684
16	700	700 a 800 = 3.0	57.2	2' 19" = 2.317	33.767
15	800	800 a 900 = 3.4	54.2	2' 51" = 2.85	31.45



14	900	900 a 1000 = 4.0	50.8	2' 54" = 2.9	28.6
13	1000	1000 a 1100 = 4.0	46.8	2' 9" = 2.15	25.7
12	1100	1100 a 1200 = 4.0	42.8	2' 37" = 2.617	23.55
11	1200	1200 a 1300 = 4.0	38.8	3' 10" = 3.167	20.933
10	1300	1300 a 1400 = 3.7	34.8	2' 35" = 2.583	17.766
9	1400	1400 a 1500 = 3.5	31.1	2' 50" = 2.833	15.183
8	1500	1500 a 1600 = 3.6	27.6	2' 10" = 2.167	12.35
7	1600	1600 a 1700 = 3.6	24.0	1' 53" = 1.883	10.183
6	1700	1700 a 1800 = 3.8	20.4	2' 2" = 2.033	8.3
5	1800	1800 a 1900 = 3.8	16.6	2' 1" = 2.017	6.267
4	1900	1900 a 2000 = 4.5	8.3 + 4.5 = 12.8	1' 51" = 1.85	2.4 + 1.85 = 4.25
3	2000	2000 a 2100 = 5.8	2.5 + 5.8 = 8.3	1' 35" = 1.583	0.817 + 1.583 = 2.4
2	2100	2100 a 2145 = 2.5	0 + 2.5 = 2.5	49" = 0.817	0 + 0.817 = 0.817
1	2145 tank bottom	0 tank bottom	0 tank bottom	0 tank bottom	0 tank bottom



Fig. 3. The counting of the filling time of the bottom tank begins with the value of 2145 liters on the metal scale

To start the readings, it is necessary to open the discharge valves between tanks except the one that feeds the lower tank. It begins by opening this last valve, starting the stopwatch to record the filling times starting at zero minutes, which corresponds to the value of 2145 liters on the metal scale of the empty lower tank. See Fig. 3

The data from TABLE 1 is now presented from top to bottom in TABLE 2. The count starts at zero (0) liters at the bottom of the tank and ends at (2145) liters when the tank is full.

**TABLE 2. Data for filling the lower tank**

The data is now presented from top to bottom for the fill of tank 2

Volumes filling on the metal scale Fig.12 (L)	Discrete volumes filling (L)	Continuous volumes filling (L)	Heights continue filling (cm)	Continuous fill times (min)
	(6)	(7)	(8) column (3) inverted	(9) column (5) inverted
It's the bottom of the tank 0	It's the bottom of the tank 0	It's the bottom of the tank 0	It's the bottom of the tank 0	It's the bottom of the tank 0
100	$2145 - 2100 = 45$	$0 + 45 = 45$	2.5	0.817
200	$2100 - 2000 = 100$	$45 + 100 = 145$	8.3	2.4
300	$2000 - 1900 = 100$	$145 + 100 = 245$	12.8	4.25
400	$1900 - 1800 = 100$	$245 + 100 = 345$	16.6	6.267
500	$1800 - 1700 = 100$	$345 + 100 = 445$	20.4	8.3
600	$1700 - 1600 = 100$	$445 + 100 = 545$	24	10.183
700	$1600 - 1500 = 100$	$545 + 100 = 645$	27.6	12.35
800	$1500 - 1400 = 100$	$645 + 100 = 745$	31.1	15.183
900	$1400 - 1300 = 100$	$745 + 100 = 845$	34.8	17.766
1000	$1300 - 1200 = 100$	$845 + 100 = 945$	38.8	20.933
1100	$1200 - 1100 = 100$	$945 + 100 = 1045$	42.8	23.55
1200	$1100 - 1000 = 100$	$1045 + 100 = 1145$	46.8	25.7
1300	$1000 - 900 = 100$	$1145 + 100 = 1245$	50.8	28.6
1400	$900 - 800 = 100$	$1245 + 100 = 1345$	54.2	31.45
1500	$800 - 700 = 100$	$1345 + 100 = 1445$	57.2	33.767
1600	$700 - 600 = 100$	$1445 + 100 = 1545$	60.7	36.684
1700	$600 - 500 = 100$	$1545 + 100 = 1645$	64.1	39.767
1800	$500 - 400 = 100$	$1645 + 100 = 1745$	68.1	42.484
1900	$400 - 300 = 100$	$1745 + 100 = 1845$	72.6	45.667
2000	$300 - 200 = 100$	$1845 + 100 = 1945$	77.1	48.817
2100	$200 - 100 = 100$	$1945 + 100 = 2045$	82.6	52.434
2145	$100 - 0 = 100$	$2045 + 100 = 2145$	92.1	57.651

TABLE 3. Experimental data for the discharge of the upper tank

Data is presented from top to bottom

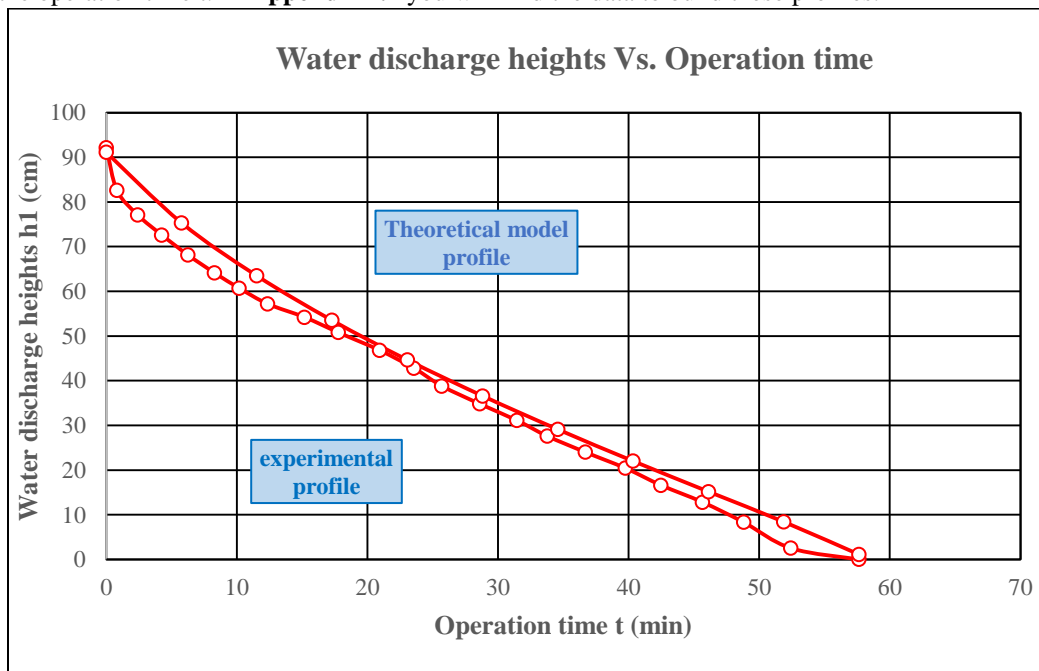
Reading number	volumes download marked on the metal scale (L)	Continuous volumes of discharge, are equal to the continuous fill volumes (L)	Heights discrete between brands (cm)	Continuous heights download (cm)	Continuous times download (min) query column (5)
	(10)	(11)	(12)	(13)	(14)
1	full tank 2145	full tank 2145	full tank $0 \text{ a } 100 = 9.5$	full tank 92.1	full tank 0
2	2100	2045	$100 \text{ a } 200 = 5.5$	82.6	$0 + 0.817 = 0.817$
3	2000	1945	$200 \text{ a } 300 = 4.5$	77.1	$0.817 + 1.583 = 2.4$
4	1900	1845	$300 \text{ a } 400 = 4.5$	72.6	$2.4 + 1.85 = 4.25$
5	1800	1745	$400 \text{ a } 500 = 4.0$	68.1	6.267



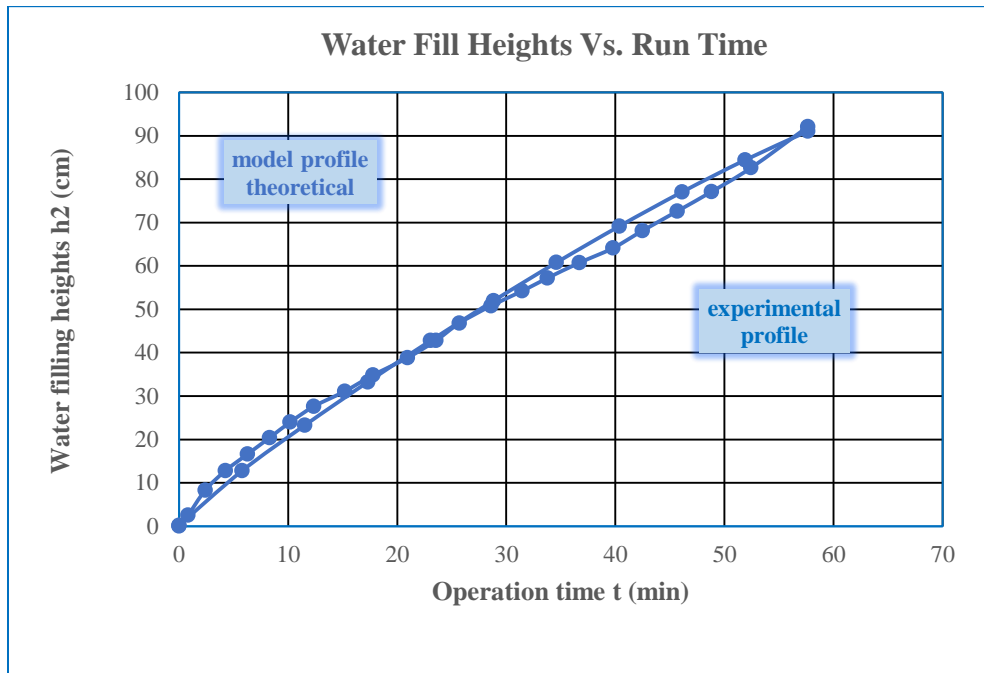
6	1700	1645	500 a 600 = 3.4	64.1	8.3
7	1600	1545	600 a 700 = 3.5	60.7	10.183
8	1500	1445	700 a 800 = 3.0	57.2	12.35
9	1400	1345	800 a 900 = 3.4	54.2	15.183
10	1300	1245	900 a 1000 = 4.0	50.8	17.766
11	1200	1145	1000 a 1100 = 4.0	46.8	20.933
12	1100	1045	1100 a 1200 = 4.0	42.8	23.55
13	1000	945	1200 a 1300 = 4.0	38.8	25.7
14	900	845	1300 a 1400 = 3.7	34.8	28.6
15	800	745	1400 a 1500 = 3.5	31.1	31.45
16	700	645	1500 a 1600 = 3.6	27.6	33.767
17	600	545	1600 a 1700 = 3.6	24.0	36.684
18	500	445	1700 a 1800 = 3.8	20.4	39.767
19	400	345	1800 a 1900 = 3.8	16.6	42.484
20	300	245	1900 a 2000 = 4.5	8.3 + 4.5 = 12.8	45.667
21	200	145	2000 a 2100 = 5.8	2.5 + 5.8 = 8.3	48.817
22	100	45	2100 a 2145 = 2.5	0 + 2.5 = 2.5	52.434
23	0	0	0	0	57.651

4. QUESTIONNAIRE AND ANSWERS

4.1 Present in Graph 1 the profile of the descending heights h1 of the water discharge of the model and the profile of the descending heights h1 experimental, both Vs. the operation time t. In Graph 2 the profiles of the rising filling heights h2 of the model and experimental Vs. the operation time t. In **Appendix 7.2** you will find the data to build these profiles.



Graph 1. Comparative profile of the water discharge heights of the model and the profile of the discharge heights of the experimental data



Graph 2. Comparative profile of the water filling heights of the model and the profile of the filling heights of the experimental data

4.2 Use the results of the interacting tank unloading model program reported in Table 4 that solves the theoretical model of interacting tank unloading and filling to find the answer to the following statement:

Suppose that when the water fill volume of 611.5 liters is reached in the lower tank, a centrifugal pump located in the discharge line of the upper tank is started to work at a time $t = 0$, causing the volumetric flow to increase by 30 %, going from 65.4 L/min to $(65.4 \times 1.3) = 85.02$ L/min for a time of 0.1 min. Plot the response of the fill tank level using the unit step function shifted “h” units of time to the right.

Data

Figure (4) shows the representative diagram of this problem, the unitary pulse function moved "h" units to the right

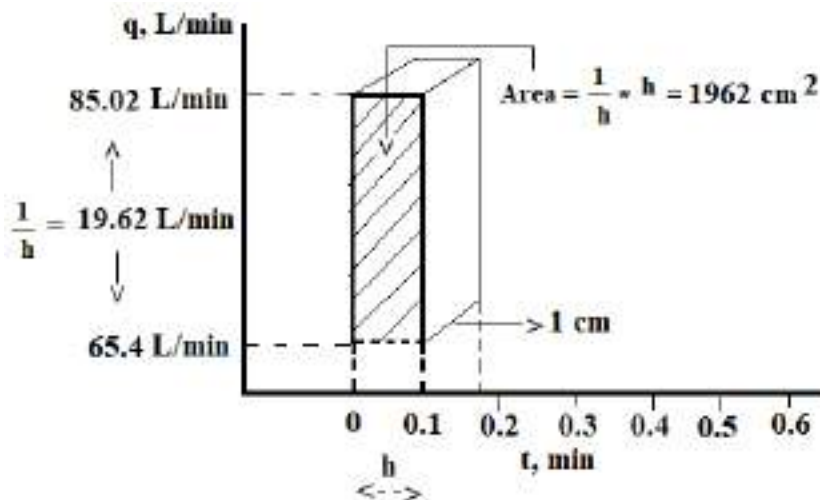


Fig. 4 Input pulse function to the water discharge line of tank 1



For a first-order system, the time constant τ for the step function it is expressed in the following terms.

$$\tau = A \times R \quad (18)$$

Were

$$A = \text{Area o magnitude} = \frac{1}{h} \times h, \text{ shown on Fig. 4} \quad (19)$$

$$R = \frac{h}{Q} = \frac{\text{Flow Driving Force (Hydraulic Head)}}{\text{Volumetric flow}} \quad (20)$$

TABLE 4. Results obtained by the interacting tank discharge model, consult the Wolfram Mathematica program reported in Appendix 7.3

Filling tank 2					
Fill volume of tank 2 (cm3)	Fill volume of tank 2 (liters)	Volumetric flow fill to tank 2 (cm ³ /s)	Volumetric flow fill to tank 2 (L/min)	Linear resistance for tank 1 R1 cm/(cm ³ /s)	Linear resistance for tank 1 R1 cm/(cm ³ /min)
0	0	0	0	0	0
155205	155.205	675.43	40.526	0.073665	0.001228
371456	371.456	915.137	54.908	0.0934666	0.001558
611551	611.551	1091.47	65.488	0.108094	0.001802
858428	858.428	1232.44	73.946	0.119427	0.00199
1099370	1099.0	1348.16	80.89	0.18543	0.003091
1323460	1323.0	1443.21	86.593	0.136408	0.002273
1521140	1521.0	1519.85	91.191	0.144382	0.002406
1683860	1684.0	1579.09	94.745	0.155396	0.00259
1802980	1803.0	1620.69	97.241	0.179971	0.003
1862820	1863.0	1641.09	98.465	0.4108	0.006847

Continuous areas download A1 (cm2)	Continuous areas filling A2 (cm2)	operation time t (s)	operation time t (min)
0	0	0	0
69885.1	21322.1	345.9	5.765
60050.5	31078.7	691.8	11.53
52850.1	38779.8	1037.7	17.295
46779.6	45500.9	1383.6	23.06
41188.7	51792.9	1729.5	28.825
35692.4	58035.4	2075.4	34.59
29999.4	64511.1	2421.3	40.355
23775.9	71504.4	2767.2	46.12
16362.6	79579.3	3113.1	51.885
3977.72	93691.3	3459	57.65



$$R_1 = 0.001802 \text{ cm}/(\text{cm}^3/\text{min})$$

$$\tau_1 = A \times R_1 = 1962 \text{ cm}^2 \times 0.001802 \text{ cm}/(\text{cm}^3/\text{min}) = 3.535 \text{ min}$$

$$h = 0.1 \text{ min}$$

$$1/h = 19.62 \text{ L}/\text{min} = 19620 \text{ cm}^3 / \text{min}$$

$$A_1 = 52850.1 \text{ cm}^2$$

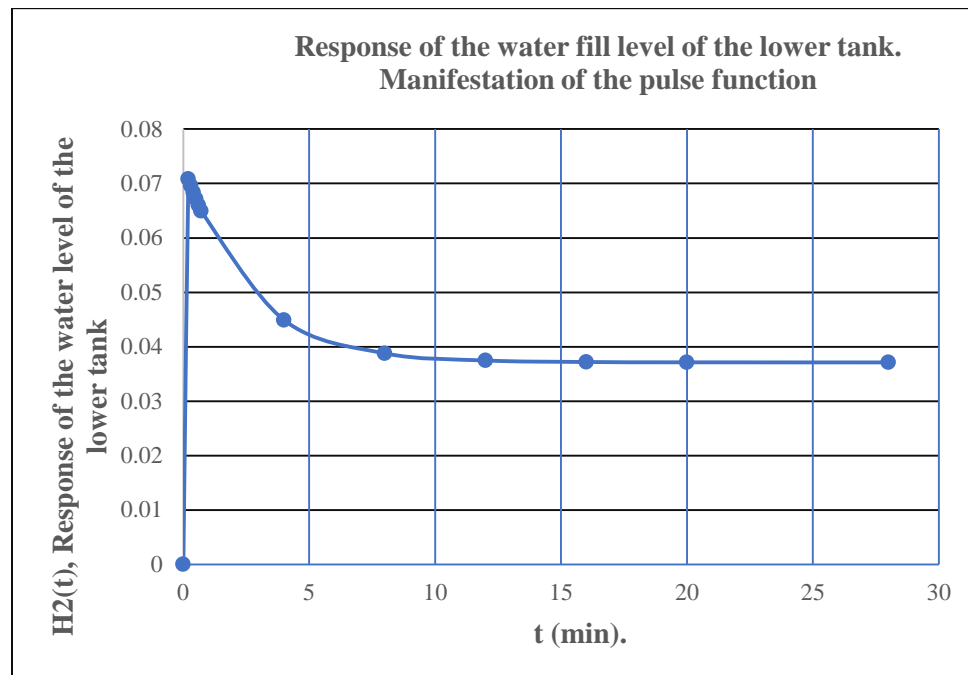
$$A_2 = 38779.8 \text{ cm}^2$$

Substituting the values in equation (17), column (4) of Table 5 is obtained, which allows the construction of Graph (3) “H2(t) Vs. t” that shows the profile of the transfer function.

NOTE. - The HeavisideTheta function [-h + t] is equal to 1 if the argument is > 0 and equals 0 if the argument is < 0.

Table 5. Results of the transfer function $\frac{H_2(s)}{Q_1(s)}$

Time scale where the pulse function starts t (min)	Argument of the Heaviside Function Theta [-h+t]	Value of the Heaviside function Theta [-h+t]	Value of the function of H2(t) (cm)
(1)	(2)	(3)	(4)
0	-0.1	0	0
0.2	0.1	1	0.07084
0.3	0.2	1	0.06956
0.4	0.3	1	0.06834
0.5	0.4	1	0.06716
0.6	0.5	1	0.06602
0.7	0.6	1	0.06493
4	3.9	1	0.04491
8	7.9	1	0.03879
12	11.9	1	0.03748
16	15.9	1	0.0372
20	19.9	1	0.03714
28	27.9	1	0.03712



Graph 3. Profile of the transfer function on the surface of the tank lower when the water discharge is affected with the pulse function

Note that the water level rises rapidly for 0.1 min when the additional flow from the pump is fed to the lower tank; the water level then drops exponentially and after approximately 10 minutes the natural discharge of the water filling due to gravity is recovered.

5. BIBLIOGRAPHY

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6. NOMENCLATURE

A = Variable cross-sectional area of the variable water surface in the tanks: cm²
 AW = Wetted area of the cylindrical section of a torispherical tank, Wetted area of a torispherical head: cm²
 B = Hydraulic variable from equation (16)
 C = Hydraulic variable of equation (20)
 H = Deviation variable for the heights of the liquid level in the tank: cm
 h = Variable height of the liquid level in the tank: cm
 L = Length of the cylindrical section of the torispherical tank: cm
 q = Volumetric flow rate: cm³/min
 Q = Deviation variable for volumetric flows: cm³/min
 Q1 = Volumetric discharge flow rate of tank one, equation (22): cm³/min
 Q2 = Volumetric flow rate for filling tank two, equation (23): cm³/min
 R = Resistance to volumetric flow: cm / (cm³/min)
 t = Operation time: min



Z = Difference in heights from the base of tank 1 to the base of tank 2, Fig. 7: cm
 ρ = Density of water: g/cm³

7. APPENDIX

7.1. Geometric description of the volume and wetted area of torispherical tanks in the Chemical Engineering Laboratory of the Faculty of Chemistry of the Universidad Nacional Autónoma de México UNAM. [2, 3, 4].



Fig.5. Torispherical tanks of the Chemical Engineering Laboratory



Fig. 6. Sliding train of centrifugal pumps

The tank unloading diagram

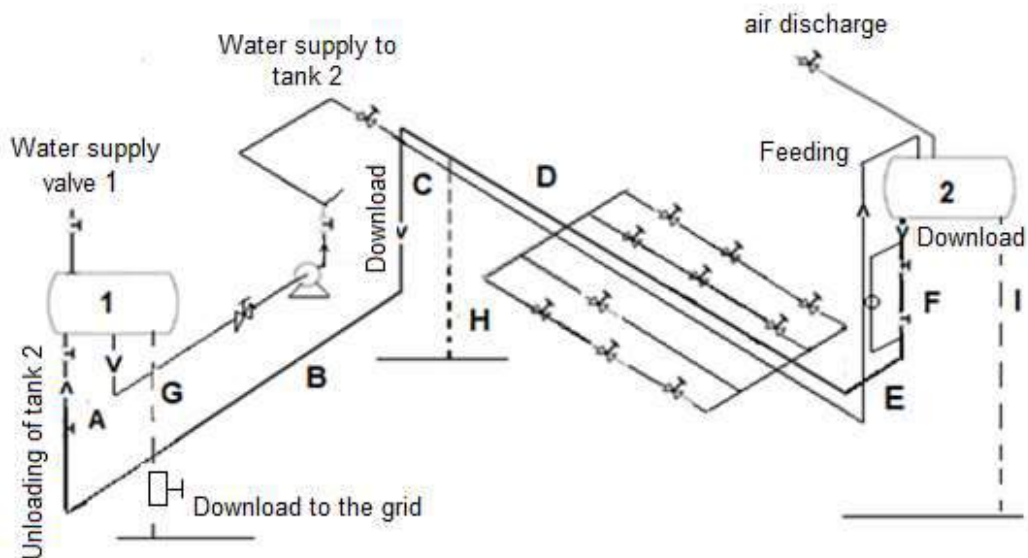


Fig. 7. Simplified piping diagram of the two-tank system of the Chemical Engineering Laboratory



Segment A	88 cm length, $\phi = 1 \frac{1}{2}$ " , schedule 40, commercial iron	Ball valve and globe valve
Segment B	360 cm length, $\phi = 1 \frac{1}{2}$ " , schedule 40, commercial iron	Two elbows at 90°
Segment C	88 cm length, $\phi = 1 \frac{1}{2}$ " , schedule 40, commercial iron	Two elbows at 90°
Segment D	1168.5 cm length, $\phi = 1 \frac{1}{2}$ " , schedule 40, commercial iron	Two elbows at 90°
Segment E	123 cm length, $\phi = 1 \frac{1}{2}$ " , schedule 40, copper	Two copper elbows at 90°
Segment F	134 cm length, $\phi = 1 \frac{1}{2}$ " , schedule 40, copper	Two ball valves, one 90° copper elbow
Total length of straight tube	TL = 1941.5 cm	
Height G	71 cm	
Height H	88 cm	
Height I	222 cm	
External diameter of tanks	$D_o = 92.1$ cm	
Internal diameter of tanks	$D_i = 91.1$ cm	
Height difference from the bottom of tank 2 to the dome of tank 1	$(I - G) + D_i = 134 + 91.1 = 225.1$ cm	
Height difference from the bottom of tank 2 to the bottom of tank 1	$I - G = 222$ cm - 88 cm = 134 cm	

Geometric diagrams of torispherical tanks

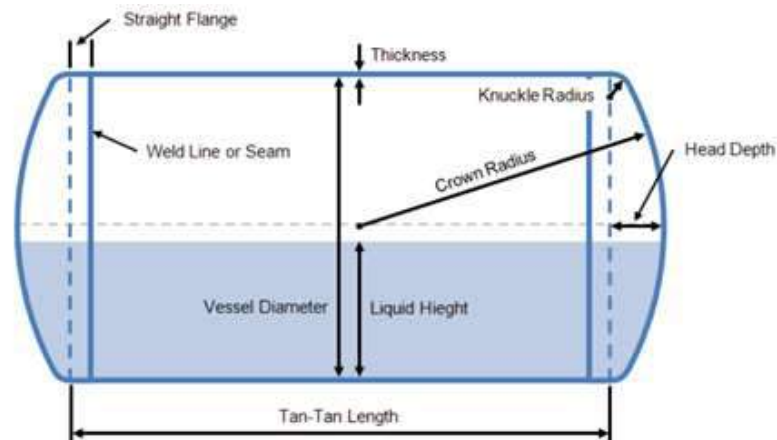


Fig. 8. Diagram of the torispherical tank of the Chemical Engineering Laboratory, the two tanks have the same dimensions

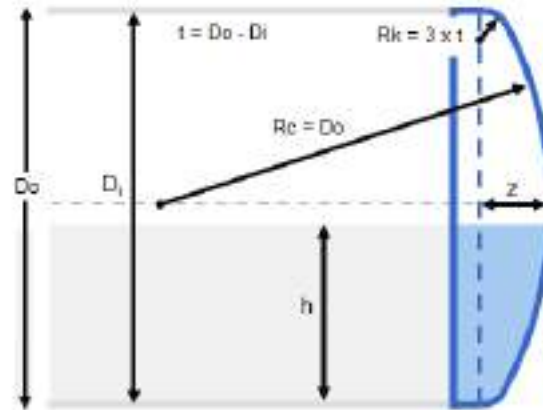


Fig. 9. Diagram of the geometric variables of the torispherical head

Dimensiones de los tanques

- External circumference = 289.34 cm
- D_o ; External diameter = 92.1 cm
- t ; Plate thickness = 1 cm
- D_i ; Internal diameter = 91.1 cm
- $R_c = D_o$; Inside Crown radius = 92.1 cm
- $R_k = 3 (t)$; Inside knuckle = 3 (1) = 3 cm
- L = Length of the cylindrical section of the tank = 271 cm
- h = liquid level height = [cm]
- z = Internal depth of torispherical head = [cm]

$$z = R_c - \sqrt{(R_c - R_k)^2 - \left(\frac{D_o}{2} - t - R_k\right)^2} \quad (21)$$

Header Wet Area

$$A_w = \frac{\pi D_i^2}{8} \left[\left(\frac{h}{D_i} - 0.5 \right) B + 1 + \frac{1}{4\varepsilon} \ln \left(\frac{4\varepsilon \left(\frac{h}{D_i} - 0.5 \right) + B}{2 - \sqrt{3}} \right) \right] \quad (22)$$

$$B = \sqrt{1 + 12 \left(\frac{h}{D_i} - 0.5 \right)^2} \quad (23)$$

$$\varepsilon = \sqrt{1 - \frac{4z^2}{D_i^2}} \quad (24)$$



Cylindrical section wetted area

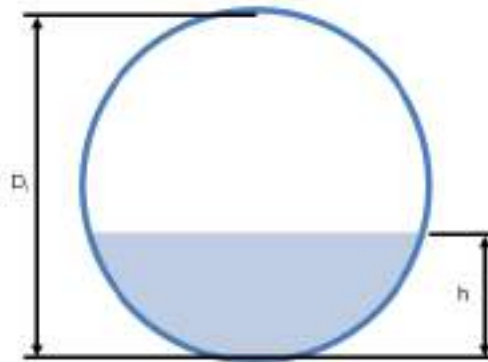


Fig. 10. Geometric variables of the wetted cylindrical section

$$A_w = L D_i \cos^{-1} \left(1 - 2 \frac{h}{D_i} \right) \quad (25)$$

Partial volume of torispherical heads

$$V_p = D_i^3 C \frac{\pi}{12} \left[3 \left(\frac{h}{D_i} \right)^2 - 2 \left(\frac{h}{D_i} \right)^3 \right] \quad (26)$$

Where C is proposed by the ASME code through the following expression

$$C = 0.30939 + 1.7197 \frac{R_k - 0.06 D_0}{D_i} - 0.16116 \frac{t t}{D_0} + 0.98997 \left(\frac{t t}{D_0} \right)^2 \quad (27)$$

Partial volume of the cylindrical section

$$V_p = L D_i^2 \left(\frac{1}{4} \cos^{-1} \left(1 - 2 \frac{h}{D_i} \right) - \left(\frac{1}{2} - \frac{h}{D_i} \right) \sqrt{\frac{h}{D_i} - \left(\frac{h}{D_i} \right)^2} \right) \quad (28)$$

Rapidez de flujo volumétrico de descarga del tanque superior (2) y de carga del tanque inferior (1)

$$q_2 = \frac{2 \left(D_i^3 C \frac{\pi}{12} \left[3 \left(\frac{h_2}{D_i} \right)^2 - 2 \left(\frac{h_2}{D_i} \right)^3 \right] \right) + L D_i^2 \left(\frac{1}{4} \cos^{-1} \left(1 - 2 \frac{h_2}{D_i} \right) - \left(\frac{1}{2} - \frac{h_2}{D_i} \right) \sqrt{\frac{h_2}{D_i} - \left(\frac{h_2}{D_i} \right)^2} \right)}{\frac{\sqrt{8} L}{1.777 C_d A_o \sqrt{g}} \left(D_1^{3/2} - (D_i - h_2)^{3/2} \right)} \left[\frac{cm^3}{s} \right]$$



(29)

$$q_1 = \frac{2 \left(D_i^3 C \frac{\pi}{12} \left[3 \left(\frac{h_1}{D_i} \right)^2 - 2 \left(\frac{h_1}{D_i} \right)^3 \right] \right) + L D_i^2 \left(\frac{1}{4} \cos^{-1} \left(1 - 2 \frac{h_1}{D_i} \right) - \left(\frac{1}{2} - \frac{h_1}{D_i} \right) \sqrt{\frac{h_1}{D_i} - \left(\frac{h_1}{D_i} \right)^2} \right)}{\frac{\sqrt{8} L}{1.777 C_d A_o \sqrt{g}} \left(D_i^{3/2} - (D_i - h_1)^{3/2} \right) \left(0.02 \left(D_i - \frac{3 h_1^{1.04}}{5 \cdot 0.87} \right) \right)} \left[\frac{cm^3}{s} \right]$$

(30)

Appendix 7.2. Data of the theoretical and experimental heights to construct the graphs of discharge and filling of water.

Experimental data unloading tank 2		Theoretical model data Appendix 7.3 unloading tank 2		
Operation Times (min)	Discharge heights (cm)	Operation Times (s)	Operation Times (min)	Discharge heights (cm)
(9)	(13)			
0	92.1	0	0	92.1
0.817	82.6	345.9	5.765	75.3017
2.4	77.1	691.8	11.53	63.4711
4.25	72.6	1037.7	17.295	53.4867
6.267	68.1	1383.6	23.05	44.6318
8.3	64.1	1729.5	28.825	36.5751
10.183	60.7	2075.4	34.59	29.0791
12.35	57.2	2421.3	40.355	21.9888
15.183	54.2	2767.2	46.12	15.1596
17.766	50.8	3113.1	51.885	8.40809
20.933	46.8	3459	57.65	1.08702
23.55	42.8			
25.7	38.8			
28.6	34.8			
31.45	31.1			
33.767	27.6			
36.684	24.0			
39.767	20.4			
42.484	16.6			
45.667	12.8			
48.817	8.3			
52.434	2.5			
57.651	0			



Experimental data, filling tank 1		Theoretical model data, Appendix 7.3 filling tank 1		
Operation Times (min)	Fill heights (cm)	Operation Times (s)	Operation Times (min)	Fill heights (cm)
It's the bottom of the tank (9)	It's the bottom of the tank (8)			
0	0	0	0	0.2
0.817	2.5	345.9	5.765	12.7516
2.4	8.3	691.8	11.53	23.2739
4.25	12.8	1037.7	17.295	33.2218
6.267	16.6	1383.6	23.06	42.7715
8.3	20.4	1729.5	28.825	51.9599
10.183	24	2075.4	34.59	60.7665
12.35	27.6	2421.3	40.355	69.1464
15.183	31.1	2767.2	46.12	77.0458
17.766	34.8	3113.1	51.885	84.3969
20.933	38.8	3459	57.65	91.0477
23.55	42.8			
25.7	46.8			
28.6	50.8			
31.45	54.2			
33.767	57.2			
36.684	60.7			
39.767	64.1			
42.484	68.1			
45.667	72.6			
48.817	77.1			
52.434	82.6			
57.651	92.1			

Appendix 7.3. The Wolfram Mathematica program
Nomenclature used in the program

$A_0 = 13.14 \text{ cm}^2$: Internal area of the outlet and inlet connection on the bottoms of the tanks

A_w = Total wetted area of the torispherical tank, the cylindrical section plus the area of the two heads: cm^2

B = Hydraulic variable of the equation (16)

C = Variable for torispherical heads defined by the ASME Code

$C_d = 0.8$: Coefficient of charge and discharge at the inputs and outputs at the base of the tanks

$D_i = 91.1$: Internal diameter of torispherical tanks

$D_0 = 92.1 \text{ cm}$; Diámetro externo de los tanques toriesféricos

$g = 980.7 \text{ cm} / \text{s}^2$: acceleration of gravity

$L = 270 \text{ cm}$: Length of the cylindrical section of torispherical tanks

$RC = D_0$: Inside crown radius

$R_k = 3 \times t_t \text{ cm}$:Inside knuckle radius

$t_t = D_0 - D_i \text{ cm}$: Espesor de la placa de los tanques



$V_{cabezal1}$ = Volume of the head of tank 1 as a function of the height of the water: cm^3 $V_{cabezal2}$ = Volume of the head of tank 2 as a function of the height of the water: cm^3

$V_{cilindro1}$ = Volume of the cylindrical section for tank 1 as a function of the height of the water: cm^3

$V_{cilindro2}$ = Volume of the cylindrical section for tank 2 as a function of the height of the water; cm^3

$q_{modelo1}$ = Discharge volumetric flow inside tank 1: cm^3 / s

$q_{modelo2}$ = Filling volumetric flow inside tank 2; cm^3 / s

$R1$ = First order resistance at the outlet of tank 1; $cm / (cm^3 / s)$

$R2$ = First-order resistance at the input of tank 2; $cm / (cm^3 / s)$

z = Depth (z) of the heads: cm

ε = Hydraulic variable in the equation (24)

Wolfram Mathematica Program

$D0 = 92.1;$

$Di = 91.1;$

$Rk = 3 * tt;$

$Rc = D0;$

$tt = D0 - Di;$

$Cd = 0.8;$

$A0 = 13.14;$

$g = 980.7;$

$$Z = Rc - \sqrt{(Rc - Rk)^2 - \left(\frac{D0}{2} - tt - Rk\right)^2};$$

$$\varepsilon = \sqrt{1 - \frac{4 * Z^2}{Di^2}};$$

$$B1 = \sqrt{1 + 12 * \left(\frac{h1[t]}{Di} - 0.5\right)^2};$$

$$B2 = \sqrt{1 + 12 * \left(\frac{h2[t]}{Di} - 0.5\right)^2};$$



$$\begin{aligned}
 AW1 &= L * Di * \underset{\text{arco coseno}}{\text{ArcCos}} \left[1 - 2 * \frac{h1[t]}{Di} \right] + \\
 &2 * \left(\frac{\pi * Di^2}{8} * \left(\left(\frac{h1[t]}{Di} - 0.5 \right) * B1 + 1 + \right. \right. \\
 &\left. \left. \frac{1}{4 * e} * \underset{\text{logaritmo}}{\text{Log}} \left[\left(\frac{4 * e * \left(\frac{h1[t]}{Di} - 0.5 \right) + B1}{2 - \sqrt{3}} \right) \right] \right) \right);
 \end{aligned}$$

$$\begin{aligned}
 AW2 &= L * Di * \underset{\text{arco coseno}}{\text{ArcCos}} \left[1 - 2 * \frac{h2[t]}{Di} \right] + \\
 &2 * \left(\frac{\pi * Di^2}{8} * \left(\left(\frac{h2[t]}{Di} - 0.5 \right) * B2 + 1 + \right. \right. \\
 &\left. \left. \frac{1}{4 * e} * \underset{\text{logaritmo}}{\text{Log}} \left[\left(\frac{4 * e * \left(\frac{h2[t]}{Di} - 0.5 \right) + B2}{2 - \sqrt{3}} \right) \right] \right) \right);
 \end{aligned}$$

$$c = 0.30939 + 1.7197 * \frac{Rk - 0.06 * D0}{Di} - 0.16116 * \frac{tt}{D0} + 0.98997 * \left(\frac{tt}{D0} \right)^2;$$

$$Vcabezal1 = Di^3 * c * \frac{\pi}{12} * \left(3 * \left(\frac{h1[t]}{Di} \right)^2 - 2 * \left(\frac{h1[t]}{Di} \right)^3 \right);$$

$$Vcabezal2 = Di^3 * c * \frac{\pi}{12} * \left(3 * \left(\frac{h2[t]}{Di} \right)^2 - 2 * \left(\frac{h2[t]}{Di} \right)^3 \right);$$



$$V_{cilindro1} = L * D_i^2 * \left(\frac{1}{4} * \text{ArcCos} \left[\left(1 - 2 * \frac{h1[t]}{D_i} \right) \right] - \left(\frac{1}{2} - \frac{h1[t]}{D_i} \right) * \sqrt{\frac{h1[t]}{D_i} - \left(\frac{h1[t]}{D_i} \right)^2} \right);$$

$$V_{cilindro2} = L * D_i^2 * \left(\frac{1}{4} * \text{ArcCos} \left[\left(1 - 2 * \frac{h2[t]}{D_i} \right) \right] - \left(\frac{1}{2} - \frac{h2[t]}{D_i} \right) * \sqrt{\frac{h2[t]}{D_i} - \left(\frac{h2[t]}{D_i} \right)^2} \right);$$

$$V_{modelo1} = 2 * V_{cabezal1} + V_{cilindro1};$$

$$V_{modelo2} = 2 * V_{cabezal2} + V_{cilindro2};$$

$$q_{modelo1} = \frac{V_{modelo1}}{\frac{\sqrt{8} * L}{1.777 * C_d * A_0 * \sqrt{g}} * \left(D_i^{\frac{3}{2}} - (D_i - h1[t])^{\frac{3}{2}} \right) * \left(0.02 * \left(D_i - \frac{3}{5} * \frac{h1[t]^{1.04}}{0.87} \right) \right)};$$

$$q_{modelo2} = \frac{V_{modelo2}}{\frac{\sqrt{8} * L}{1.777 * C_d * A_0 * \sqrt{g}} * \left(D_i^{\frac{3}{2}} - (D_i - h2[t])^{\frac{3}{2}} \right)};$$

$$R1 = \frac{(h1[t] + 134) - h2[t]}{q_{modelo1}};$$

$$R2 = \frac{(h1[t] + 134) - h2[t]}{q_{modelo2}};$$



$$\text{sol} = \text{NDSolve} \left[\left\{ -\text{AW1} * \text{h1}'[t] == \frac{1}{\text{R1}} * ((\text{h1}[t] + 134) - \text{h2}[t]), \right. \right.$$

[resolvidor diferencial numérico]

$$\text{AW2} * \text{h2}'[t] == \frac{1}{\text{R2}} * ((\text{h1}[t] + 134) - \text{h2}[t]),$$

$$\text{h1}[0] == 91.1, \text{h2}[0] == 0.2 \}, \{\text{h1}[t], \text{h2}[t]\}, \{t, 3459\}]$$

Plot[Evaluate[h1[t] /. sol], {t, 0, 3459},

repr... [evalúa

AxisLabel → {"t[s]", "h1[cm]"}]

[etiqueta de ejes

TableForm[{{"t" s, "h1" cm}}, TableDepth → 2]

[forma de tabla

[profundidad de tabla

Table[{t, h1[t] /. sol}, {t, 0, 3459, 345.9}] // TableForm

[tabla

[forma de tabla

Plot[Evaluate[h2[t] /. sol], {t, 0, 3459},

repr... [evalúa

AxisLabel → {"t[s]", "h2[cm]"}]

[etiqueta de ejes

TableForm[{{"t" (s), "h2" (cm)}}, TableDepth → 2]

[forma de tabla

[profundidad de tabla

Table[{t, h2[t] /. sol}, {t, 0, 3459, 345.9}] // TableForm

[tabla

[forma de tabla

TableForm[{{{"t" (s), "Vmodelo2" (cm³)}}}, TableDepth → 2]

[forma de tabla

[profundidad de tabla

Table[{t, Vmodelo2 /. sol}, {t, 0, 3459, 345.9}] // TableForm

[tabla

[forma de tabla

TableForm[{{{"t" (s), "AW1" (cm²)}}}, TableDepth → 2]

[forma de tabla

[profundidad de tabla

Table[{t, AW1 /. sol}, {t, 0, 3459, 345.9}] // TableForm

[tabla

[forma de tabla

TableForm[{{{"t" (s), "AW2" (cm²)}}}, TableDepth → 2]

[forma de tabla

[profundidad de tabla

Table[{t, AW2 /. sol}, {t, 0, 3459, 345.9}] // TableForm

[tabla

[forma de tabla



```
TableForm[{{"t" (s), "qmodelo2" (cm3)}}, TableDepth → 2]
```

forma de tabla profundidad de tabla

```
Table[{t, qmodelo2 /. sol}, {t, 0, 3459, 345.9}] // TableForm
```

tabla forma de tabla

```
TableForm[{{"t" s, "R1"}}, TableDepth → 2]
```

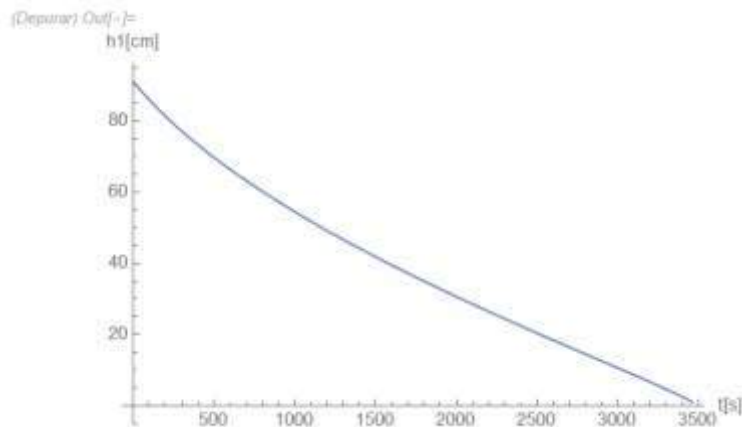
forma de tabla profundidad de tabla

```
Table[{t, R1 /. sol}, {t, 0, 3459, 345.9}] // TableForm
```

tabla forma de tabla

```
{ {h1[t] → InterpolatingFunction[  Domain: {{0., 3460.}}  
Output: scalar] [t],
```

```
h2[t] → InterpolatingFunction[  Domain: {{0., 3460.}}  
Output: scalar] [t] }
```



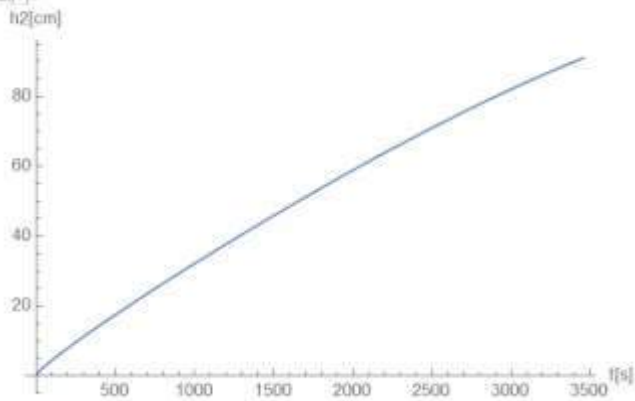


"t" (s) "h1" (cm)

(Depurar) Out[-]//TableForm=

0.	91.1
345.9	75.3017
691.8	63.4711
1037.7	53.4867
1383.6	44.6381
1729.5	36.5751
2075.4	29.0791
2421.3	21.9888
2767.2	15.1596
3113.1	8.40809
3459.	1.08702

(Depurar) Out[-]



"t" (s) "h2" (cm)

(Depurar) Out[-]//TableForm=

0.	0.2
345.9	12.7516
691.8	23.2739
1037.7	33.2218
1383.6	42.7715
1729.5	51.9599
2075.4	60.7665
2421.3	69.1464
2767.2	77.0458
3113.1	84.3969
3459.	91.0477



"t" (s)	"Vmodelo2" (cm ³)	"t" (s)	"AW1" (cm ²)
0.	308.615	0.	94 884.9
345.9	155 205.	345.9	69 855.1
691.8	371 456.	691.8	60 050.5
1037.7	611 551.	1037.7	52 850.1
1383.6	858 428.	1383.6	46 779.6
1729.5	1.09937 × 10 ⁶	1729.5	41 188.7
2075.4	1.32346 × 10 ⁶	2075.4	35 692.4
2421.3	1.52114 × 10 ⁶	2421.3	29 999.4
2767.2	1.68386 × 10 ⁶	2767.2	23 775.9
3113.1	1.80298 × 10 ⁶	3113.1	16 362.6
3459.	1.86282 × 10 ⁶	3459.	3977.72

"t" (s)	"AW2" (cm ²)	"t" (s)	"qmodelo2" (cm ³)
0.	536.781	0.	82.6052
345.9	21 322.1	345.9	675.43
691.8	31 078.7	691.8	915.137
1037.7	38 779.8	1037.7	1091.47
1383.6	45 500.9	1383.6	1232.44
1729.5	51 792.9	1729.5	1348.16
2075.4	58 035.4	2075.4	1443.21
2421.3	64 511.1	2421.3	1519.85
2767.2	71 504.4	2767.2	1579.09
3113.1	79 579.3	3113.1	1620.69
3459.	93 691.3	3459.	1641.09



$$"t" (s) \quad "R1" \left(\frac{cm}{cm^3 / s} \right)$$

(Depurar) Out{.j//TableForm-

0.	0.0434306
345.9	0.073665
691.8	0.0934666
1037.7	0.108094
1383.6	0.119427
1729.5	0.128543
2075.4	0.136408
2421.3	0.144382
2767.2	0.155396
3113.1	0.179971
3459.	0.4108



BENNETT FRACTURE

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ABSTRACT

Introduction: The intra-articular fracture separating the palmar ulnar aspect of the base of the first metacarpal from the rest of the first metacarpal is called Bennett's fracture. Injuries are usually caused by axial loads on the partially flexed metacarpal bones. Radiographs are needed to evaluate these injuries and to schedule surgery to relieve them, since such fractures are assumed to be unstable. Surgical treatment of these fractures alters depending on the extent of the injury. It may include closed reduction with percutaneous fixation or open reduction with fixation or interfragmentary fixation. With good fracture localization and fixation, the postoperative outcome is usually good.

Objective: to detail the current information related to Bennett's fracture, presentation, evaluation, comparison with Rolando's fracture, in addition to the diagnosis and treatment of the disease.

Methodology: a total of 28 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 18 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: Bennett fracture. Bennett's, fratura da base do primer metacarpiano.

Results: Anteroposterior, lateral and oblique projections are common when taking radiographs of the hand, however Robert's view can reveal more details about the injury. Both Bennett's and Rolando's fractures present the same pathogenic mechanism however the damaging force is of greater magnitude than in Bennett's fractures.

K-wire fixation is better than plate and/or screw osteosynthesis as a treatment because of the benefit of keeping costs down without harming the patient in the long term. Direct visualization is the most accurate method to assess joint separation and articular pitch, PA, AP and lateral projections on fluoroscopic examination may not be sufficient to determine the final position of a reduced Bennett fracture.

Conclusions: Although there is no consensus on which treatment is best, surgical treatment of Bennett fractures is usually used because closed reduction and cast immobilization without internal fixation are often unstable due to deforming forces. Indications for surgical treatment for fractures of the base of the first metacarpal include extra-articular fractures with more than 30 degrees of angulation after reduction; loss of reduction after non-operative treatment; and intra-articular fractures: displaced Bennett fractures greater than 1 mm or any Rolando fracture. The arthroscopically assisted screw fixation of Bennett reported fewer complications, shorter immobilization time and shorter tourniquet time.

Keywords: fracture, Bennett, metacarpal, first.



INTRODUCTION

The intra-articular fracture that separates the palmar ulnar aspect of the base of the first metacarpal from the rest of the first metacarpal is called Bennett's fracture, it is a subluxation fracture of the carpometacarpal joint of the thumb, with an important palmar anterior marginal fracture segment(1-3).

The name of the fracture is given by the professor of surgery at Trinity College Dublin, Edward Hallaran Bennett, who described it in 1882 and described it as a fracture that "passed obliquely through the base of the bone, detaching the greater part of the articular surface", and which resembled a dorsal subluxation of the first metacarpal(2,4,5).

The injuries are usually caused by axial loads on the partially flexed metacarpal bones and are occasionally associated with wrist fractures or ligament injuries. Bennett's fractures are therefore the result of opposing tensile forces of the anterior oblique ligament plus an axial load on a flexed thumb or a shear force against the first web space (motorcyclist thumb). Radiographs are needed to evaluate these injuries and schedule surgery to relieve them, as such fractures are assumed to be unstable. Surgical treatment of these fractures alters depending on the extent of the injury. It may include closed reduction with percutaneous fixation or open reduction with fixation or interfragmentary fixation. With good fracture localization and fixation, the postoperative outcome is usually good(1,6).

METHODOLOGY

A total of 28 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 18 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google

Scholar; the terms used to search for information in Spanish, Portuguese and English were: Bennett fracture, first metatarsal fracture, fratura do Bennett.

The choice of the bibliography exposes elements related to Bennett's fracture; in addition to this factor, its presentation, evaluation, comparison, in addition to the diagnosis and treatment of the disease are shown.

DEVELOPMENT

This fracture, which results from axial loading on a partially flexed metacarpal, may also involve the adjacent carpal bone (trapezium) and/or ulnar collateral ligament of the metacarpophalangeal (MCF) joint of the thumb(1).

Thumb fractures include the subtype known as Bennett's fracture. Children and the elderly have been found to be more prone to total fractures of the thumb. While 20% of hand fractures in patients older than 65 years involved the thumb, 22% of all tubular bone fractures in children aged 0 to 16 years involved the first radius. The thumb was the most frequently fractured tubular bone in the elderly, with an oblique intra-articular fracture pattern(1).

Approximately 10% of all fractures are metacarpal bone fractures. This accounts for almost 40% of all hand fractures(2).

Metacarpal fractures occur 2.5% of the time in adults. The most frequent type of thumb fractures involves the articular surface of the carpometacarpal joint. The second most frequent metacarpal injury after the fracture of the metacarpal neck of the little finger is the thumb fracture, which accounts for 25% of all metacarpal fractures(2).



Figure 1. Bennett's fracture in radiography



Source: Carter KR, Nallamotheu SV. Bennett Fracture. StatPearls Publishing; 2022(1)

Bennett's fracture has a unique fracture pattern. The palmar ulnar fragment of the first metacarpal is held in place by its ligamentous attachment to the trapezium during axial loading with the rest of the metacarpal in motion, causing the base of the first metacarpal to break with intra-articular extension. The main fracture line follows this area of weakness and runs in the opposite direction. The abductor pollicis longus, extensor pollicis longus, extensor pollicis brevis and adductor pollicis brevis, which are still attached to the fragment, are pulling on the fracture, causing the diaphysis of the first metacarpal to subluxate dorsally, proximally and radially(1).

The ligaments that give stability to the thumb complement the absence of bony insertion. The dorsoradial ligament, which prevents dorsomedial subluxation, and the anterior palmar ligament, which prevents dorsal subluxation(2). Detailed description of the ligament anatomy of the palmar burst fracture increases the likelihood for improved reduction and treatment of this common hand injury(7).

The presenting signs and symptoms of Bennett's fracture initially are pain, edema, tenderness in the tenar area, functional impairment of the thumb, and joint instability. There are late symptoms that occur according to the chosen treatment, such as closed or open reduction. In patients who opted for closed reduction, there were more late symptoms such as deformity and restriction of movement. In patients who underwent open reduction, symptoms were observed over a longer period of

time, with motion restriction and decreased grip strength predominating; however, patients did not notice this alteration until the post 10-year evaluation. In all patients, regardless of the approach used, osteoarthritic changes could be observed with a greater predominance in patients with a closed approach where even arthritis was observed(8-10).

Anteroposterior (AP), lateral and oblique projections are common when taking radiographs of the hand. One of these is Robert's view, which can be obtained in addition to other dedicated projections of the thumb to reveal more details about the lesion. The forearm is hyperpronated, the dorsal aspect of the thumb is pressed against the radiographic film and the x-ray beam is pointed 90 degrees in the direction of the film for this view, which is a true AP projection of the first carpometacarpal joint(1).

Another projection is the Bett, which is obtained with the palm overpronated 20 degrees against the film and the beam directed 15 degrees proximal to distal. Pressing the radial aspect of the thumbs in an AP view can also be used to take stress radiographs, which may show that the base of the metacarpal is subluxed relative to the trapezium on the side experiencing symptoms(1).

**Figure 2. Bennett's fracture on oblique radiograph.**

Source: Carter KR, Nallamotheu SV. Bennett Fracture. StatPearls Publishing; 2022(1)

Gredda divided Bennett's fractures into three categories according to their radiographic appearance: Type I, an impaction fracture without subluxation of the first metacarpal; Type II, an injury with a small ulnar avulsion fragment along with metacarpal dislocation; and Type III, an injury with both characteristic(1).

As external pressure is applied to the base of the first metacarpal, axial traction with palmar abduction and pronation is necessary. It has been shown that the "hitchhiker's position" with the thumb extended can lead to fracture displacement(1).

When first described by Bennett, treatment was by closed reduction and splinting, which remained the preferred therapeutic method until the 1970s. Today, a wide variety of surgical treatment of Bennett fractures is commonly used, most

often consisting of closed reduction with percutaneous pinning or open reduction with pins or interfragmentary screws. In case reviews, all fixation methods have proven to be effective. The complete view of the articular surface of the first metacarpal is difficult to achieve from the dorsoradial aspect of the hand. The palmar approach allows optimal exposure of the fracture. The osteosynthesis can be placed ulnar-radially from the minor fragment giving a correct reduction and stabilization(1,11).

To reduce subluxation of the first metacarpal diaphysis, closed reduction therapy often involves intermetacarpal fixation from the first to the second metacarpal and/or to the trapezium. If open reduction is chosen to treat this fracture, a Wagner incision is most often used. There is still disagreement as to whether to treat these fractures with an open reduction or a closed reduction(1). However, one thing is certain: the joint must be



reduced to achieve good functional results after this fracture-dislocation(2).

Most Bennett fractures are treated surgically because closed reduction and cast immobilization without internal fixation are often unstable due to deforming forces (abductor pollicis brevis, flexor pollicis brevis, flexor pollicis adductor distal extension and abductor pollicis longus proximal extension)(4).

A clinical study determined that K-wire fixation is better than plate and/or screw osteosynthesis as a treatment for Bennett fracture, due to the benefit of keeping costs low without harming the patient in the long term(12).

The various forms of closed reduction and percutaneous fixation (CRPF), open reduction and internal fixation (ORIF) and arthroscopy-assisted fixation are surgical fixation techniques. Orthopedic surgeons are still divided on the best course of action(4).

ORIF has typically been recommended the instant the fracture fragment is more than 25% of the articular surface and when the joint line cannot be reduced to less than 2 mm of displacement with closed reduction. Closed reduction and percutaneous fixation generate adequate clinical results, although complications such as pintract infections and secondary dislocation have been reported(4,13).

Bennett fractures can be reliably treated with CRPF when the persistent step and gap after fixation does not exceed 2 mm(14). In non-athletes, there is dispute regarding the amount of joint step-out that is acceptable at the fracture site. Some studies have found no correlation between the quality of articular reduction and radiographic results, while other biomechanical analyses have shown that 2 mm of persistent staggering of the articular

surface does not change contact pressures. They conclude that bony apposition of the fragments within 2 mm and correction of any joint subluxation will be accepted without increasing the risk of post-traumatic arthritis, however anatomical reduction is preferred(1).

The treatment algorithm in the absence of studies is still unclear. According to a clinical study, the double intermetacarpal nailing technique according to Iselin is an economical, easy and simple technique to perform, using technical measures, optimal results are achieved in both small and large fragment Bennett fractures(4).

Indications for surgical treatment (closed reduction and K-wiring, open reduction and internal fixation with plates or screws, or external fixation) for fractures of the base of the first metacarpal include extra-articular fractures with more than 30 degrees of angulation after reduction; loss of reduction after non-surgical treatment; and intra-articular fractures: Bennett fractures displaced more than 1 mm or any Rolando fracture(15).

We consider it important to differentiate Bennet's fracture from Rolando's fracture, the latter represents 21% of the fractures of the base of the first metacarpal, intra-articular with detachment of some fragments, classically three. Both Bennett and Rolando fractures present the same pathogenic mechanism, however the damaging force is of greater magnitude than in Bennett fractures and the treatment is preferably surgical; ligamentotaxis with percutaneous traction may be of choice in intensely comminuted fractures, with the risk of presenting a poor quality restoration of the articular surface and/or exposure to infectious complications(16).

Figure 3. Rolando's Fracture.



Source: Feletti F, Varacallo M. Rolando Fractures. StatPearls Publishing; 2022(16).



The effectiveness of open reduction internal fixation versus arthroscopically assisted screw fixation of Bennett fractures was compared by Pomares and colleagues. In the arthroscopic group compared to the open fixation group, they reported fewer complications (1 of 11 vs. 6 of 11), shorter immobilization time (3.9 weeks vs. 7.1 weeks), and shorter tourniquet time (42 minutes vs. 56 minutes). Additionally, the percutaneous group showed a higher return to work rate (91%) than the open group (70%) did. Another study by Zemirline and colleagues suggested that at short-term follow-up, arthroscopic-assisted percutaneous screw fixation of Bennett fracture led to satisfactory reduction of the joint in all cases, key pinch was 73%, and grip strength of the contralateral side was 85%. However, at the 4.5 month final follow-up, it was noted that 4 patients had a subsequent displacement of the surgical reduction(17).

According to a clinical trial, direct visualization is the most accurate method for assessing joint separation and articular pitch compared to the postero-anterior (PA), anterior-posterior (AP) and lateral views of a fluoroscopic examination. The PA, AP and lateral projections in a fluoroscopic examination may not be sufficient to determine the final position of a reduced Bennett fracture, as surgeons should be aware. The use of arthroscopic examination, three-dimensional fluoroscopy or live fluoroscopy should also be considered (18).

CONCLUSIONS

Bennett's fracture results from axial loading on a partially flexed metacarpal, which may involve the adjacent carpal bone and/or ulnar collateral ligament of the thumb metacarpophalangeal joint. The presenting signs and symptoms of Bennett's fracture initially are pain, edema, tenderness in the tenar area, functional impairment of the thumb, and joint instability.

Anteroposterior, lateral and oblique projections are common when taking radiographs of the hand. Robert's view may reveal more details about the injury.

Both Bennetts and Rolando's fractures present the same pathogenic mechanism, however the damaging force is of greater magnitude than in Bennett's fractures.

Although there is no consensus on the best treatment, surgical treatment of Bennett fractures is usually used, most often consisting of closed reduction with percutaneous pinning or open reduction with pins or interfragmentary screws. Most Bennett fractures are treated surgically because closed reduction and cast immobilization without internal fixation are often unstable due to deforming forces. A clinical study determined that K-wire fixation is better than plate and/or screw osteosynthesis as a treatment because of the benefit of keeping costs down without harming the patient in the long term.

Bennett fractures can be reliably treated with CRPF when the persistent step and gap after fixation does not exceed 2 mm.

The effectiveness of open reduction internal fixation versus arthroscopically assisted screw fixation of Bennett fractures was compared. In the arthroscopic group compared to the open fixation group, they reported fewer complications, shorter immobilization time and shorter tourniquet time. Another study suggested that at short-term follow-up, arthroscopic-assisted percutaneous screw fixation of Bennett fracture led to satisfactory reduction of the joint in all cases. Direct visualization is the most accurate method to assess joint separation and articular pitch, PA, AP and lateral projections in a fluoroscopic examination may not be sufficient to determine the final position of a reduced Bennett fracture.

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THE ROLE OF CONSUMERS ATTITUDE IN PURCHASE OF COUNTERFEIT PRODUCTS IN INDIA

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ABSTRACT

In the present day, modern business seems to be complex and a greater degree of difficulties to manage the enterprises compared long ago. Luxury plays a vital role in many periods of century in India. In today's time luxury have covered all the geographical boundaries so much that luxury counterfeits have enough of space to easily float in the market. The purpose of this study is to understand the consumer's attitude and intension in respect to purchase of counterfeit products. In order to stay in fashion, consumer buys these products, as its price is less and many conditions that are more favorable. This study is a qualitative research, which has a sample size of 460 respondent of India. Sampling is convenient in nature along with this study focus on non-deceptive consumers. Data was collected through Self-made Questionnaire which is a 5 point linkertscale. The theory of planned behavior is covered to explain the attitude of consumers. Variables which are covered are Social influence, Materialism, value consciousness, brand consciousness and so on to define this research.

KEYWORDS: *Luxury, Counterfeits, Consumers, Attitude.*

INTRODUCTION

Counterfeits have emerged as a flourishing industry, especially in Asia. Counterfeiting is a problem faced by most of the luxury brand companies in the worldwide costing more than \$500 billion and almost 7% of the world trade. In India, the direct lose to FMCG industry is also not less than Rs 200 million. A survey has been conducted to estimate the size of counterfeit of FMCG products and it revealed the reality of FMCG companies facing maximum loss up to 40%. Increased advancement in technology and liberalization of the Indian economy have created an ideal market for people misusing existing brand values that have been cultivated and tortured during period of time. In the case of goods, the counterfeits able to deceive the consumer in able to think they are purchasing legitimated products. Metro cities in India become the hub for manufacturing counterfeits products and in the violation of maximum intellectual property rights. Delhi is the hub of counterfeit products in India as nearly 80% counterfeits originated here. The price of these product is the attraction of customers as the purchase of these pirated products is directly proportional to price. These products are sold in 40-45 % lesser value than the original. A common person with limited knowledge falls for the counterfeit products due to its cheap and discounted prices. Enforcement of laws against counterfeiting is so strict in India, which is another big problem for brand industry. The most popular counterfeiting market is clothing, followed by shoes, watches, leather goods and jewellery. Followed by some brands like Louis Vuitton, Gucci,

Burberry, Tiffany, Prada, Hermes, Chanel, Dior, Cartier are frequently pirated.

OBJECTIVES

The research Intents at detailed exploration of given objectives concerning Counterfeit Sector:

- To understand the variation of demographic factors like age, gender, qualification, occupation and income on Luxury Counterfeits of Indian youths.
- To study the consumer's perception towards luxury Value like Social value, uniqueness value, quality value, and product attribute value as a modern view of Indian youths.
- To identified the factors that influence the intension to purchase counterfeit products in the context of young Indian consumers.
- To determine whether there is a difference in response to the factors identified between those who are more likely to purchase and those less likely to purchase. To provide a fruitful contribution in the development of market strategy for anti-counterfeiting group in India.

METHODOLOGY

Research design is the framework of research methods and techniques chosen by a researcher. The design allows researchers to hone in on research methods that are suitable for the subject matter and set up their studies up for success. The



design of a research topic explains the type of research (experimental, survey, correlational, semi-experimental, review) and also its sub-type (experimental design, research problem, descriptive case-study). This study depends upon survey method. A proper survey was conducted to assess the impact of counterfeiting of luxury brands. The research type selected to this study is exploratory research and descriptive research.

SAMPLING DESIGN

Complete Indian Youths are denoted as sample populace. Luxury is one of the largest growing sectors, which have huge number of counterfeits in business area. As the emphasis of luxury fashion on an individual, it is decided to select the factor with the maximum people attentiveness for the study, specifically the Indian youths. During the research duration, the accurate number of Indian youths in India could not be confirmed. In understanding of these restrains, the researcher decided to assemble a list of Universities of India to cover most Indian Youths.

STATISTICAL DESIGN

Sample frame states University and Working professionals where study sample is taken.

My research study is based on Luxury Counterfeits, an attempt will be made to collect data from Indian youths and Working Professionals.

Selection of Indian youths is done based on Non- probability convenient sampling.

Population (N) - is given 36 crores approx. as per outlook India Report 2020.

Sample size calculated using Taro Yamane's formula 1967 The Taro Yamane's method 1967 is devised to calculate sample size using 95% confidence level. Thus, the formula is as follows:

$$n = \frac{N}{1 + Ne^2}$$

Notion,

n-sample size,

N = populace,

e= significance level i.e., Std. error 0.05,

1=constant value.

Calculation of Sample Size

Considered

$$n = \frac{36000000}{1 + 36000000(.05)^2}$$

2. Sample calculated using creative research system (online calculator). Population 36 crore, 95% confidence level and 5% confidence interval. Thus, needed sample size is 384.

3. Sample size calculated using Raosoft (online Calculator). Population 36 crore, 95% confidence level and 5% confidence intervals. Thus, needed sample size is 385.

The sample size is 460, which was subdivided into 2 groups.

- a) Group one consist of 460 respondents from all over India.

- b) Group two consist of 125 respondents were exclusively from youths located in Madhya Pradesh, (M.P.).

The source of data is an important aspect for any research as the result. To keep the study in real time zone, the data in this study is collected through primary source and some of the data is collected from secondary source as well. Different categories of data collection tools used:

1. Primary Data- is collected from interviews, questionnaire, Surveys etc.
2. Secondary Data- is collected from internet, books, newspapers etc.

GEOGRAPHICAL DESIGN

The important obligation of an experiential research is sample collection style should nominate each sample representing the universe and outcomes acquired should be corporate. The sample of present research involved all youths from the Indian Universities, working professionals widespread over geographical zones where Luxury counterfeits have strong existence. Data accumulated from Students of diverse Universities and Business professionals scattered over Indore, Mumbai, Pune, Delhi, Hyderabad, Bangalore, Chennai, etc.

The questionnaire distributed to 75 Indian youths for pre testing and pilot study was conducted. Pretesting was done to ensure reliability and validity of the questionnaire.

It was done to check whether the instrument was correctly framed in an understandable manner. Considering proposal of the participated sample respondents, needed revisions and changes were integrated in questionnaire after the pilot study the cronbach alpha value was 0.833.

In order to attain research purposes structured questionnaire were designed after in-depth review of literature and discussion of purchase of counterfeit fashion products. A self-directed questionnaire was circulated to consumers planned to measure purchase intention of luxury counterfeits among Indian Youths.

The questionnaire is designed in 3 segments viz. In 1st segment respondents need to give basic personal and demographic info like name, age, gender, income, designation, experience, etc. 2nd segment comprised of fundamental question based on luxury counterfeit practices. 3rd segment is consist Luxury Practices in selection of counterfeit products. It also constitutes of questions related to the behavior for selection and uses of the products. The questionnaire is designed precisely that respondents can easily answer it has been divided into 3 sections as mentioned below:

1.Section A: It contains 7 questions based on demographic information such as age, gender, marital status, qualification, income, etc.



2. Section B: It covers 6 essential questions related to luxury counterfeit, which are based on multiple choice questions.

3. Section C: It contains 16 question related to variables framed using likert 5 point scale which mandate the subject to specify his or her impact level either in favor or in disfavor of a

statement. In this questionnaire, respondents were offered 5 response options. Those alternatives operated as assessment of respondents choice on all interrogation items. Questionnaire nominated quantifications are listed below:-

Linkert scale starting 5 Point Ranking

Ranks	1	2	3	4	5
Extent of Impact	Strongly disagreed	Disagree	Neutral	Agree	Strongly Agree

RESULTS

Age group: Among the respondents of India, 54.3% are within the age group of 18-25 years, 26.3% respondents are within the age group of 26-35 years, and 19.3% are within the age group of 36-45 years. On the other hand, among the respondents of Madhya Pradesh, 55.2% are within the age group of 18-25 years, 26.4% respondents are within the age group of 26-35 years, and 18.4% are within the age group of 36-45 years.

Gender: Among the respondents of India, 74.1% were male and 25.9% were female. Among the respondents of Madhya Pradesh, 72% were male and 28% were female.

Marital status: Among the respondents of India, majority, i.e., 75.9% of the respondents are unmarried and 24.1% of the respondents are married. Among the respondents of Madhya Pradesh, majority, i.e., 75.2% of the respondents are unmarried and 24.8% of the respondents are married.

Qualification: Among the respondents of India, 3.5% of the respondents are undergraduate, 63.5% are graduate, 26.5% are PG and 6.5% are certified or hold a diploma. Among the respondents of Madhya Pradesh, 9.6% are undergraduate, 60.8% are graduate, 25.6% are PG and 4.0% are certified or hold a diploma.

Income: Among the respondents of India, 57.8% of the respondents earns under 30k, 35% earns between 30-60k, and 7.2% earns between 60-90k. Among the respondents of Madhya Pradesh, 60% earns under 30k, 32.8% earns between 30-60k, and 7.2% earns between 60-90k.

Location: Among the respondents of India, 16.1% respondents are from Bhopal, 11.5% from Indore, 8.9% from Delhi, 12.6% from Pune, 8.9% Mumbai, 9.8% from Bangalore, 19.8% from Chennai, and 12.4% from Kolkata. Among the respondents of Madhya Pradesh, 60.8% respondents from Bhopal, and 39.2% from Indore.

Social Influence

People in my environment by counterfeit products: among the respondents of India, 10.4% strongly disagreed that people in their environment were socially influenced by counterfeit

products, 9.3% Disagreed, 13.9% were neutral, 19.3% agreed s, and 47% strongly agreed. Among the respondents of Madhya Pradesh, 9.6% strongly disagreed that people in their environment were socially influenced by counterfeit products, 12% disagreed, 16% were neutral, 20.8% agreed, and 41.6% strongly agreed.

People in my society encourage me to buy counterfeit products: among the respondents of India, 9.6% strongly disagreed that people in their environment encourage them to buy counterfeit products, 8% disagreed, 15.4% were neutral, 20% agreed, and 47% strongly agreed. Among the respondents of Madhya Pradesh, 11.2% strongly disagreed that people in their environment encourage them to buy counterfeit products, 10.4% disagreed, 22.4% were neutral, 13.6% agreed s, and 42.4% strongly agreed.

Materialism

Buying things gives me a lot of pleasure: among the respondents of India, 9.1% strongly disagreed that buying things gives them a lot of pleasure, 8.3% disagreed, 17.4% were neutral, 28% agreed, and 37.2% strongly agreed. Among the respondents of Madhya Pradesh, 9.6% strongly disagreed, 10.4% disagreed, 18.4% were neutral, 28.8% agreed, and 32.8% strongly.

I admire people who own expensive home, clothes and cars: among the respondents of India, 10.7% strongly disagreed that they admire people who own expensive home, clothes and cars, 6.1% disagreed, 12.8% were neutral, 28.9% agreed, and 41.5% strongly agreed. Among the respondents of Madhya Pradesh, 11.2% strongly disagreed, 9.6% disagreed, 16.8% were neutral, 32% agreed, and 30.4% strongly agreed.

Value Consciousness

I am concerned about price and products quality: among the respondents of India, 10.2% strongly disagreed that they are concerned about price and products quality, 7.8% disagreed, 14.8% were neutral, 26.5% agreed, and 40.7% strongly agreed. Among the respondents of Madhya Pradesh, 12% strongly disagreed, 11.2% disagreed, 16% were neutral, 28.8% agreed, and 32% strongly agreed.



Perceived Risk

The risk that I take when I buy a counterfeit is high: among the respondents of India, 9.6% strongly disagreed that the risk that they take when they buy a counterfeit is high, 7% disagreed, 14.1% were neutral, 25.9% agreed, and 43.5% strongly agreed. Among the respondents of Madhya Pradesh, 9.6% strongly disagreed, 9.6% disagreed, 16.8% were neutral, 25.6% agreed, and 38.4% strongly agreed.

There is a high probability that product does not work:

among the respondents of India, 12.2% strongly disagreed that there is a high probability that product does not work, 45.7% disagreed, 38.3% were neutral, and 3.9% agreed. Among the respondents of Madhya Pradesh, 11.2% strongly disagreed, 44% disagreed, 40% were neutral, and 4.8% agreed.

Brand consciousness

It is important that others like the products and brands I buy: among the respondents of India, 11.3% strongly disagreed that it is important that others like the products and brands they buy, 11.1% disagreed, 20.4% were neutral, 28.5% agreed and 28.7% strongly agreed. Among the respondents of Madhya Pradesh, 10.4% strongly disagreed, 10.4% disagreed, 23.2% were neutral, 24.8% agreed and 31.2% strongly agreed.

I am rather sensitive to interpersonal rejection: among the respondents of India, 12.2% strongly disagreed that they are sensitive to interpersonal rejection, 10.2% disagreed, 16.1% were neutral, 20.9% agreed and 40.7% strongly agreed. Among the respondents of Madhya Pradesh, 14.4% strongly disagreed, 12% disagreed, 12% were neutral, 25.6% agreed and 36% strongly agreed.

Attitude towards counterfeit products

Counterfeit products are as reliable as the genuine products: among the respondents of India, 9.6% strongly disagreed that counterfeit products are as reliable as the genuine products, 12.8% disagreed, 17.2% were neutral, 30.7% agreed and 29.8% strongly agreed. Among the respondents of Madhya Pradesh, 9.6% strongly disagreed, 16% disagreed, 20.8% were neutral, 24.8% agreed and 28.8% strongly agreed.

Counterfeit products have similar quality to the genuine products:

among the respondents of India, 9.6% strongly disagreed that counterfeit products have similar quality to the genuine products, 10.2% disagreed, 15.4% were neutral, 30.7% agreed and 34.1% strongly agreed. Among the respondents of Madhya Pradesh, 9.6% strongly disagreed, 13.6% disagreed, 20.8% were neutral, 24.8% agreed and 31.2% strongly agreed.

Purchase intention

I would think about a counterfeit product as a choice when buying something: among the respondents of India, 14.6% strongly disagreed, 9.3% disagreed, 25% were neutral, 23.5% agreed and 27.6% strongly agreed. Among the respondents of

Madhya Pradesh, 13.6% strongly disagreed, 12% disagreed, 25.6% were neutral, 19.2% agreed and 29.6% strongly agreed.

I will buy counterfeit products: among the respondents of India, 10.9% strongly disagreed, 22% were neutral, 30% agreed and 26.1% strongly agreed. Among the respondents of Madhya Pradesh, 10.4% strongly disagreed, 12.8% disagreed, 23.2% were neutral, 31.2% agreed and 22.4% strongly agreed.

SUGGESTIONS

The results of this study have some suggestions as follows:

First, as mentioned, counterfeiting is a growing problem worldwide and many actions are being taken to reduce counterfeiting on both domestic and global levels. In order to reduce counterfeiting from demand side, it is necessary to reduce motivation to produce counterfeit goods. Results of the current study revealed that adolescent counterfeit buyers had more positive attitudes toward counterfeit products and lower consumer ethics than non-buyers, indicating that consumers' ethical beliefs may be the key to lessen consumer demand for counterfeit products. Thus, consumer ethics education programs in educational institutions or governments need to develop consumer ethics education programs to prohibit adolescents' products. purchasing counterfeit.

Second, anti-counterfeits organizations can encourage word-of-mouth communication among friends and family members, because as shown in the results, the influence of friends and family members is likely to be more powerful.

Finally, to reduce adolescents' purchasing of counterfeits, manufactures should reduce their prices. The lower margin of genuine goods discourages counterfeiters as the business is no longer as lucrative if they have to reduce their already low prices further to compete against the genuine goods.

Also, anti-counterfeit technology is any technology (or process) designed to prevent false goods from entering the legitimate supply chain. Firms can apply these technologies at virtually every stage, from raw material suppliers through packagers all the way to end consumers.

CONCLUSION

The study revealed that the attitude of consumers towards counterfeit luxury products get significantly impacted because of the value-consciousness, brand-consciousness, perceived risk and materialism but has no significant impact because of social influence.

It can be stated that despite of it being ethically wrong, consumers are highly inclined towards purchasing counterfeit products and many respondents suggest these products to their family members and friends. It can be observed from the study



that in future, the counterfeit market and consumption of these products will grow significantly despite the fact that it causes a great deal of loss to the manufacturers and suppliers of the original product.

Adolescent counterfeit buyers may deny they are wrong and blame the original-product manufactures for charging such exorbitant prices. They may have double standards, which are employed such that prospective buyers of counterfeiters do not hold themselves accountable for their action but hold counterfeit sellers as responsible. Such situational ethics encourage further purchase of counterfeits. The findings would benefit marketers and educators in understanding the decision process of adolescents' purchasing counterfeit products.

To stop the counterfeiting of the products, it is important to make the people understand the real value of the original products along with the losses like losing their influence socially and the risk they take in purchasing these items. The ethical value of purchasing these items must be understood by the consumers.

The production and trafficking of counterfeit goods poses a significant health and safety threat to consumers. It also impacts the economic growth of legitimate businesses and consumers through lost revenue, downtime, and replacement costs. The 'influence of society' and 'value for money' have been identified as the top two reasons that motivate consumers to buy fake products based on a survey conducted.

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WOMEN EMPOWERMENT: IMPLEMENTATION THROUGH AWARENESS OF LEGAL PROCESSES AND PROGRAMS

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ABSTRACT

Women play a key role in shaping and constituting of the society, but what they should get back in return is on a pending track. This paper tends to highlight the major issues which the women are facing in the contemporary world that are creating hindrances in the upliftment as well as their empowerment. Some of the prevailing problems which the women are facing in their daily life are domestic violence, rape, women trafficking, acid attacks etc. The dominant causes which are overshadowing women empowerment is the lack of implementation programs, and women themselves are not aware of their basic fundamental and legal rights which should be done from the grass root level. Many international organizations and agencies are working consistently for the upgradation of the women. This review paper also tries to give suggestions for the implementation of programs which can facilitate the apotheosis of women.

INTRODUCTION

Before discussing about the topic in depth, let us discuss first what women empowerment is all about. Women empowerment refers to the creation of the environment for women where they can make decisions of their own for their personal and professional benefits as well as for the society.

Women are the permanent part of our society who play a variety of roles from their birth till death. Even after playing all their roles and jobs in an efficient way, in the modern time, she is allotted a place in the weaker section and is always put beneath the toes of the opposite gender. In India women are considered as the Goddess from the ancient time although they are never treated as one.

In primitive era, women were still in a lot better condition as they were given the respect and were treated equally. But thereafter the invasions that took place, made lives of the women hell and even worst than that. Since that time crime against women took birth. Crimes like harassment, trafficking, rapes, acid attacks, domestic violence etc. are increasing day by day. Women are seen as the sex toy and are also confined behind the walls of their so called house.

In present day, even though women have broken the walls of such houses but still they are unsuccessful in breaking the chains of our stereotypical and conservative minded society who does not want women to step equally with men.

Despite of prevailing laws and upliftment programs for the women we still lack behind in exercising them substantially. This is because people are unaware and misguided and those who are aware they are afraid of implementing them because the so called society does not permits them to do so. For example: if a woman is suffering from domestic violence, she is still forced to adjust in those situations by the people in fact her own parents as according to them only a woman is responsible for shaping, supporting and adjusting a household setting not men, hence women see suicide as an ultimate solution to these problems. These clinches are not letting women to empower and leaving them in the devastated position in society.

FACTORS AFFECTING THE DEGRADATION OF WOMEN

It is not the work of the single factor but a combination of various factors have been constantly, pulling women down to a lower position in society and making condition worst for them to survive.

ILLITERACY

One of the responsible factor is illiteracy. Illiteracy can be explain as one of the core reasons for the negligence and degradation of women. Women face problems in the society because they lack education and they are not aware of doing something constructive with their lives rather than staying dependent on others. This barricades them to move along with society and develop themselves to fight against wrong done to



them. This also promotes superstitious and orthodoxial thinking thus, confining them behind the doors of the houses.

In India the literacy rate among women is 65.46% according to Census 2011. Seeing the per capita population of India this rate does not matches with the aspirational, educational and economical growth of the nation. It is also one of the care reasons for the degradation of morale, adjustment and resilience power among women. Illiteracy can be considered as founder of many such issues like unemployment, poverty, female foeticide, prostitution and many more. It is a factor which hinders India in becoming superpower nation.

Among women if we talk about illiteracy, it is more common in rural areas. The Census 2011 clearly indicate that only 58.75% females are literate against 78.57% males. So we have point is that why the women are lagging. The key reason behind this is that women or girls are still considered as a burden on their parents. For example: a farmer who hardly manages to get his meal twice a day will either get his daughter married or will spend all his savings on her education. In most of the cases the farmer will choose the former option.

CHILD MARRIAGE

Illiteracy is giving rise to another factor, as discussed above, that deteriorates the future of the girl is child marriage. It is the orthodoxial belief of many parents that as soon as they get their daughter married the better for them. Even if we look at ancient times they were used to settle the disputes among the rulers of various regions. They were presented as the emoluments for the peace treaties.

Now the time has come to change this scenario. We need to give the women their due respect of share. Since 2001 the child marriage in India have gone down by 46%. This motivates us to go further since the target is yet to be completed.

DOWRY SYSTEM

Another factor which can be attributed to this issue is dowry system, which is very prevalent in our nation. Dowry in its simplest words can be said as the goods, whether in form of cash or property which is given by the girl's family. This system is the curse to the society because it clearly distinguishes her a living being from another living being. In some cases dowry leads to the physical and mental abuse and in extreme cases, it leads even to death.

According to official data, one women dies every hour due to dowry, in which a steady rise was seen between 2007 and 2011. According to National Crime Records Bureau, in the year 2012 there were 8,233 dowry deaths reported from various states of India. In the words of additional deputy commissioner of Delhi Police (Special Unit for Women and Children); Suman Nalwa; the problem of dowry is not limited to the lower and middle class. Higher socio-economic strata are equally involved in such practices. Further she adds that even the highly educated class of our society does not say no to dowry. It runs deep in our social system. (Times of India, September 1, 2013, New Delhi)

According to The Indian Express; published on July 31, 2015 in New Delhi; a total of 24,771 dowry deaths have been reported in the country in past three years with maximum of them.

According to Menka Gandhi; Ministry of Women and Child Development ; 8,233 cases in year 2012, 8,083 cases in year 2013 and 8,455 in year 2014 cases were registered under Section 304b of the Indian Penal Code (Dowry Death) in the country.



TABLE-1
CRIME HEAD WISE INCIDENTS OF CRIME AGAINST WOMEN DURING 2006-2010 AND PERCENTAGE VARIATION IN 2010 OVER 2009

SI. No.	CRIME HEAD	2006	2007	2008	2009	2010	% OF VARIATION IN 2010 OVER 2009
1	RAPE (SEC. 376 IPC)	19348	20737	21467	21397	22172	3.6
2	KIDNAPPING & ABDUCTION (SEC. 363 TO 373 IPC)	17414	20416	22939	25741	29795	15.7
3	DOWRY DEATH (SEC. 302/304 IPC)	7618	8093	8172	8383	8391	0.1
4	TORTURE (SEC. 498-A IPC)	63128	75930	81344	89546	94041	5
5	MOLESTATION (SEC. 354 IPC)	36617	38734	40413	38711	40613	4.9
6	SEXUAL HARASSMENT (SEC. 509 IPC)	9966	10950	12214	11009	9961	-9.5
7	IMPORTATION OF GIRLS (SEC. 366B IPC)	67	61	67	48	36	-25
8	SATI PREVENTION ACT 1987	0	0	1	0	0	-
9	IMMORAL TRAFFICKING (PREVENTION) ACT, 1956	4541	3568	2659	2474	2499	1
10	INCIDENT PRESENTATION OF WOMEN (PROHIBITION) ACT, 1986	1562	1200	1025	845	895	5.9
11	DOWRY PROHIBITION ACT, 1961	4504	5623	5555	5650	5182	-8.3
	TOTAL	164765	185312	195856	203804	213585	4.8

TABLE-2
PROPORTION OF CRIME AGAINST WOMEN (IPC) TOWARDS TOTAL IPC CRIMES

SI No.	YEAR	TOTAL IPC CRIMES	CRIME AGAINST WOMEN (IPC CASES)	PERCENTAGE OF TOTAL IPC CRIMES
1	2006	1878293	154158	8.2
2	2007	1989673	174921	8.8
3	2008	2093379	186617	8.9
4	2009	2121345	203804	9.2
5	2010	2224831	213585	9.6



TABLE-3
CRIME AGAINST WOMEN PERCENTAGE DURING DISTRIBUTION 2010

SI No.	CRIMES	PERCENTAGE
1	CRUELTY BY HUSBAND & RELATIVES	44%
2	MOLESTATION	19%
3	RAPE	10.4%
4	KIDNAPPING & ABDUCTION	13.9%
5	SEXUAL HARASSAMENT	4.7%
6	DOWRY DEATH	3.9%
7	IMMORAL TRAFFIC (P) ACT	1.2%
8	DOWRY PROHIBITION ACT	2.4%
9	OTHERS	0.4%

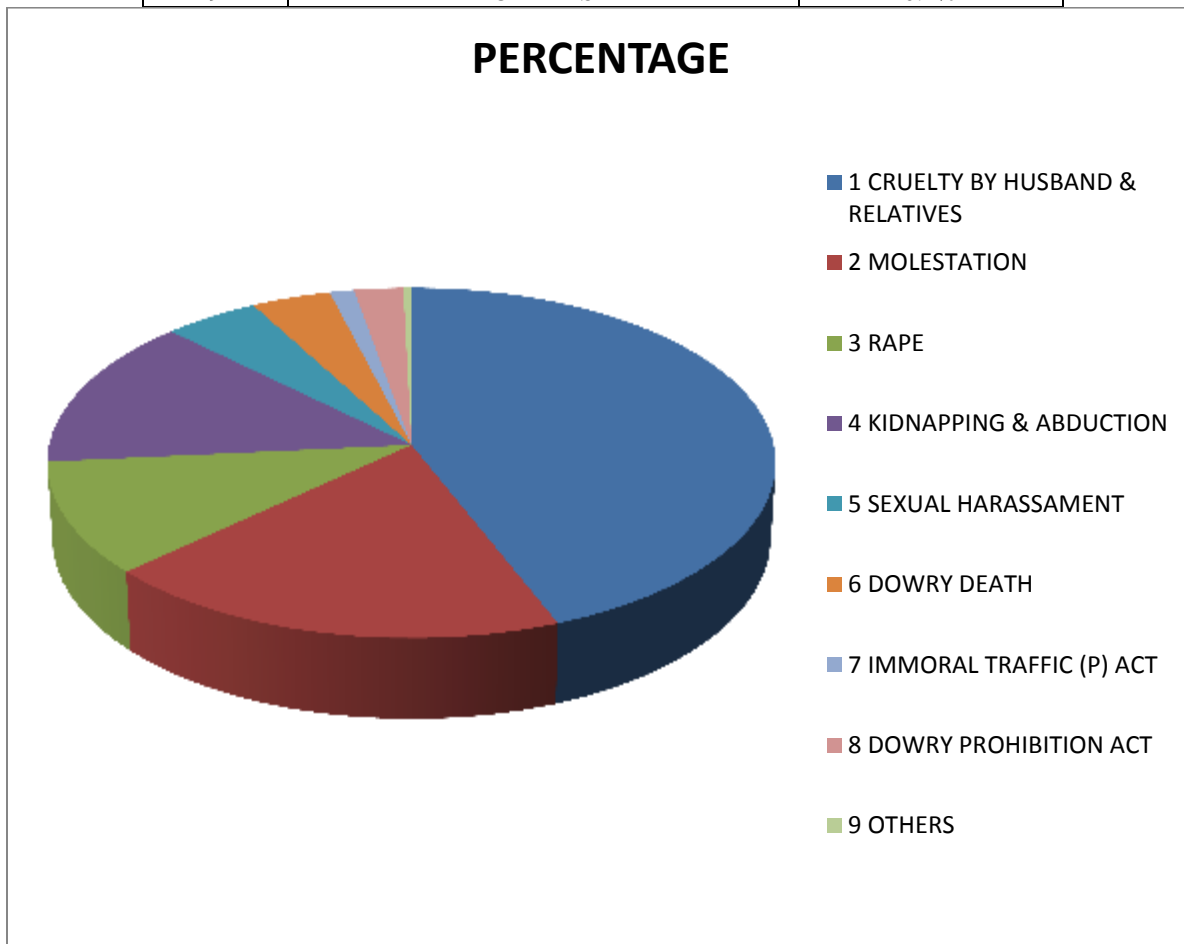


Figure -1 Representation of Table-3

Thus, we can see that the laws are there but their implementation is not there at grass root levels. So, we need to spread awareness for the implementation of these laws among all the sections of the society.

EMPOWERMENT THROUGH IMPLEMENTATION

Implementation can be more clearly explained as a process to apply the existing plan and legal programs into use for the

benefit of our citizen and also to progressively run our society eradicate cynical mindsets as well as pessimism from our society.

Women empowerment is necessary because it leads to the overall development of the society, and for any nation to progress in any socio-economic activity, the overall development is a must factor. Several laws are provided by our Constitution to women to safeguard their integrity and dignity.



Yet each single day we witness crime against women. So what is that 'X' factor that leads to such courage among the perpetrators? The answer to this is "Lack of implementation of such women friendly laws". Until and unless they are not put into aged, they would not be able to serve the desired function for which they are made. It is same like that we have key but we are not fixing into the lock to open up the door. As the data clearly shows the worsen condition about the women, for which there was a need for reformation in the existing laws and hence few of them recently put into action by Government of India are stated below:

- 1) **Juvenile Justice Act:** The most common in news currently was the Juvenile Justice Act which allows children aged between 16-18 years to be tried as adults in case of hierarchy offences. This law if purposefully implemented can give a big relief to women. This is so because since the past four years the crimes committed by the juvenile were increasing sharply such as in the year 2011 the number of case were 4,775; in 2012 the number of cases were 4,507; in 2013 the cases were 5,708; in 2014 the number of cases were 5,175 and in 2015 the number of cases were 5,482. So such type of law was desperately demanded by the society and in contemporary time, many juveniles have been convicted with the help of such laws.
- 2) **Dowry Prohibition Act 1961:** This also a very lethal weapon used by the women against dowry. If used properly this can curb this crime down. But again this is not implemented throughout the country and learning a lesson from the North Eastern states like Nagaland and Sikkim where the crime against the women are low because of the proper implementation of such laws. We need to apply this throughout the nation.

Some other sections under IPC (Indian Penal Code) that protect women are as follows:-

- Section 376 for Rape
- Section 363-373 for Kidnapping and Abduction
- Section 302/304b for Dowry and Dowry Deaths
- Section 307 for Abetment to Suicide
- Section 354 for Molestation
- Section 509 or 294 for Sexual Harassment/Eve Teasing
- Section 366B for Importation of Girls upto 21 years of age

When there will be proper implementation of these laws to the grass root levels then only there will be women empowerment in a proper way, which will not only lead to the development of the society but also the nation too. For the progress of the nation women also have their own share which is clearly shown by them in Rio Olympics 2016, Deepa Karmakar, Sakshi Malik (Bronze medalist in Wrestling), P.V. Sindhu (Silver medalist in Badminton). Also Deepa Malik, a Silver Girl, the first Indian woman to win at Paralympics in shotput. This clearly shows that if proper upliftment, exposure, empowerment and opportunities

are given to the women they not only prove themselves but also improve.

CONCLUSION

Women's empowerment is not just a catchphrase; it is a requirement for the best potential for the growth of a family, society, country, and a sustainable planet. The periodical has covered a wide range of topics, from the Indian constitution to development in recent years, including affirmative laws, initiatives, and programmes launched by the government, NGOs, and corporate sector through their CSR. Gender parity in educational attainment has improved, political engagement has improved, but there is a worsening tendency in economic participation and opportunity, as well as in the health and survival segment. Even among SAARC nations, it is worse in terms of health and survival. The government must place more emphasis on these two sectors in order to attain gender parity given that we have ten years to complete the SDGs. There is an urgent need to reevaluate India's affirmative action policies, bringing new energy to the empowerment of girls and women through conventional education as well as support for skill development, equitable economic opportunity, and provision of appropriate medical and healthcare. So at last we conclude that a society that seeks growth, development and Power need to empower their women and secure their future.

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HOW DOES CUSTOMER RATING AFFECT PRODUCT PURCHASE?

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ABSTRACT

A customer's buying behavior is largely governed by the needs, preferences and tastes of the consumers for whom the product/service is ultimately purchased. Traditionally, consumers' purchasing habits were solely relied on word of mouth. With the growth of the internet and technology, online consumer evaluations, product and service recommendations, and peer opinions play an increasingly important role in the customer's decision-making process. According to the literature, buyers seek online product reviews for four reasons: information seeking, risk reduction, quality seeking, and social belonging. Before purchasing a product, the buyer actively gathers and integrates information from a variety of sources, the most cost-effective and immediately accessible of which are online reviews. These reviews will have both positive and negative effect on the consumer's mindset. One bad review will drastically drop down the sales of the particular product as these opinions are considered as trustworthy and less risky than marketer information. This article will assist us in understanding how these ratings, reviews, and recommendations influence consumer product purchases and purchasing patterns.

KEYWORDS: *Purchasing pattern, Word of Mouth, Online reviews, Ratings, Sales*

1. INTRODUCTION

Early on in conventional marketing, consumers relied on word of mouth to make any purchase decision. Word Of Mouth (WOM) is the information one learns via interactions with friends and family that involve them sharing their opinions and experiences on a company or a product. With the advent of technology, e-commerce platforms came into picture. The omnipresence of internet gave customers the privilege of purchasing from anywhere anytime. This purchase decision in an online setting, depends on electronic words of mouth i.e. online reviews or shop ratings. These eWOMs are the evaluated information learned from other consumers, not just friends and family about the different aspects of consumer products. With this information, consumers can infer the quality of goods relating to experience, to reduce personal time spent in decision making and the risk of purchase. In other words, rather than the actual experience, consumer purchases are primarily dependent on products presentation in cyberspace, such as photos, images, quality information, and video clips. Since information provided by other customers is often distinguished as more attention-grabbing and trustworthy than information provided by the firm/brand, online customer reviews are believed to have a significant influence on customers' purchase decisions and therefore sales. Customer reviews and ratings are also being used as a new marketing strategy. Nowadays firms not only regularly post their product information and sponsor promotional chats on online forums, but also proactively induce their consumers

to spread the buzz about their products online. Some firms even strategically maneuver online reviews in an effort to influence consumers' purchase decisions.

2. LITERATURE REVIEW

Zan Mo, Yan-Fei Li, Peng Fan

Consumers cannot get all of the information before buying. They always focus on getting a greater insight of the product which is largely contributed by reviews and in recent times with the advent of technology, online reviews plays a major role. From an economic point, goods are divided into search goods and experience goods. Search goods means the goods that consumers will be able to get accurate information before buying according to the information, such as mobile phones, cameras, printers and so on. Experience goods refers to the goods that consumer will not be able to get accurate information about the product before personal use. Cosmetics is one such example because the review varies for each person. Quantity of positive reviews plays a significant role in the consumer decision making, the quantity of moderate reviews have no impact, and the negative reviews have negative impact on consumers buying behaviour. Positive reviews, description rating, picture reviews, additional reviews, and cumulative reviews are all influential factors in consumer purchasing behaviour (Mo et al., 2015).



Justin Beneke, Simona de Sousab, Marcelle Mbuyub and Bradley Wickhamb

The effect of negative online customer reviews is more detrimental to the brand equity of a high involvement product than a low involvement product. The high quality reviews are more influential than low quality reviews with respect to brand equity, and the difference between the levels of eWOM source credibility has no significant effect on brand equity. Marketers tend to spend millions of rand on elaborately conceived advertisement campaigns when, in fact, the true persuasive force behind a consumer's behaviour is a simple, free of charge Word of Mouth (WOM) recommendation made by a trusted source. With the decline of trust in advertising, WOM has become a powerful source of communication used to form consumer perceptions and behavioural intentions communication; the emergence and spread of the Internet has introduced a less personal but more ubiquitous form of communication, namely, electronic word of mouth. It has become increasingly common for consumers to refer to online product reviews when gathering pre-purchase product information.

Abdulaziz Elwalda, Kevin Lü

The existence of reviews provides valuable signals to the customers, increasing their propensity to purchase. We also infer that users usually don't pay attention to the entire set of reviews, especially if there are a lot of them, but instead they focus on the first few available. High priced items have a higher value for reviews than lower priced items. User reviews are also being used to build trust between customers in decentralized marketplaces Reviews are no longer an option for online shoppers; they are an expectation. After price, reviews have the greatest influence on purchases. It seems that users gain confidence in their purchase when they see other users have bought a high-priced item with high regards to review. For low-priced items, the monetary risk is lower and perhaps that's why the value of reviews is lower (Elwalda & Lu, n.d.)

3. FACTORS INFLUENCING PURCHASE BEHAVIOUR OF CONSUMERS

3.1 Electronic Word Of Mouth (eWOM)

Electronic word-of-mouth is any recommendation for or criticism of a company or product made by a prospective, actual, or past consumer that is made available to numerous individuals and organisations over the internet.

Since it is unaffected by the impact of organisations, word-of-mouth communication is generally regarded to have a significant role in individual-level analyses in determining consumer attitudes and behavioural intentions. The informal, non-commercial sharing of information between two or more people is referred to as traditional WOM. Since WOM communication is seen as having greater perceived credibility and trustworthiness than communication from other sources, such as editorial recommendations or commercials, it is thought to have greater persuasive power (Bambauer-Sachse & Mangold, 2011).

The quantity and calibre of online customer evaluations have a significant impact on how consumers interpret information. Since it is acceptable to infer that the number of reviews is correlated to the number of consumers who have purchased and utilised the product, the quantity of online reviews (i.e., review quantity) may be used to indicate the popularity of the product. Park et al., 2007 defines online customer reviews as any statements, good or negative, made by prospective, present, or past customers on a website.

Literature reveals that favourable eWOM support the idea that positive online customer evaluations improve the perception of the evaluated product. However, some businesses even purposefully manipulate internet reviews in an effort to sway customers' purchasing decisions. Negative online customer reviews, on the other hand, are often regarded as being more beneficial to consumers because they highlight the discontent with certain aspects of frequently used products as well and have a greater influence on a person's evaluation of the product. (Beneke et al., 2016).

3.2 Brand Equity

Brand equity is the value that consumers associate with a brand.

Brand equity is the additional usefulness or value that a product receives as a result of the associated brand name. Although marketers have long been aware of the concept of employing a name or symbol to promote a product's qualities, brand equity has recently attracted new attention. Businesses can lower their marketing expenses and increase their capacity to sell their goods for premium prices by developing powerful brands. Consumers interpreted brand equity as the value that the brand name brought to the functional good or service. However, brand loyal customers tend to spend less time gathering information, which streamlines the decision-making process (Binangkitsari et al., n.d.).

While considering brand equity, we actually talk about (1) Loyalty based on brand's real or potential price premium (2) Loyalty based on customer's satisfaction (3) Perceived comparative quality (4) Perceived brand leadership (5) Perceived brand value (6) Brand personality (7) Consumers perception of organization (8) Perceived differentiation to competing brands (9) Brand awareness (10) Market share (C. S. Park & Srinivasan, 1994)

3.3 Purchase Intention

Purchase Intention is the willingness of an individual to buy a product.

Purchase intention is viewed as an effective way to envisage the actual purchase that will be done by customer. It is the prospective way of understanding a consumer's purchase pattern depending on their want, attitude, behavioral decision based on their perception on a product or brand. It is accepted that an individual's decision on purchasing a specific brand is one of the significant aspects of Brand Equity.

Purchase intentions helps in assessing the implementation of new distribution channels thus aiding the managers to determine if the product can undergo additional development



and also determine the geographic markets and consumer segments to target via the channels.

Online reviews provide suggestions on the individual's perspective of those who has purchased the products and has first-hand experience of using the product. Thus the knowledge obtained from these reviews will have a direct impact on the aspects of purchase intention which will in turn help customer's take informed purchase decisions.

3.4 Source Credibility

The degree to which the recipient of the message regards the source to possess the necessary expertise, experience, or knowledge and the belief that the source will provide accurate, unbiased information is called Source Credibility. This source credibility comprises of two aspects 1) Expertise and 2) Trustworthiness.

Attitudes and opinions form a major part of a human's belief system. To leverage on this belief system, the marketers rely on the communicators with high level of credibility.

Opinion leaders are chosen based on their knowledge and expertise in a particular product or service. They play a major role in influencing the purchase decision of the customers.

Many trustworthy figures are hesitant to endorse a product or a service due to the fear of adverse impacts on their reputation. Marketers strive to increase the perception of trustworthiness on their product to improve the brand image through advertisements and in turn influence the purchase decision of the customers.

3.5 Product Involvement

Product involvement has been widely used in marketing research as an explanatory variable in the decision-making process for choosing and purchasing products. Product involvement measures a person's perception of the relevance of a consumption object based on needs, values, and interests (Zaichkowsky, 1985).

Although the concept of involvement has produced significant results for retail marketing strategy, marketing and retailing researchers are continually exploring it. It has a significant role in exposing one's identity or sense of self.

Because it has been found to be an accurate and dependable indicator of clothing and other product participation, the Personal Involvement Inventory (PII) of Zaichkowsky (1985) is widely used to measure the idea of product involvement.

3.5 Review Quality

Reviews play a significant role in the purchasing process. When consumers compare goods or services, they frequently opt for the ones with more favorable internet ratings. Customers are less likely to purchase when there aren't enough evaluations since they feel more risky.

A good review provides enough specifics for readers to get a sense of what transpired. Describing the elements that made the experience good, bad, or indifferent shows the better quality of review. Sharing thoughts on the company's strengths and areas for development will give a clear view for both the consumer and company.

4. CONCLUSION

This paper talks about various factors that bring about both the positive and adverse effects of the online reviews on the consumer buying behaviour. The influential factors revolving around the consumer reviews revolve around the description of the product, picture reviews, video reviews of opinion leaders and brand ambassadors. Therefore, sellers can encourage customers to post positive reviews about their good and services, that will in turn boost their sales. This paper will aid the marketers to understand the importance of online reviews, and the customers to make a timely buying decision on the good and services.

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STYLISTIC USE OF SUBJECTIVE FORMS OF NOUNS IN THE MODERN KARAKALPAK LANGUAGE

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ANNOTATION

The article examines the formation and stylistic use of forms of subjective evaluation of nouns in the modern Karakalpak language. The stylistic features of nouns forming a subjective form are studied, which are manifested through affixation, affixoids, by the category of number, possessiveness and cases, abbreviations of words and compound words.

KEYWORDS: *affixes, affixoids, the Karakalpak language, subjective form, subjective evaluation, diminutive forms, affix, initial case, possessive case, paired-repeated words.*

Language, as the most important means of communication between people, serves as a mirror that conveys the characteristic features and spirit of that time. It is known that in such cases, on the one hand, the language enriches the vocabulary, and on the other hand, the words existing in the language perform the function of expressing various relationships, subtle semantic shades. Therefore, the identification of forms expressing various shades of meaning in the Karakalpak language, the explanation of their connection and relationship with the main forms of the language from a scientific point of view is one of the most important tasks of linguistics.

The word is necessary for a person to express thoughts and speech, and also actively affects a person in the process of interaction. A word is a reflection of the form of a concept in human consciousness.

The forms of nouns expressing modal meaning are used to express such meanings as diminutiveness, endearment, respect, humiliation, reproach, mockery, humiliation, irony, suspicion, assumption and other meanings in relation to the subject and people. Some nouns not only name the subject, but also express the speaker's different attitude to the subject. In linguistics, such nouns are "subjective noun forms".

The tradition of distinguishing formations with diminutive suffixes in the class of names goes back to the teachings of ancient Greek authors. Aristotle also wrote about them in "Rhetoric": "A diminutive is an

expression that represents evil and good less than they actually are." The first proper linguistic analysis of diminutive nouns was also made by the Greeks - at the Alexandria Grammar School [1]. A.A. Shakhmatov was the first in Russian linguistics to call suffixes "suffixes of subjective evaluation"[10]. He considers the subjective forms of the noun inflectional forms .

In the Turkmen language A.Muradov,[5] in Kazakh linguistics A.Isqakov [11], in Uzbek linguistics M.Shamsieva, K.Sharafiddinova, R.Khadyatullaev [8] used the term "subjective form" in relation to this phenomenon.

N.A.Baskakov in the section "Word formation" of the "Short textbook of the Karakalpak language" of 1932 – included the affix *shak/-shek* in a number of affixes forming a noun and showed that they have a diminutive meaning [2]. N. A. Baskakov refers *-qay/-key*, *-y*, *-shiq/-shik*, *-shaq/-shek*, *-sha/-she*, *-ak/-ek* to the affixes of nouns expressing a diminutive and affectionate meaning[3].

In the Karakalpak language, A. Bekbergenov, in his work on stylistics, divided the means expressing subjective meaning into four types, expressing: "1) diminutive meaning; 2) respect, politeness; 3) affectionate meaning; 4) humiliation, ridicule" [4].

The concept of "subjective evaluation" means the subject and its qualities (often size), a certain action and state, positive or negative attitude of the speaker to the



subject. Grammatical meanings of subjective evaluation can be expressed within a word.

The morphology of the language is rich in various stylistic resources. When expressing a certain thought, morphological variants, synonyms, similar in meaning, but different in structure, are widely used.

In morphological stylistics, the stylistic coloring of the category of each part of speech, their relation to the functional styles of the language is studied. Stylistic features of a noun forming a subjective form are manifested through affixation, affixoids, by the category of number, possessiveness and cases, abbreviations of words and compound words, in which its subjective-evaluative forms are considered.

In the modern Karakalpak language, the forms -*sha/-she*, -*shak/-shek*, -*shiq/-shik*, -*laq*, -*jan*, -*khan*, denoting the speaker's attitude to a specific object, are studied mainly as part of the categories of nouns and adjectives and refer to the term "subjective forms". If a subjective evaluation forms a diminutive shade of a word with an expressive meaning, then the attached possessive affix enhances its meaning: *bota/botalaq/botalaġm*; *qulm/qulmtay/qulmtayim*.

The affix -*sha/-she* has the function of word formation, inflection and form formation. In functional styles, the morpheme -*sha* has no variety and is often used in colloquial speech, which is rarely synonymous with other morphemes: *xansha - xanshaiym*.

The affix -*shaq/-shek* often expresses the meaning of endearment: *Nokis degen qaladan, Tawıw aldıq qulmshaq* (Folk song).

The affix -*ake/-eke* is observed in some abbreviated words and expresses the meaning of irony, ridicule: - *Pul tapsam dártime dawa zattıń qay úyde ekenin ózim bilemen, on manat bir shiyshe "Porteken!"* (Sh.Seitov). The word "port!" in this example is formed by shortening the port wine to indicate a negative meaning in the sentence.

Affix -sımaq. In the Karakalpak language, the affix -*sımaq* is used to express the meaning of humiliation, ridicule: *Kuyewsımaġı shaikhanadan shıqpaytugın giyabent bolıp shıqtı* (O.Abdırakhmanov).

Affixes -sha/-she, -shaq/-shek, -k/-ek, -elek, -sh/-ish, -laq, -ake/-eke, -sımaq, along with contextual and lexico-grammatical meanings, have subjectively evaluative, emotional, expressive stylistic shades and express different stylistic meanings.

When forming the subjective form of nouns, the affixoids -*ġana /-gene, -qana /-kene, -laq, -khan, -zhan* perform a certain function.

In the Karakalpak language, the subjective meaning is also expressed by the abbreviated use of names. Suffixes -*sh, -ash, -ish, -esh, -osh* (Timur – Timosh, Damegul – Damesh), -*ake (áke), -eke* (Abdirahman – Abeke, Maqset – Máke), -*an* (Dosbergen – Dosan), affectionately -*on* (Eleonora – Elon). Borrowed forms from the Russian language are added and perform stylistic functions. These forms express diminutive, affectionate, respectful meanings.

The forms of subjective evaluation are also expressed using compound words, the components of which consist of paired words: *Ġaniydiń ishi-bawırma kirip soylegenleri Nazardıń yadına bul bosaqanı birinshi máрте atlaġanın tusirdi* (O.Abdırakhmanov).

Paired-repeated words are in form very close to paired words. They also consist of two paired components. *Konyak-ponyakqa ishteı zhoqlıġm, hesh qanday kútimniń kerek emesligin de sıbırlap uqtırdı* (Sh.Seitov).

Forms of subjective evaluation are also formed with the help of some parts of speech in combinations with nouns, such as the service word *degen*. *The noun + degen* type gives a subjective meaning in the sentence and in this case expresses a negative attitude, that is, a feeling of dislike: *Men sol Ámirkhan degen adamdı zhaman koremen, soylespeymen* (Sh.Seitov).

The meaning of irony in nouns is also expressed with the help of particles -*mysh, -mish, -mys, -emish*: *Intelligent emish, barma sawatıń?* (N.Toreshova).

The numeral "birew" in combination with demonstrative pronouns and with an adjective, as well as with a participle, expresses the meaning of humiliation, sarcasm, dislike: *Sen birew, ol birew, myna birew, ana birew, etc. Bizniń uydegi qurdasıń esersoqlaw birew* (O.Abdırakhmanov).

The subjective forms of the noun are also expressed using the categories of case, possessive form and plural.

The initial case in the context sometimes expresses the meaning of a subjective evaluation. In such cases, it expresses the meaning of love, sympathy and affection. It is often characteristic of the spoken language and serves to enhance the emotional and expressive meaning of nouns: *Ġázel aitqan barna zhigit,*



Men aynalay boylarınnan, Sawal sorap juwap yesit, Soyle, shiyrin tillerinin (Folk song). The negative sema also expresses the meaning of humiliation, reproach, resentment: Xaqqinnan bir shiqqan shıgarman! (Sh.Seitov). This sentence uses a stylistic figure – inversion, which gives a stylistic shade by using the word "xaqqinnan" at the beginning of the sentence.

There are not so many morphological variants of the possessive category in the modern Karakalpak language. The singular and plural of the second person -y/-yń, -ń, - ńń /- ńyzlar [7]. III person has two morphological variants: y, (i) -sy(si). Of the morphological variants of the second person, the form -ńyz is characteristic of both literary and colloquial speech.

The plural affixes -lar/-ler, together with its main meaning, also has additional meanings and is used for various stylistic purposes. In the meaning of respect, the affix -lar, -ler, joining the noun, expresses respect for the person: – Harma, aǵayınler! – Bar bolıń ! (Sh.Seitov). A.Orazymbetov points out that the affix -lar/-ler is attached to words denoting organs of the human body that are not used in the plural (head, waist, tongue belonging to the same person, etc.). D.), adding that it does not mean the plural, but is used only to strengthen the meaning [6]: Aǵa degen tillerinin shiraǵım, Kel, qaraǵım qara bawırım qan bolar (Karakalpak folklore, Volume 5).

Thus, the stylistic use of forms of subjective evaluation of nouns in the modern Karakalpak language is carried out in several ways. These are affixation, case, possessive forms, plural suffixes and compound words. Subjective-evaluative forms perform the task of giving additional stylistic coloring to the sentence. They give the described event an additional shade and are actively used in the literary and oral colloquial speech.

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TALENT MANAGEMENT TECHNIQUES IN IT INDUSTRY WITH SPECIAL REFERENCE TO INDORE CITY

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ABSTRACT

At the moment businesses are well aware that they need talent to get success in the multifaceted world economy and to stay alive in the aggressive business environment. Simultaneously the businesses recognize that they have to engage talented employees and encourage them to stay in the organization, as a result it is apparent significantly essential that talents must be handled appropriately in order to accomplish the best results. In the present day, talent management advance is perceived as the most essential aspect of business and as one of key constraints of sustainable rivalry reward in organizations. The rationale of the present research is to explore talent management practices and its intensity in IT sector in Indore City.

The Population of this study comprises IT professionals working in Indore city and the sample consists of IT companies of Indore. The Data collection process involves semi - Structured opinionaire conducted with 125 IT employee. The study objectives and the purpose of this research are to study and identify the awareness and the state of talent management practices in IT companies of Indore.

KEYWORDS- *Information Technology sector, Talent Management, IT professionals, Indore City etc.*

INTRODUCTION

Since late 1990s the term Talent management has achieved utmost revelation. It fundamentally deals with sourcing talent, assimilation and aligning talent, increasing talent, appealing and gratifying talent, deliberately mounting talent and it show the way to premeditated aims.

India has the world biggest pool of very qualified specialized graduates making it as a most favored goal for outsourcing and most lucrative part for ventures. However when we discuss the steady loss rate, IT Sector is on the best in the rundown, which influence the association antagonistically. The whittling down rate is higher in junior level of workers which would be up to 30 percent in coming circumstances while in center level administration would witness 20 percent weakening rate. The whittling down rate would be most minimal in top administration representatives Times of India (2014).

The human capital has turned into the key factor in deciding the accomplishment of any association. "Human ability the consolidated limit and will of individuals to accomplish an association's objective – is a profitable asset like no other. Talent management is a process and needs integrative approach, overrunning all viewpoints identified with the human capital of the association, ideal from procurement to advancement and

maintenance. The momentum explore is focused on the investigation of telecom segment. It is the biggest income generator and furthermore a noteworthy maker of employments. The opposition in this segment is high and thus keeping in mind the end goal to support, these associations require powerful talent management framework.

In the present focused business world organizations are hoping to add new abilities to their center organizations. To accomplish their central goal and vision, associations need to consider the human asset practices, and adopt proactive practices to talent management. As indicated by the Global Talent Management and Rewards Study India Report, one of the best difficulties looked by the business is Talent aptitudes misaligned with organization needs and one of the best difficulties looked by the representative is they don't have suitable abilities or access to preparing for accessible parts. This outcome in trouble to address customer issues which at last declines the execution of the association.

INDIAN IT SECTOR

IT Sector in India has developed exponentially in the previous two decades. It has made a level playing field among countries and made constructive effects on a huge number of individuals



by interfacing them, giving business and furthermore helping in the general advancement of the economy. It has changed the way individuals impart and work together.

The Indian Information Technology-Information Technology-Enabled Services (IT-ITES) industry has proceeded to play out its part as the most predictable development driver for the economy. Management, programming fares and BPO remain the pillar of the part. In the course of the most recent five years, the IT and ITES industry has developed at a wonderful pace. Consider a portion of the critical markers for these momentous accomplishments. The IT/ITES trades have developed to a stunning US\$ 46.3 billion of every 2008-09, the IT division presently utilizing 2.2 million experts straightforwardly and another 8 million individuals in a roundabout way represents over 5% of GDP, a greater part of the Fortune 500 and Global 2000 companies are sourcing IT/ITES from India and it is the chief goal for the worldwide sourcing of IT/ITES representing 55% of the worldwide market in seaward IT benefits and accumulating 35% of the ITES/BPO advertise. (Branch of Electronics and Information Technology)

NEED FOR TALENT MANAGEMENT

Talent management is on HR professionals 'minds nowadays, as HR attempts to get, hold and create labor. For talent management to be powerful, what is vital is to contract representatives who appear to be the best fit in the association. Associations are finding a way to oversee talent most successfully and furthermore to build up their own manager image. These brands improve decision-making and impart the esteem they make for their clients. In like manner, workers likewise recognize themselves with specific associations (Shravanthi and Sumanth, 2008) particularly in the light of estimated work deficiency. Associations that formally choose to "deal with their talent" embrace a key investigation of their present HR forms. This is to guarantee that a co-ordinate, execution situated approach is received. Despite the fact that associations know about the requirement for human talent they were disregarding it every one of these years without giving extensive viewpoint. The novel Economy is a better place from the matured one and requires a move in esteem frameworks to end up purely acclimated. To manage this changing world the present age section should know about its commitments, advancements and capacity to oversee both the present and future. In this manner, it is imperative for the associations to create sufficient and suitable plans and put in endeavors to draw in the best pool of accessible genuine.

STATEMENT of the Problem

In current steady evolving economy, human capital has turned into a key wellspring of upper hand, skills and gifts of human recourses in an association is considered as the best measure of human capital. Subsequently gifts supporting and administration is the intriguing issue in this focused business world. This has

required the requirement for ability based HR frameworks which can give both structure and train, to help bring out best exertion in individuals and at last best execution for the Organization. Talent based practices are an indispensable device for 'Talent Management', investors return and esteem creation. It has been watched that talent based HR Programs returned between 20 – 30% more to investor than Companies utilizing customary strategies. This has required requirement for an examination on ability based HR Systems with the goal that the Organizations can successfully deal with the skills of their workers and subsequently increment the gainfulness of the association.

SCOPE OF THE STUDY

The opportunity of the study is extensive from a concept point of view, since it covers foremost aspects of Talent Management practices and challenges'. However, from an empirical aspect, the space of the study is constricted. On the aspect of talent management practices and challenges, the study confines to Indore city. The study discovers talent management practices in the select IT sectors in Indore City.

LITERATURE REVIEW

Aston and Morton (2005) noticed that there isn't a solitary predictable or succinct definition of talent management. Since the landing of the present time of ability is broadly recognized, it is not astonishing that reestablished hugeness is being put on the management of that talent.

Ingham (2006), keeping in mind the end goal to create vital talent, potential businesses of decision need to guarantee they clear up the necessities for their talent management programme including the achievement criteria to be utilized to quantify their program's commitment

Clake Rebecca (2006) examined a wide range of ways to deal with talent management. What is clear is that there is no single "blueprint" for successful talent management that can be connected to every single hierarchical setting. Every association will have diverse resourcing necessities for its present and future talent channel, and furthermore unique issues concerning how best to meet these prerequisites. It is these that ought to decide the talent scheme that an association creates.

Duttgupta, Rhea (2007) the talent management is not only a HR movement, but rather it is a mentality that goes towards an all-encompassing and incorporated way to deal with boost the upper hand through individuals. Talent management is a mind boggling gathering of associated HR forms that conveys a basic crucial advantage for any association. It is the orderly fascination, distinguishing proof, advancement, engagement/maintenance and sending of those people who are of specific incentive to an association, either in perspective of their "high potential" for the future or in light of the fact that they are satisfying business basic parts.



Bhatnagar (2007) The fundamental reason behind talent management advancement is to enhance the procedure of enrollment, choice, maintenance, and worker improvement keeping in mind the end goal to address current difficulties looked by association and enhance hierarchical execution by satisfying authoritative needs.

Arporn Puvitayaphan (2008) inspected the reasons for actualizing talent management sharpen; to examine the key elements of the talent management refines and to distinguish the key achievement variables of talent management rehearses among six SET-recorded organizations. As per the reasons for this examination, the talent management forms are the key issues of this investigation which found that there are four elements of talent management enhances: 1) talent distinguishing proof, 2) talent advancement, 3) talent inspiration, and 4) talent remuneration.

Cappelli Peter (2008) has portrayed the talent management challenges in this unverifiable world by looking at the talent management issues through another focal point drawing from condition of-workmanship inventory network management and various organization illustrations, he introduces four new methodologies for guaranteeing that your association has what it takes it needs – when it needs them.

Lavania Dolly (2010) examined talent with regards to “academics “and for scholastic foundations. One of the significant issues is as advanced education is guaranteeing the proceeded with greatness of its personnel to enhance and contend in future. This paper plans to pick up information about the different courses through which scholarly establishments can hold its profitable resources (personnel) and what are the methodologies the management ought to take after for maintenance of good employees.

Srivastava, P. and Bhatnagar, J. (2010) the term talent management indicates to the vital management of the stream of talent through an association. The motivation behind talent management is to guarantee accessibility of sufficient supply of talent to adjust the perfect individuals to the correct occupations at the ideal time in light of key business targets

Areiqat, A. Y., Abdelhadi, T., and Al-Tarawneh, H. (2010) Talent obtaining is the procedure for arranging, sourcing, evaluating, procuring and on-boarding of new or existing representatives into proper positions inside the association. Talent Acquisition permits us access to a pool of aggressive talent that would somehow or another have been missed or far more atrocious overlooked. The concentrate of the procedure is on drawing in capable specialists to the association. The procedure stages were commonly executed as separated advances that made the procedure wasteful and incapable.

Khursani et al. (2011), bring up that advancement and aggressive conditions require huge concentrate on human capital and, subsequently, some Saudi associations, for example, Aramco have taken significant activities to change over and adjust their way of life, for example, the “3 Ts” technique, which concentrates on the Talent, Team and Technology interface.

Hilal (2012) trusts that crossing over any barrier between current execution and wanted execution in the Arab business world condition includes the usage of talent management. Vigorous talent management is, be that as it may, something in which most associations in the Arab world are considered to need, despite the fact that TM includes the harmonization of management openings and management dangers.

Kumar, S. R. (2013) an investigation on talent obtaining in sierra Atlantic- Advances in Management Today, business pioneers comprehend the key criticalness of talent obtaining. They are precisely taking a gander at how they will fill the hole in abilities and friends’ information left by resigned people. They are receiving propelled methodologies and strategies to develop their talent securing operations and they are grasping a scope of rising prescribed procedures, from workforce wanting to business marking. To put it plainly, they perceive the need to keep on advancing their capacities in talent procurement, as well as to help maintenance and worker improvement.

OBJECTIVES OF THE STUDY

The main objectives of the study are:

- To identify factors leading talent management practices in Indore city
- To identify factors for maximizing use of talents
- To know Whether IT Companies in Indore Feel the Deficit in Talents
- To identify Problem Concerning Talent Management

METHODOLOGY OF THE STUDY

The study is exploratory in nature and hence designed as an empirical one based on survey method.

Sample Method - Sampling is concerned with the selection of a subset of individuals from within a statistical population to estimate characteristics of the whole population. Each observation measures one or more properties (such as weight, location, color) of observable bodies distinguished as independent objects or individuals.

Selection of IT companies and respondents on the basis of Non-probability sampling- Convenient sampling.

In my research study is based on Talent management practices at IT industries in Madhya Pradesh, an attempt will be made to collect data from employees of Various IT Industries like Yash Technologies Pvt. LTD., Moreyeahs Inc., Infograin Software Solutions and Engineer Babu IT services Pvt Ltd etc.



Sample Size The sample size is 125

Data Source - The source of research depends on accurate data. That's why data collecting the appropriate data which differ considerable in context money, cost, time and other resources at the disposable researcher.

Different types of data collection methods used

- **Primary Data**- is collected from interviews, Questionnaire, Surveys etc.
- **Secondary Data**- is collected from internet, books, newspapers etc.

Data-Collection Instrument- for this study, the survey-questionnaire instruments were used achieve the main objective of the study. The design of questionnaire has been formulated after referring to extensive literature and through discussion with well-known HR experts. A self-administered questionnaire was distributed to the employees. The questionnaire given to the employees aimed to assess the Talent practices in IT sector in India.

Table 1 Likert Scale stating 5 point ranking

Ranks	1	2	3	4	5
Extent of Impact	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

ANALYSIS OF DATA

The collected primary data have been statistically processed, classified and tabulated by using appropriate methods. Tables, figures, and statistical results have been derived with the help of

the computer software package called SPSS (statistical package for social sciences).

The statistical tools used for analysis are

1. Reliability Testing
2. Frequency and Percentage Tabulation Analysis

Table 2 Reliability Testing

Cronbach's Alpha	N of Items
.815	18

Table 2 Reliability Statistics

Interpretation Cronbach's alpha is an index of reliability associated with the variation accounted for by the true score of the "underlying construct." Construct is the hypothetical variable that is being measured (Hatcher, 1994).

= excellent). The higher the score, the more reliable the generated scale is. Nunnaly (1978) has indicated 0.7 to be an acceptable reliability coefficient but lower thresholds are sometimes used in the literature.

Alpha coefficient ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from dichotomous (that is, questions with two possible answers) and/or multi-point formatted questionnaires or scales (i.e., rating scale: 1 = poor, 5

The alpha coefficient for the 18 items is .815, suggesting that the items have relatively high internal consistency. (Note that a reliability coefficient of .70 or higher is considered "acceptable" in most social science research situations.)

**Table 3 Demographic Profiles**

Age					Total	
18-25years	26-35years	36-45 years	46-55 years	55 and Above	125	
67(54%)	51(41%)	6(5%)	0(0%)	1(1%)	(100%)	
Gender						
Male			Female		125	
95(76%)			30(24%)		(100%)	
Marital Status						
Married			Unmarried		125	
34(27%)			91(73%)		(100%)	
Qualification						
UG	Graduate	PG	Diploma or Certificate		Others	125
4(3%)	71(57%)	48(38%)	2(2%)		0(0%)	(100%)
Income in Rs. on monthly basis						
Below Rs.30K	Rs.30-60K	Rs. 60-90K	Rs. 90K-1.2 Lacs	Rs.1.2 -1.5Lacs	Above 1.5 Lacs	125
80(64%)	31(25%)	7(6%)	2(2%)	2(2%)	3(2%)	(100%)
Total Experience						
0-5 yrs	6-10 yrs	11- 15 yrs	16-20 yrs	Above 20 yrs		125
101(81%)	14(11%)	7(6%)	3(2%)	0(0%)		(100%)
Length of Service in the present organization						
0-5 yrs	5-10 yrs	10- 15 yrs	Above 15 yrs			125
111(89%)	13(10%)	1(1%)	0(0%)			(100%)

DATA TESTING AND ANALYSIS

Table 6 Factors Leading Talent Management Practices

Factors Leading Talent Management Practices	N	Percent	Percent of Cases
Better Talent Management	72	23%	61%
Maximize organizational Effectiveness	27	9%	23%
Business Realignment	26	8%	22%
Anticipated Changes	26	8%	22%
Organisation Desire	33	11%	28%
Management Structure	18	6%	15%
Reduce Cost	22	7%	19%
Diverse Employee	28	9%	24%
Entry into New Markets	22	7%	19%
Change in competitive landscape	36	12%	31%
Others	1	0%	1%
Total	311	100%	61%

Interpretation: - It is inferred from that above table the most common factor leading talent management practices is Better Talent Management for better organization result 23%, the second most common factor is Change in competitive landscape requiring new skills, knowledge, behaviour 12% , the third most common factor is Organization's desire to manage internal talent effectively for maximizing organizational effectiveness and efficiency 11%, the fourth most common factor is Business re-alignment for long term viability of business

and diversifying employee management to enhance retention of internal talent both accounted 9%, Anticipated changes in skills for future leaders and maximizing organizational effectiveness and efficiency both cited 8%, 7% is accounted for cost reduction and entering into new markets and 6 % for Change in the management structure and the least leading factor is other 0%.



Table 7 Use of Talent Management Phrase

Use of Talent Management Phrase	N	Percent
Rarely	33	28%
Sometimes	35	30%
Often	26	22%
Always	24	20%
Total	118	100%

Interpretation: - It is inferred from that above table 30 % of employees said talent management phrase was mentioned sometimes, 28% of companies' employees said talent management phrase was mentioned rarely, 22% employees said talent management phrase was

mentioned often and 20 % employees said talent management phrase was mentioned always in their companies.

Table 8 Clear Strategy of Managing Talented People

Clear Strategy of Managing Talented People	N	Percent
Yes	87	74%
No	31	26%
Total	118	100%

Interpretation: - it is inferred from the above table that among the respondents of India and Madhya Pradesh 74% of employees said their companies have clear strategy for management of talented people whereas 26%

of employees said that their companies don't have any strategy for management of talented people.

Table 9 Components of Talent Management

Components of Talent Management	N	Percent	Percent of Cases
Specific Procedures	48	29%	41%
Individual Development Plans	54	32%	46%
Talents Involvement	65	39%	55%
Total	167	100%	142%

Interpretation: - It is inferred from that above table the most common component is 39%, Specific procedure was cited 32 % and Individual development is observed as 29%. Larger companies had higher rates of option a.

Specific procedures and methods of talent assessment, individual development plans were used with little variation across company size and sectors there is no variation based on location of respondents.

Table 10 Evaluate the ability of your company to manage talents

Evaluate the ability of manage talents	N	Percent
Low	13	11%
Medium	64	54%
High	41	35%
Total	118	100%

Interpretation: - it is inferred from that above table that the majority of employees 54 % said that their companies' ability to manage talents was medium, 35%

said their companies' ability was high and 11 % said there ability was low accordingly.

Table 11 Factors Maximizing Use of Talents

Factors Maximizing Use Of Talents	N	Percent	Percent of Cases
Contribution of HRM	41	19%	35%
Management Style	47	22%	40%
Reputation of the Company	37	17%	31%
Level of Salaries	39	18%	33%
Organizational Culture	49	23%	42%
Total	213	100.0%	181%



Interpretation: - It is inferred from that above table the highest factor in maximizing the use of talents was organizational culture 23 %, the second largest was the management style 22 %, the third largest factor was the contribution of the HRM department 19 %, the fourth

factor was reputation of company and level of salaries both accounted for 18 %. Again the contribution of HRM departments and management style was more prominent in IT companies that influence maximizing the use of talent at work.

Table 12 Does Your Company Feel the Deficit in Talents?

Does Your Company Feel Deficit in Talents	N	Percent
Yes	38	32%
No	80	68%
Total	125	100%

Interpretation: - it is inferred from that above table that the majority of employees 68% said that their

companies' don't feel deficit of talent 32% said their companies' feels deficit of talents respectively.

Table 13 Problem Concerning Talent Management

Problem Concerning Talent Management	N	Percent	Percent of Cases
Attracting of Talents	38	23%	32%
Talent within Wider workforce	40	25%	34%
Analysis of documents	30	18%	25%
Retention of Talents	53	33%	45%
expectations of Talents	1	1%	1%
Others	1	1%	1%
Total	163	100%	138%

Interpretation: - It is inferred from that above table the majority of companies 32 % had issues retaining talents, 24% said they had issues with managing talents in the wider workforce, 23% of Companies had issues with attracting talent in the first place, 19 % of companies had issues with Analysis of documents, 1 % of companies had issues with managing the expectations of talents and others. Managing the expectations of talents was a greater issue in smaller company than larger one

- 28% of respondent have joined IT company for good pay packages.
- 81% of respondents hold total experience between 0-5years.
- 81% of respondent are serving current organization between 0-5years.

LIMITATIONS OF THE STUDY

Despite the fact that very reliable results that may also be generalized have been arrived at, the investigator would like to point out some unavoidable limitations that have entered into the study. They are stated below:

1. Since the study is an individual effort, the primary data required for the study are collected from 125 respondents (around 10% of total population) only.
2. The study has time constraints.

FINDINGS

- The maximum number of respondents were male 76%
- The maximum 54% respondents are age of 26-35.
- 27% of respondents marital status was single
- 57% of respondents educational qualification was Graduate
- 64% of respondents earn below Rs. 30,000.

CONCLUSION

Thus based on present research survey a carefully fit talent management is the need of great importance for IT associations to address the influential needs of gifts, better approaches for taking a glimpse at additional into the individual issues and needs of the workers. In a work concentrated nation like India, organizations should remember, the gigantic undiscovered potential. For a people based industry like IT area utilizing and tapping potential would be critical for accomplishing hierarchical perfection Practice. The IT organizations put resources into talent management practices yet it is not seen over all the organizations in the IT sector. There is need to ensure reinforce the talent management frameworks in organizations. In spite of the fact that workers are happy with the common Talent management hones, there is extent of change. The workers see the formative open doors as the way to ability administration. In any case, this is for all intents and purposes not the entire truth, as the integrative approach of talent management is the Best



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HIGHER EDUCATION IN INDIA: CHALLENGES AND OPPORTUNITIES

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ABSTRACT

The higher education system of any country plays a very important role. Without this, the people of the country cannot achieve anything. The level of education in a country like India is very old. Here the teacher was given the status of God. In this paper, we will know what is the status of higher education in India. How and when which policy came? We will describe all this in India, what is the history of higher education. What is the problem in higher education inside India? How can we overcome these? We will tell all this in this paper. We have reviewed more than ten papers. We have made this article after seeing them all.

This we will know how higher education developed in India. What committee did what? When and how all this happened, we will discuss in this article. We will also know about the issue of higher education, and what is what. We will know about all these things in detail.

KEYWORDS: Higher Education, UGC, Indian ancient Education, Education history, NAAC

INTRODUCTION

India has been ahead in everything since the beginning. Now whether it is in the field of education or any discovery. The history of education in India is very old. India's first education was taught to live. But today's education is very different from that. Now the center of education is to bring marks. There was the first Vedic education in India in which education was given in Gurukul. When the child turned five years old. So a rite of passage was performed for the child, which was known as Upanayana. The rest lived in the Gurukul and had to do all the work there. No degree or diploma was given. The Buddhistic Education System flourished in ancient times in India. Ancient universities were also flowing inside India. Nalanda, which is in Bihar, is also a very ancient university. In this, logic, economics, etc. used to be found. There is a very lentil story about Nalanda, although there is no truth to this fact. It is said that once Aludin Khilji had some disease. He did not find any cure for his disease. Then someone told him that he should go to Nalanda University, maybe his disease can be treated there. when that Nalanda If he goes there, he is told that we have a cure for his disease. They ask the king that you read the Quran. The king says yes, I read the Quran every day. The people of Nalanda give him a Quran and say that you have to read one page of it every day. When the king read the Quran, he would touch the page with his hand and move the page.

He used to put his hand in his mouth. After a few days, he was completely cured. The king again called him and asked what did you give me that made me well? So he said that I had put medicine on every page of the book I had given you. Which got you right. It is said that when the king came to know about

this, he burnt the entire university library in anger. It is said that this fire kept burning for a year. We know this from all these things. What a good history of higher education in India country. After the ancient education in India, when the Muslim era came to India. No special work of education was done during the Muslim period. In this period education was given in madrasa. In the time of Akbar, there was little emphasis on education. The rest of this period could not leave any mark in the field of education. The British came to India after the Muslim period. From here education in India took a new turn. The education that we are taking today is all English education. The goal of English was not to educate the people of India. He wanted to make such Indians who would be Indian in color and face but they would be ahead in thinking. This was the policy of Lord Macaulay. In which he was successful too, the effect of his words is still on all of us.

India's post-independence time came after the British period. In which a new committee was made to UGC. All of them did a lot of work related to education. Within India, new universities and many more institutions of education have become. Higher education in India is now touching new dimensions.

When the era of Corona came into the whole world, it also had a great impact on the education system of India. Initially, when there was a lockdown inside India, all the schools, colleges, and universities were completely closed. But in no time everyone made their system online.

This was a great change in our education system. Our higher education had gone completely digital. Students could give the paper from home themselves. Now everything was available



online. This research article of ours sees Corona as an opportunity. Because our education has become smart because of this.

LITERATURE REVIEW

Jd Singh Higher education has faced obstacles in the past, but these most recent calls for reform could lead to a more significant shift. The requests for increased accountability and openness may not have directly caused this development, but rather because of the chance to consider the significance of higher education, the function of new millennium colleges and universities, and scientific research on how People develop. There hasn't been any connection made between these diverse literary works that might Analyze the effects of fundamental change on both institutional and policy levels. and to the routines of university and college administrators, academic staff, and students. It is now necessary to establish the second wave of institutions.

k.kamr Jha The goal of higher education in India is to fully and inclusively use the human resource potential of the nation. In recent decades, the higher education industry has experienced enormous growth in a variety of areas, including institutional capacity, enrollment, teacher-student ratio, etc. Several important challenges regarding equity, efficiency, excellence, and access to higher education in the nation have been raised by the rapid expansion of the higher education system at the same time. The purpose of the current paper is to raise awareness of a variety of pressing concerns that must be addressed by all relevant parties at both the national and international levels. The study is also distinctive in that it improves comprehension of the current situation.

YA Sheikh, The world has come to understand that a state's educational system directly affects its economic performance. A nation's strength is its education. Unavoidably, a developed country is also an educated one. Next to China and the United States, India has the third-largest higher education system in the world. Since gaining its independence, India has been making major strides in the sphere of education. The higher education system in India has faced many difficulties, but there are also many chances to address these difficulties and improve the higher education system. The need for increased accountability and openness, as well as the importance of new scientific studies on how individuals learn, as well as the role of colleges and universities in the new millennium.

OBJECTIVES OF THE STUDY

1. To Know the Indian Education System.
2. To Know the History of India s Higher Education.
3. To the Problem of HEI

HIGHER EDUCATION CHALLENGES

1. Teaching Excellence

The first problem higher education in India is dealing with is a decline in teaching standards. Some institutions hire recent graduates as instructors who have little experience or knowledge, even though they are not adequately trained or equipped for the position they are allocated. Thus, this is a

serious issue. English instruction in a multilingual environment is a challenge that higher education must deal with. Language has been acknowledged as a key tool for expressing thoughts and emotions, storing our experiences, and forming social bonds, but the teaching of languages in general and the teaching of instructional languages, in particular, are treated as givens, which is unacceptable in the multilingual environment of a globalized world.

2. Lack of value education

In schools and colleges, there is no proper value education available. In the name of value education, religion and hostility are propagated when offered. Many of the professionals who are meant to save society, such as doctors, lawyers, CPAs, politicians, and government employees, are accused of major corruption. Age-related facilities are growing. Suicide rates are rising. Love's definition is ultimately evolving. The technology, inventions, and innovations that were inspired by education are being abused.

3. Women's low literacy rate

Women have a much lower literacy rate than men. Conservative cultural attitudes prevent girls from attending school. Despite Government's attempts to provide incentives viz. midday meals, free books, and uniforms, girls' attendance is poor. Though the minimum age for marriage is eighteen, many girls get married much earlier. Therefore, at the secondary level, the female dropout rate is high.

4. Political issues

In higher education, political interference is also a problem and a bad thing. Governing organizations do not want political sway or meddling in their internal operations. The most powerful political figures currently hold crucial positions in the universities' governing boards since they own the majority of the educational institutions (aided-non-aided). They have created their youth cells and support political student organizations. They take advantage of the kids' enthusiasm for political gain. The pupils set their own goals and start to advance their political careers.

5. Moral problems

The younger generation is less interested in helping their country and more interested in simply accepting a job with a generous salary. Our traditional morals and values are in grave danger as a result of the industrialization that followed the rapid advancement of science and technology. The result of a failing value system is the discontent and uprising of the younger generation.

6. Corruption

The quality of education in india's educational system has been declining due to corruption. It is a significant source of domestic black money. The amount that management is paid in dark rooms and while applying for admittance is rising. Some private schools also follow the "get entire salary in the account, pay back part to management with blank signed checks" policy.



7. Economic Challenges

Is this one of the most problematic developments that the communities have been subjected to through the current higher education system? The majority of pupils are from lower socioeconomic groups, many of whom are unable to meet their own basic needs. Economic hardships have increased as a result of growing prices, spending habits on luxuries, population growth, a shortening food supply, corruption, selfishness, etc. Students who work part-time jobs to cover their educational costs must split their attention between work and their college or university studies. Today's students as a whole, in their whole number, are struggling financially to some degree. Earn while you learn programs fall short in helping students overcome financial obstacles.

8. Curriculum Problems

Students who want to accomplish the same goal can become confused by the numerous distinct curriculum systems, such as those in engineering, medicine, and business administration. The curricula taught for the same programmer at the higher education level are not all the same. Frequently, syllabus revisions are made without taking current industry demands into account. The subjects one can study in colleges are not very diverse. Lack of flexibility makes it difficult to cross streams.

9. Wrong Sociocultural Perspective

More points are a success for governments. English is increasingly used to measure intelligence. As a result, modern parents show little interest in schooling delivered in the local language. Government schools are increasingly being seen as the worst option by many due to the perception of inferior quality. Migration for higher education has turned into a source of pride for many families. The majority of school students learning time is dedicated to studying for competitive exams. Due to this unjustified competition, coaching classes also prosper, creating a class division.

10. Our system of education is not homogeneous

Geographically, the rural-urban, wealthy-poorest divide has been a significant difficulty for educational institutions. Different colleges, universities, and technical institutes have delivered education of varying forms and caliber. While a few of them are providing high-quality education, others are working in the dirtiest positions. We appreciate ugc sharing the list of these phony universities and institutions that engage in academic fraud.

11. Financing

Higher education in india also faces financial difficulties. Yes, india already spends a lot of money on higher education, and it cannot continue to do so. However, additional funding is required if the standard of higher education is to be raised.

12. Privatization

A significant issue in higher education is privatization. The best option is to privatize higher education. Privatization alone won't address the issue, though. Young kids need to be encouraged to master new abilities and to be creative and

imaginative.

13. Limit system

The topic of quota systems is highly contentious. But if you're being completely honest, i have to tell you that quotas are bad for the standard of higher education. Talent and merit are more significant than who you are. The quota system is still difficult, though.

14. Absenteeism in the public school workforce

In india, teacher absenteeism is shockingly high. According to world bank estimates, missing teachers cost the country \$2 billion annually in salary. 25% of private sector teachers and 40% of public sector medical personnel were absent during the survey, according to a study by kremer, etc. In jharkhand, the absence rate was 41.9%, whereas it ranged from 14.6% in maharashtra.

15. Project-based learning and strategy are absent.

There aren't enough projects in higher education. Young graduates must learn new skills, particularly vocational ones that will help them find employment. Therefore, project-based learning is not at all a focus of ours. We also need practical understanding; just theory is not enough. In india, there is no higher education strategy. No international students are traveling to the nation to study there. This is a major problem for which the government has no strategy.

SUGGESTIONS

- Give the use of technology in education importance.
- Encourage creativity and innovation.
- Make education more unique.
- Continue to train the trainers.
- Modify the aptitude you teach with.
- Educate with character and quality.

CONCLUSION

We learned in our paper how higher education developed in our country. How did the new policy come which was successful in improving the system of higher education? Finally, we can conclude. There are many shortcomings in higher education in India right now. All of them should be corrected.

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COMPARATIVE STUDY OF ANTHROPOMETRIC INDICES OF NUTRITIONAL STATUS OF PUBLIC PRIMARY SCHOOL PUPILS IN RURAL AND URBAN COMMUNITIES OF WARRI SOUTH

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ABSTRACT

Background: The application of anthropometric measurement which entails assessing the nutritional status (stunting, wasting, obesity, overweight, and underweight) of children, is an essential part of monitoring the health of a community.

Aim: To investigate and compare the anthropometric indices of nutritional status among public school pupils in rural and urban communities in Warri South LGA.

Materials and Method: This comparative cross-sectional study made use of a pretested interviewer-administered questionnaire while the nutritional status of the pupils was obtained using WHO AnthroPlus software. The resulting data were analysed and presented accordingly.

Results: The result showed that there were slightly more males (50.9%) than females (49.1%), while urban pupils were younger than their rural counterparts. Also, the mean scores for the weight, WAZ, Height, HAZ and BAZ were 26.67 ± 5.77 , -0.96 ± 1.49 , 1.32 ± 0.10 , -0.43 ± 1.55 and -0.67 ± 1.13 respectively, while there was no statistically significant ($p > 0.05$) relationship between these anthropometric variables and the sex of the pupils. However, urban pupils had a statistically significant ($p < 0.05$) higher weight and height in comparison with their rural counterparts who on the other hand had statistically significant ($p < 0.05$) higher HAZ and BAZ which translates to a higher amount of wasting and stunting among the urban pupils

Conclusion: Children in urban primary schools are taller and fatter but more stunted and wasted. Hence, appropriate nutritional education programmes should be initiated for pupils, parents, and teachers, while more efforts should be made to improve the current school feeding program.

KEYWORDS: Anthropometric indices, Nutrition, pupils, Urban, Rural.

INTRODUCTION

Adequate nutrition is a vital determinant of the state of health, development and growth of children, as well as their quality of life in general.¹⁻³ The nutritional status of children has been identified to have some vital impact on their survival mainly due

to the synergistic relationships between malnutrition, diseases and cognitive functions.⁴ Abdulkadir, Tefera and Habtemu⁵ also stated that nutrition has a powerful influence on learning and academic performance, while some other studies have also shown that poor nutritional status is associated with low school



enrolment, high absenteeism, poor academic performance, early dropout, delayed cognitive development, reduced intellectual achievement, increased childhood morbidity and mortality.^{6,7}

Assessing the nutritional status which entails the measurement for stunting, wasting, obesity, overweight, and underweight among children, is an essential part of monitoring the health of a community. One of the most practically useful means for this assessment remains the application of anthropometric measurements.⁸ It serves as an appropriate data gathering processes to enable accurate planning and implementation of interventions to reduce morbidity and mortality associated with malnutrition.⁹ In children, the three most commonly used anthropometric indices are weight – for – age (W // A) which is an index of underweight / overweight, height – for – age (H // A) which is an index of stunting, and weight – for – height (W // H) which is an index of wasting.¹⁷ These can be expressed in terms of Z – scores or standard deviation score, which is the deviation of the value for an individual from the median value of the reference population divided by the standard deviation for the reference population.^{11,12}

The application of the anthropometric measurements in the determination of the nutritional status of children according to the UNICEF, WHO, and World Bank shows that approximately 155 million children (22.9%) are stunted and about 52 million children (7.7%) are wasted.¹³ This is more prevalent among children in sub-Saharan Africa (SSA) and Southern Asian countries.^{14,15} In Nigeria, the recent National Demographic Health Survey (NDHS) report showed that 37% of children under age 5 are stunted (too short for their age) and 17% are severely stunted; seven percent are wasted (too thin for their height), with 2% being severely wasted; twenty-two percent of children are underweight (too thin for their age), and 7% are severely underweight, while only 2% of children are overweight.¹⁰ However, most of these assessments has continued to focus on infants aged 6 – 59 months (under 5 children), with less attention placed on primary school children aged 6 – 12 years which are considered difficult-to-measure and hard-to-reach population. Despite this, the primary school age represents a dynamic period of physical growth, enormous physiological, cognitive, and psychosocial development of children.¹⁶ Hence, this study sought to investigate and compare the anthropometric indices of nutritional status of public primary school pupils in urban and rural areas of Warri South Local Government Area (WSLGA) of Delta state, Nigeria.

METHODOLOGY

Study Design and setting

This study was designed as a school based comparative cross-sectional survey and was carried out in WSLGA which is saddled with great number of public primary schools. According to the record of the statistics division of the state Ministry of Education, there are 54 public primary schools in WSLGA, with population of 20,655 pupils (the third highest in the state).

Study Population

The target population for this study consisted of apparently healthy pupils, aged 6 – 12 years, registered in public primary schools within the WSLGA.

Sample Size Determination and Sampling Techniques

A sample size of 236 (118 for rural and urban each) was determined using the double proportion comparison formula¹⁸ with 95% confidence interval, a power of 80%, 5% margin of error, 27% and 45% prevalence of stunting among Children in urban and rural areas respectively,¹⁰ and a 10% non-response rate.

The selection of the participants was based on multi-staged sampling which first identify the public primary schools in the LGA using the list of schools provided by the Universal Basic Education (UBE). The schools were stratified them into urban and rural primary schools, and a total of 4 primary schools randomly selected from each area, followed by random selection of the arms per each grade by balloting and lastly, simple random selection of pupils from the selected arms.

Study Instruments

The bio-data and lifestyle habits of the pupils were collected with the aid of a pretested questionnaire adapted from Hassan et al. (2017), while the measurements of the weight and height of the pupils were obtained from each pupil according to the protocol described by WHO.¹⁷ Their weights were taken with the aid of an electronic weighing scale (Camry Model Number BR9011) in accordance with Ivanovic et al.¹⁹ and this was done in the morning (immediately after assembly), as it is known that there are diurnal variations in weight.²⁰ The height or stretch stature was determined in accordance with Ivanovic et al.¹⁹ and Eze et al.²¹ with the aid of a portable height measure (Seca® stadiometer). The weight and height were converted to nutritional indices: weight-for-age z-score (WAZ), height-for-age z-score (HAZ) and body mass index-for-age Z-scores (BAZ) which were obtained using the WHO AnthroPlus software for measuring malnutrition in school-age children and adolescent aged 5 – 19 years.^{22,23}

Statistical Analysis

The anthropometric data calculated by application of the WHO growth references and analysed with IBM Statistical Package for Social Sciences Software (SPSS vs 23). The results were expressed as percentages and presented in tables and charts. Descriptive statistics was used to determine the frequency and standard deviations (SDs) of the anthropometric measurements while differences in means across the two areas (urban and rural), were compared using Student's t-test.

Ethical Statement

Ethical approval was obtained from the Ethical Review Committee of University of Port Harcourt, while official permission was obtained from the Delta state ministry of



education before carrying out this study. The Head teachers at the schools were duly informed of the nature of the study and their permission granted while written informed consent form

was used to obtain permission from the parents of the pupils. The pupils also gave assent and were informed of their right to withdraw from the study at any point.

RESULTS

Socio-demographic characteristics of Primary school pupils and their Parents

Table 1: Age and sex pupils and characterizes of their parents

Variables (n=330)	Urban (n=165) n (%)	Rural (n=165) n (%)	X ² (P-value)
Age category			
6	7 (4.2)	8 (4.8)	
7	34 (20.6)	17 (10.3)	
8	25 (15.2)	26 (15.8)	
9	33 (20.0)	7 (4.2)	39.286 (<0.0001*)
10	22 (13.3)	44 (26.7)	
11	26 (15.8)	22 (13.3)	
12	18 (10.9)	41 (24.8)	
Sex			
Male	83 (50.3)	85 (51.5)	0.924 (0.826)
Female	82 (49.7)	80 (48.5)	
Educational level of parent			
None	9 (5.5)	47 (28.5)	
Primary	24 (14.5)	64 (38.8)	113.130 (<0.0001*)
Secondary	44 (26.7)	47 (28.5)	
Tertiary	88 (53.3)	7 (4.2)	
Occupational status of parent			
Farmer	10 (6.1)	24 (14.6)	
Artisan	105 (63.6)	136 (82.4)	46.840 (<0.0001*)
Employee	39 (23.6)	3 (1.8)	
Unemployed	11 (6.7)	2 (1.2)	
Type of family			
Nuclear	155 (93.9)	158 (95.8)	0.558 (0.455)
Extended	10 (6.1)	7 (4.2)	
Size of family			
Three	17 (10.3)	13 (7.9)	10.140 (0.006*)
Four	63 (38.2)	39 (23.6)	
Five or more	85 (51.5)	113 (68.5)	

* Statistically significant ($p < 0.05$)

The result presented in Table 1 above shows the age, sex distribution and family characteristics of the families of the primary school children in urban and rural communities in WSLGA. According to the findings, the mean age of all primary school children was found to be 9.43 ± 1.84 years while the median age was 10 years. According to the result, there was a statistically significant ($p = 39.286$; $X^2 < 0.0001$) difference between the age of the pupils as more of the children in the urban schools, 34 (20.6%) and 33 (20.0%) were aged 7 and 9 years respectively while majority of the children in rural schools, 44 (26.7%) and 41 (24.8%), were seen to be aged 10 and 12 years old respectively. However, there was no

statistically significant ($p > 0.05$) difference between the sex of the pupils, as the result showed that males (50.9%) were slightly more than the females (49.1%). Also, the analysis of the educational and occupational status of the parents revealed a statistically significant ($p < 0.05$) higher difference between the parents of the pupil in the urban areas than those in the rural areas while there was no statistically significant ($p > 0.05$) difference between their type of families. However, the size of the family revealed a statistically significant ($p < 0.05$) higher difference between the families of the pupil in the urban areas than those in the rural areas.



Lifestyle/dietary habits of public primary school pupils in WSLGA

Table 2: Distribution of lifestyle/dietary habits of pupils in urban and rural public primary schools

Variables (N = 330)	Urban (n = 165) n (%)	Rural (n = 165) n (%)	X ² (P-value)
Regular exercise			
Often	103 (62.4)	125 (75.8)	8.288F (0.008*)
Sometimes	62 (37.6)	39 (23.6)	
Rarely	0 (0.0)	1 (0.6)	
Eating breakfast			
Often	145 (87.9)	50 (30.3)	113.693 F (<0.0001*)
Sometimes	18 (10.9)	110 (66.7)	
Rarely	2 (1.2)	5 (3.0)	
Watching TV while eating			
Often	45 (27.3)	2 (1.2)	54.884 (<0.0001*)
Sometimes	78 (47.3)	132 (80.0)	
Rarely	42 (25.5)	31 (18.8)	
Eating poultry at least thrice per week			
Often	105 (63.6)	27 (16.4)	85.345 F (<0.0001*)
Sometimes	56 (33.9)	137 (83.0)	
Rarely	4 (2.4)	1 (0.6)	
Eating fish at least once per week			
Often	94 (57.3)	38 (23.0)	51.466 F (<0.0001*)
Sometimes	64 (39.0)	127 (77.0)	
Rarely	6 (3.7)	0 (0.0)	
Consuming milk and dairy at least once daily			
Often	63 (38.2)	21 (12.7)	28.177 (<0.0001*)
Sometimes	91 (55.2)	128 (77.6)	
Rarely	11 (6.7)	16 (9.7)	
Eating fruit and vegetable at least once per week			
Often	61 (37.0)	9 (5.5)	53.862 (<0.0001*)
Sometimes	101 (61.2)	154 (93.3)	
Rarely	3 (1.8)	2 (1.2)	

* Statistically significant ($p < 0.05$)

F = Fisher's exact test

The responses of the pupils to questions regarding their lifestyle/dietary habits is analysed and tabulated above (table 2). According to the result, 69.1% of the pupils engage in regular exercise often, with 75.8% of the pupils in rural public primary schools reportedly engaging in regular exercise more than their urban counterpart (62.4%), thereby showing a statistically significant ($p < 0.05$) difference. Also, 59.1% and 63.6% of the pupils reported that they eat breakfast often and watch TV while eating respectively, with more of the urban pupils (87.9% and 27.3%) eat breakfast more often and watch TV while eating respectively. This also showed a statistically significant ($p < 0.05$) difference between breakfast eating habit and that of watching

TV while eating between the urban public primary school pupils and rural pupils. Also, more of the children in the urban public primary schools (63.6%, 33.9%, 38.2% and 37.0%) reported that they often eat poultry at least thrice per week, eat fish at least once per week, consume milk and dairy at least once daily and eat fruit and vegetable at least once per week respectively. Hence a significant ($p < 0.05$) difference was observed between the pupils in urban and rural public primary schools in terms of eating poultry at least thrice per week, eating fish at least once per week, consuming milk and dairy at least once daily and eating fruit and vegetable at least once per week.

**Nutritional status of public primary school pupils in WSLGA****Table 3: Anthropometric indices of public primary school pupils in WSLGA**

Variables (N = 330)	Mean ± SD	Sex			School location		
		Male	Female	p-value	Urban	Rural	p-value
		Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD	
Weight (Kg)	26.67±5.77	26.46±5.38	26.88±6.16	0.511	27.71±6.24	25.63±5.07	0.001*
WAZ	-0.96±1.49	-0.89±1.51	-1.03±1.47	0.379	-1.12±1.16	-0.81±1.74	0.058
Height (m)	1.32±0.10	1.31±0.10	1.32±0.10	0.657	1.34±0.09	1.31±0.11	0.06*
HAZ	-0.43±1.55	-0.41±1.53	-0.44±1.58	0.906	-1.01±1.22	0.16±1.63	0.008*
BAZ	-0.67±1.13	-0.68±1.13	-0.65±1.14	0.823	-0.84±0.99	-0.50±1.24	0.0001*

* Statistically significant ($p < 0.05$); **SD** – Standard deviation; **WAZ** – Weight -for-age Z-score,

HAZ – Height-for-age Z-score, **BAZ** – BMI-for-age Z-score

Table 3 above shows the anthropometric findings of the nutritional status of the public primary school pupils. As tabulated, the mean weight (kg) of the pupils is 26.67 ± 5.77 while their height (m) is 1.32 ± 0.10 . Their Weight-for-age Z-score (WAZ), Height-for-age Z-score (HAZ) and BMI-for-age Z-score (BAZ) was recorded as -0.96 ± 1.49 , -0.43 ± 1.55 and -0.67 ± 1.13 respectively. The result for WAZ showed that the pupils are of normal/healthy weight, while that of HAZ shows that they are equally of normal or healthy height. Lastly, the value obtained for BAZ in this study shows that the pupils are of normal Body mass index (BMI).

Comparison of the mean anthropometric parameters across the sex of the public primary school pupils showed similarities in weight (26.46 ± 5.38 and 26.88 ± 6.16), height (1.31 ± 0.10 and 1.32 ± 0.10), WAZ (-0.89 ± 1.51 and -1.03 ± 1.47), HAZ (-0.41 ± 1.53 and -0.44 ± 1.58) and BAZ (-0.68 ± 1.13 and -0.65 ± 1.14) for males and females respectively. This shows no statistically significant ($p > 0.05$) difference between the anthropometric parameters of the male and female pupils.

The parameters were also compared with respect to the location of the school. According to the findings, the mean weight, height, WAZ, HAZ and BAZ of pupils in urban public primary schools were 27.71 ± 6.24 , 1.34 ± 0.09 , -1.12 ± 1.16 , -1.01 ± 1.22 and -0.84 ± 0.99 respectively, while their rural counterpart had 25.63 ± 5.07 , 1.31 ± 0.11 , -0.81 ± 1.74 , 0.16 ± 1.63 and -0.50 ± 1.24 . This result shows that there is no statistically significant ($p > 0.05$) difference between the WAZ of the pupils in urban and rural public primary schools while significant ($p < 0.05$) differences exists between their weight, height BAZ and HAZ.

DISCUSSION**Comparing the Nutritional Status of pupils in Urban and Rural Public Schools**

Nutritional status is the condition of health of the individual as influenced by the utilization of the nutrients,²⁴ hence its regular monitoring among primary school aged children is especially relevant as they need more nutrients than adults in relation to their body weight.²⁵ According to Etim, Ejemot-Nwadiaro, and

Kalu,¹⁵ nutritional anthropometry is a technique that measures the physical dimensions and gross composition of the human body as a way of assessing nutritional status. This method of assessment remains the standard measurement of assessing malnutrition which actually means undernutrition and overnutrition.³ As stated by the Caribbean Food and Nutrition Institute in 2005, it also has a great impact on the health systems and learning capacity of children as well as their productivity as adults and on the quality of life in general.²⁶

According to the findings, there was no statistically significant ($p > 0.05$) difference between the WAZ of the pupils in urban and rural public primary schools while significant ($p < 0.05$) differences exists between their weight, height HAZ and BAZ. The result also showed that the urban pupils weighed more (27.71 ± 6.24) than the rural (25.63 ± 5.07), were taller (1.34 ± 0.09) than the rural (1.31 ± 0.11) and had a better BAZ (-0.84 ± 0.99) than the rural (-0.50 ± 1.24). However, the HAZ and WAZ for the rural pupil (0.16 ± 1.63 and -0.81 ± 1.74 respectively) was better than the urban ($-1.011.22$ and -1.12 ± 1.16 respectively). Congruent with this finding, the study of Gonzalez-Suarez et al.²⁷ showed that most of the urban children in Philippine were overweight and obese, while the studies of Islam et al.²⁴ and Bharati et al.²⁸ reported that children in urban area were heavier and taller compared to the rural children.

These differences according to Eze et al,²¹ could be related to difference in methodology or study instruments such as the reference indices used, secular/time trends, and sociocultural factors. With regards to the study instrument, WHO recommends the use of Z- score- related indices in the assessment of physical growth and nutritional status, irrespective of ethnicity, socioeconomic status, and feeding mode.⁴ The standards make use of multiple indicators based on Z- score which is preferred because they permit clinical tracking of patients whose anthropometric classification lies beyond the measurable limits of the percentile range such as those with severe undernutrition and severe obesity.²¹ Furthermore, it is also the belief of Bello et al.² that the frequency of milk consumption may contribute significantly to the variations in the nutritional status. This is so as the mean weight and height of pupils in the urban area were higher than those in the rural areas.



Conclusion and Recommendation

The result from this study revealed statistically significant ($p < 0.05$) differences between the weight, height HAZ and BAZ of the pupil which signified that the urban pupils weighed more and were taller, while their rural counterparts had higher HAZ and BAZ score. This shows that more of the urban pupils are stunted (too thin for their height) and wasted (too thin for their age). Hence, the state government should initiate some comprehensive public health intervention measures geared towards nutritional education programme for pupils, parents and teachers to promote nutritional health as well assist the efforts of the federal government in the school feeding programme to help improve the nutritional indices of these pupils

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ENHANCING EMOTIONAL INTELLIGENCE AMONG SECONDARY SCHOOL STUDENTS: NEEDS AND STRATEGIES

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ABSTRACT

Emotional intelligence (EI) is an invaluable life skill for adolescents, as it enables them to better understand their own emotions and those of others and to effectively manage relationships. Enhancing emotional intelligence among adolescents is therefore critical for their overall well-being. Emotional intelligence is a critical factor in the overall well-being of adolescents. It is imperative for them to learn how to manage their emotions, as this will help them to better understand and empathize with others. This article will provide an overview of emotional intelligence and how it can be enhanced in adolescents. It will discuss the importance of emotional intelligence, the different components that make up emotional intelligence, and various strategies that can be used to increase emotional intelligence in adolescents. Lastly, it will provide tips for parents and teachers on how to foster emotional intelligence in their adolescents.

KEY WORDS: *emotional intelligence, adolescents*

INTRODUCTION

Emotional intelligence (EI) is the ability to recognize and manage one's own emotions, as well as the emotions of others. It is a critical component of effective communication, leadership, and relationships. EI involves the ability to accurately perceive emotions, to access and generate emotions to assist thought, to understand emotions and emotional knowledge, and to regulate emotions to promote psychological and intellectual growth. It also encompasses the ability to empathize with others, manage stress, and control one's own emotions in order to achieve goals.

EI involves being aware of one's own emotions, being able to recognize the emotions of others, and being able to craft strategies to manage and regulate both. It can also involve being aware of the impact that emotions have on problem solving and decision-making. The concept of EI emerged in the late 1980s, and has been gaining popularity ever since. It is now seen as an influential factor in successful relationships. It is increasingly being used in the workplace to help employees better understand and manage their emotions and those of their colleagues.

THE IMPORTANCE OF EI

Emotional intelligence (EI) is an instrumental factor in success both personally and professionally. It helps individuals manage

their own emotions as well as the emotions of others, leading to better relationships and higher job performance. It can also help people become more self-aware, manage stress more effectively, and make more informed decisions. Ultimately, having high emotional intelligence can provide the foundation for a successful and happy life.

Emotional intelligence is a factor in many aspects of life. It is especially helpful in interpersonal relationships, as it helps us to understand, accept, and manage our emotions as well as the emotions of others. This enables us to create strong, meaningful relationships and to effectively communicate with those around us. In the workplace, emotional intelligence can help us to effectively manage and lead teams, work collaboratively, and build successful relationships with colleagues. In addition, those with emotional intelligence tend to be more successful in their careers and better able to handle stress. Ultimately, emotional intelligence contributes to our overall wellbeing and happiness.

EI is an incredibly valuable life skill for many reasons.

1. Improved Decision Making: EI helps us to make more informed decisions. By understanding our own emotions, we can better assess the potential outcomes of our actions, as well as the potential reactions of



those around us. This is especially relevant when faced with difficult decisions.

2. **Strengthened Relationships:** EI helps us to understand and relate to those around us. By being able to recognize and respond to the emotions of others, we can build stronger relationships with friends, family, and colleagues.
3. **Increased Self-Awareness:** EI helps us to become more aware of our own emotions and how they affect our behavior. This helps us to become better at regulating our emotions, which can improve our mental and physical health.
4. **Enhanced Leadership:** EI helps us to be better leaders. By understanding our own emotions and those of others, we can more effectively communicate, motivate and inspire those around us. Overall, emotional intelligence is a key life skill that allows us to be more successful in all aspects of life. It can help people make smarter decisions, build stronger relationships, increase self-awareness, and be better leaders.

NEED FOR EMOTIONAL INTELLIGENCE AMONG SECONDARY SCHOOL STUDENTS

Emotional intelligence is an essential skill for secondary school students to possess. It enables them to better understand and manage their own emotions, as well as those of others. This enables students to improve their interpersonal relationships, make more informed decisions, and generally handle stress and difficult situations more effectively. Secondary school students are living through a period of transition and development, so having emotional intelligence enables adolescents to navigate the complexities of adolescence. It can also help students foster better relationships with their peers, teachers, and family members, which can lead to increased academic success. Developing emotional intelligence can help secondary school students become more self-aware and self-reliant, which can have a positive impact on their overall mental health and well-being.

Emotional intelligence is an extremely valuable skill for secondary school students to possess. It enables them to better understand and manage their own emotions, as well as those of others. This enables students to improve their interpersonal relationships, make wise decisions, and generally handle stress and difficult situations more effectively. Secondary school students are living through a period of transition and development, so having emotional intelligence can prepare them to successfully navigate the complexities of adolescence. It can also help students foster better relationships with their peers, teachers, and family members, which can lead to increased academic success. Developing emotional intelligence can help secondary school students become more self-aware and self-reliant, which can have a positive impact on their overall mental health and well-being.

STRATEGIES TO ENHANCE EMOTIONAL INTELLIGENCE AMONG SECONDARY SCHOOL STUDENTS: THE ROLE OF TEACHERS

1. **Teach Emotional Regulation:** Emotional regulation is the ability to manage one's emotions and to respond in an appropriate manner. Teaching students to recognize and name their emotions, to understand their triggers and how to manage them, and to express their feelings in a healthy way can help them to become emotionally intelligent.
2. **Foster Empathy:** Empathy is the ability to recognize and understand another person's feelings. This can be done through activities such as role-playing, reading stories, and discussing real-life situations in a safe and supportive environment.
3. **Develop Social Skills:** Social skills are critical for developing relationships and understanding the perspectives of others. Activities such as group discussions and team-building exercises can help students practice and improve their social skills.
4. **Encourage Positive Self-Talk:** Self-talk is the internal dialogue that we have with ourselves. Encouraging students to be aware of their own self-talk and teaching them how to use positive affirmations and statements can help them to be more emotionally intelligent.
5. **Promote Self-Awareness:** Self-awareness is the ability to recognize and understand one's own thoughts, feelings, and behavior. Encourage high school students to practice self-reflection and to become aware of their own emotional triggers and reactions. Teachers can teach them how to recognize their emotional states, and how to manage and express them appropriately.
6. **Practice Empathy:** Empathy is fundamental to emotional intelligence and helps students to relate to the feelings of others. Role-playing activities, such as putting themselves in the shoes of another person, can help students to better understand what it's like to be in someone else's shoes.
7. **Encourage Positive Self-Talk:** Negative self-talk can be a major obstacle to emotional development. Students should be shown how to recognize and challenge their own negative thoughts, and focus on positive statements instead.
8. **Prioritize Social Skills:** Social skills are essential for emotional intelligence. Teachers should teach students communication and collaboration skills, such as active listening and conflict resolution.
9. **Model Emotional Intelligence:** A teacher's emotional intelligence can be a valuable asset for your students. Teachers should demonstrate appropriate emotional regulation, self-awareness, and empathy, and create a safe, supportive environment for students to practice these skills.



STRATEGIES TO ENHANCE EMOTIONAL INTELLIGENCE AMONG SECONDARY SCHOOL STUDENTS: THE ROLE OF PARENTS

1. Encourage open communication: Encourage children to discuss their emotions and to express their feelings with their parents. This can help them to better understand their emotions and to be more comfortable
2. Model emotion regulation: Parents are expected to be role models for their adolescents on how to demonstrate and how to regulate their emotions in difficult situations. Parents need to show them what it looks like to remain calm and focused when feeling overwhelmed.
3. Encourage self-reflection: Asking adolescents to reflect on their feelings and emotions, and to consider how they interact with others is very beneficial. This can help them to better understand their emotions and to recognize situations that may elicit certain emotions.
4. Provide problem-solving skills: Help adolescents develop strategies for dealing with challenging emotions. Encourage them to think of different ways to address the problem, and to consider the consequences of each option.
5. Promote empathy: Parents should help their children to understand the feelings of others and to develop empathy. Encouraging them to think about how their actions might affect someone else and to consider different perspectives helps a lot
6. Support their interests: Encourage children to pursue activities and interests that they are passionate about. This can help them to develop confidence and to become more in touch with their emotions.
7. Encourage mindfulness: Teaching students to practice mindfulness and to be aware of their thoughts and feelings. This can help them to manage their emotions and to stay calm in challenging situations.

CONCLUSION

Emotional intelligence is a critical part of a student's overall well-being and development. Secondary school students need to be provided with appropriate strategies to enhance their emotional intelligence. Strategies should be tailored to the individual needs of the students and should include activities that emphasize self-awareness, self-management, social awareness, and relationship management. Furthermore, teachers should be trained to recognize the signs of psychological distress in their students. By creating a supportive environment and providing resources to help students develop their emotional intelligence, secondary schools can help students achieve success in their academic and personal lives.

In conclusion, enhancing emotional intelligence among secondary school students is of the utmost importance. It is essential that secondary school students learn how to recognize,

understand and effectively manage their emotions. Strategies such as providing students with appropriate education and guidance, creating a safe and supportive learning environment, and developing a strong relationship between students and teachers can help in achieving this goal. Moreover, fostering collaboration and communication among students and involving them in activities that promote self-awareness and self-regulation can also play a significant role in the development of emotional intelligence among secondary school students.

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A NOVEL SMART IRRIGATION SYSTEM FOR AGRICULTURAL LANDS

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ABSTRACT

In the present day Scenario farmers are manually irrigating their lands. They feel it difficult to irrigate their lands at their convenience. It will be good, if there is a system by which one can automatically irrigate their lands. In this work, an Arduino based smart irrigation system has been proposed. A soil moisture sensor senses the moisture content of the soil. Based on the moisture content in the soil sensed by it, the Arduino system will turn on and Off the motor for irrigating their land. As the system is more automatic in nature, the farmers can do remaining agricultural work at their convenience. The proposed system has been developed as a prototype and tested for irrigation. The results were found to be satisfactory.

KEY WORDS: *Arduino, Smart Irrigation, soil moisture sensor*

1. INTRODUCTION

V.N.Rajendranath et al implemented a VH400 sensor interfaced with micro controller based system, in which ordinary micro controller unit was used for automatic irrigation[1]. Also, they made a provision to send SMS to the land owner about the irrigation details based on SIM900A module. S.rathika et al made a complete review of all automatic irrigation systems available in and around the world[2]. Vijendra babu et al proposed a system with remote monitoring of irrigation system based on the amount of water spent on the soil during dryness, but without auto switch on and off[3].

U.Igharkpata et al proposed a new wireless activation of pipeline walls based automatic irrigation system, wherein they used CADMAN mini traveller controlled by IoT based controller[4]. Rashmi Jain et al used a wireless sensor with RF module for auto irrigating wherein they sent the data to a centralised server system and monitored the data completely[5].

Anusha et al., proposed a GSM based automatic water irrigation system, by sensing the water content in the soil moisture sensor and transmitting the data through GPS to the mobile of the land owner, but the system only made manual ON and OFF of water flow[6]. An android based moisture content based automatic water irrigation system was proposed with the data being

transmitted to a centralised server using Zigbee method and also an automatic control of water irrigation through GSM methodology was also implemented[7]. R G Ghodake et al proposed a micro controller and GSM based automatic water irrigation system, in which they controlled the overflowing of water in the land being irrigated[8].

Pavithra et al proposed a new GSM based water irrigation system in which they used GSM technology for transmitting the data to the land owner whether or not the land is automatically irrigated, to maintain the land as if in the case of uniform environmental conditions[9]. Darshana Chaware et al proposed a new a sensor based over irrigation avoiding over irrigation using micro controller[10].

In this work an soil moisture sensor and Arduino based automatic water irrigation system has been proposed. When the soil moisture is less or the land is dry, the system is automatically the Arduino Controller and the motor starts running to irrigate the system. When the land is completely irrigated, the soil moisture is full, then the soil moisture sensor gives signal to Arduino and the single channel relay cuts off the motor. Also, the information about whether the land is completely irrigated or not, is sent to the landlord to his mobile phone through android system.

2. PROPOSED SYSTEM

Fig.1., shows block diagram of Proposed system

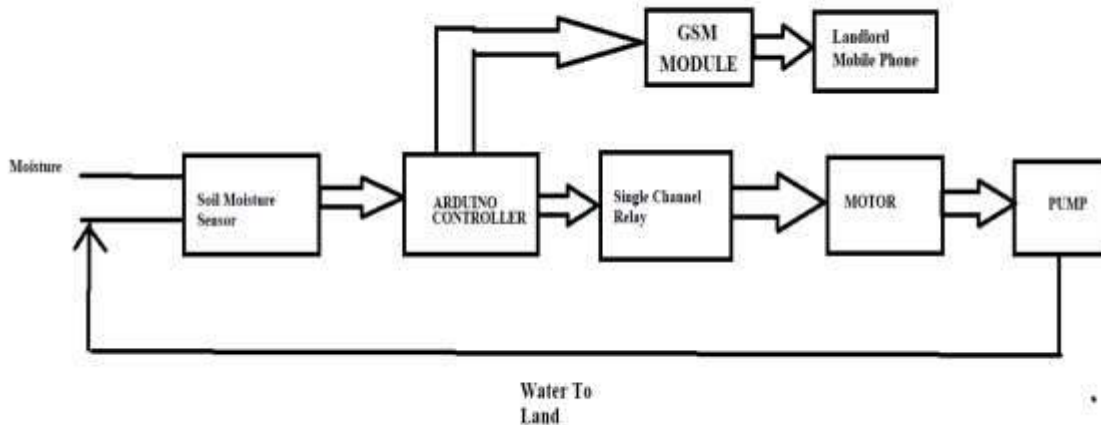


Fig1.Block diagram

The soil moisture sensor senses the moisture content of the soil. If the soil moisture is below certain level, or it is “dry”, then, the output of sensor is an analog voltage. It is converted into digital signal by ADC. The Arduino controller has been coded to compare it with set reference. If it is less, then, it actuates the single channel relay. So, the motor starts to rotate and hence pump irrigates land. The land is thus being irrigated and moisture content increases. When moisture content is high, this level is also sensed by sensor. It gives signal in the form of analog voltage and it is converted again into digital signal by ADC. The Arduino compares it with reference and as the signal is higher than set reference, it cuts off the single channel relay. The motor stops.

3. COMPONENTS USED

The following are the components used in this work, which have been elaborately discussed:

A. Soil Moisture Sensor:

In order to determine how much water is held in the soil horizon, soil moisture sensors monitor the water content of the soil. Water in the soil is not immediately measured by soil moisture sensors. Instead, they track changes in another soil characteristic that is predictably connected to water content. Each sensor company measures soil moisture content using a different technology. A soil sensor needs to make touch with the soil in order to function. When the soil sensor is completely encircled by soil and there are no gaps between the probe and the soil, the accuracy will be at its greatest. In this work, Gro point TDT5 type soil moisture sensors have been used. TDT calculates the amount of time it takes an electromagnetic wave to traverse a specific distance along a transmission line buried in the ground. The signal travels more slowly the more moisture there is around the probe. TDT sensors typically offer more accuracy and use less power than

TDR sensors. The measurement's bandwidth is what gives the other edge over the other approaches. TDT is less prone to interference than other techniques like Frequency Domain Reflectance since it has a wider bandwidth.

B. ARDUINO Controller

Arduino is a hardware controller that runs on open-source software and has a lot of functions. One of the least expensive options for automation and control at a smaller scale is Arduino. The features of Arduino controllers are numerous:

- (i). Inexpensive: One of the most affordable controllers for DIY projects and home automation is Arduino.
- (ii). Cross Platform: Windows, Mac OS, and Linux are just a few of the platforms where the Arduino programming software is available.
- (iii). Simple Programming Environment: The Arduino IDE's programming environment is fairly straightforward. The environment of the software was created with end users in mind and is user-friendly.
- (iv). Extensible hardware: The Arduino's open-source hardware is small and lightweight. There are numerous models available, each with unique functionalities.

In this work, Arduino controller ATmega 328P has been used. It also includes additional parts to support the ATmega328P microprocessor, including a voltage regulator, serial connectivity, and crystal oscillator. The Arduino Uno comes with a USB connection, a Power barrel jack, an ICSP header, 6 analogue input pins, 14 digital input/output pins (of which 6 can be utilised as PWM outputs), and other features.

When programming an Arduino, the `pinMode()`, `digitalRead()`, and `digitalWrite()` functions can be used to control the 14 digital input/output pins as input or output pins. Each pin operates at 5V, has an inbuilt pull-up resistor of 20–50 KOhms that is by default unconnected, and may provide or receive a maximum of 40mA of current.

Fig.2., SHOWS the Pin Diagram

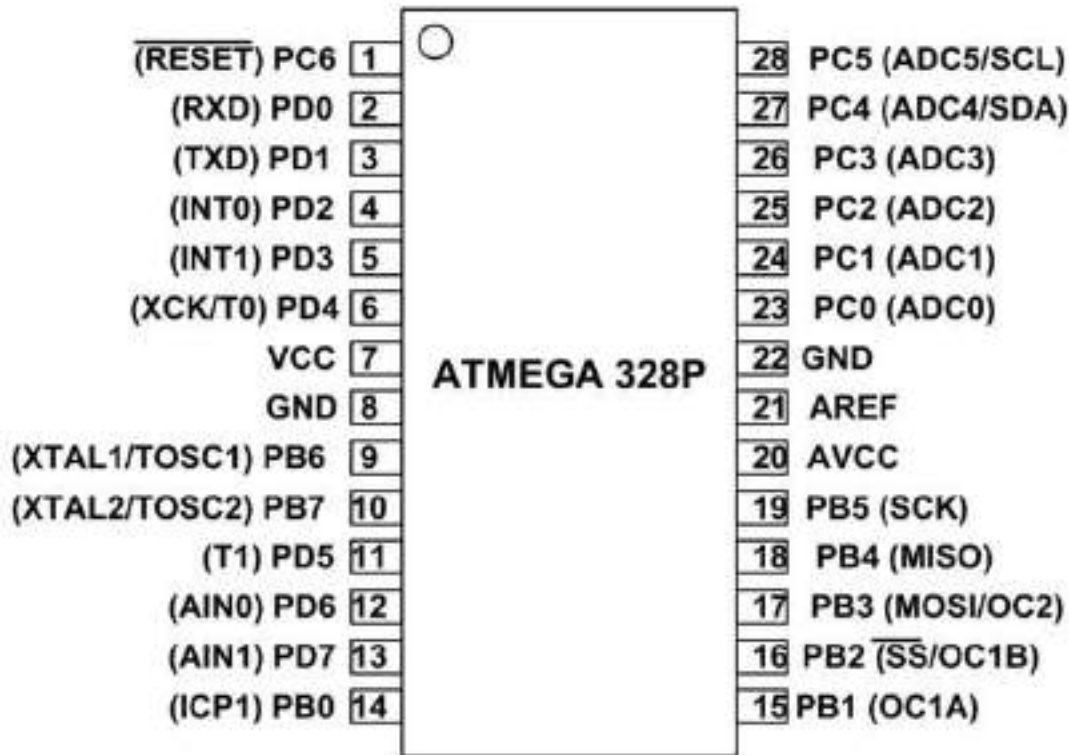


Fig.2.ATmega 328P Pin Diagram

C. Single Channel Relay

Single Channel relays are cost-effective, easily-connected modules. Further, they are perfect for DIY projects that call for switching small amounts of AC or DC power. An electromagnet resides at the centre of a relay (a wire coil that becomes a temporary magnet when electricity is passed through it). A relay can be compared to an electric lever; when it is turned on, it turns on one device with a relatively modest current and another with a considerably bigger current.

The NC, COM, and NO high voltage terminals on a relay link to the object being controlled. A relay normally has five pins. Depending on whether the device should remain normally on or off, the connection is made between the COM

(common) terminal and either the NC (normally closed) or NO (normally open) terminal. An electromagnet coil (coils 1 and 2) is located between the two remaining pins.

The NC terminal and the NO terminal are normally open, and the COM terminal is connected to the NC terminal. The electromagnet becomes activated when electricity passes through the coil, which moves the switch's internal contact. After then, the COM disconnects from the NC terminal and connects to the NO terminal. The internal contact is put back in place when the coil's current stops flowing through it, re-connecting the NC terminal to the COM and re-opening the NO terminal. Fig.3., shows the photograph of single channel relay.



Fig.3.Single Channel Relay

D.Motor

The motor used in pump sets is three phase induction motor. A 3-phase induction motor is an electromechanical energy converting machine that transforms 3-phase electrical input power into mechanical power at the output. A stator and a rotor make up a 3-phase induction motor. While the rotor has a short-circuited winding known as rotor winding, the stator carries a three-phase stator winding. The three-phase supply powers the stator winding. Through electromagnetic induction, the rotor winding receives its voltage and power from the stator winding, thus the name.

It is driving the pump.This pump is used to irrigate the land.

But, in this work a DC motor has been used to simulate the realtime one.

E.GSM Module

A modem belongs to the class of wireless modems that are created specifically for use with GSM and GPRS

networks. Similar to mobile phones, it needs a SIM (Subscriber Identity Module) card to start communicating with the network. For identification, they also have IMEI (International Mobile Equipment Identity) numbers that are similar to those on cell phones.

1.For interaction with the processor or controller, which is done through serial transmission, the MODEM requires AT commands.

2.The processor/controller is the one which transmits the commands.

3.When the MODEM gets a command, it responds with a result.

4.The processor, controller, or computer can send any of the AT commands that the MODEM supports in order to communicate with the GSM cellular networks.

In this work, a SIM 900A GSM module has been used.

The photograph of the same has been shown in fig.4.,



Fig.4.,SIM900A Module

4. HARDWARE PROTOTYPE

The hardware prototype of the work has been shown in fig.5.,



Fig.5.Hardware Prototype

The hardware proto type was fabricated with the above components but with the motor being DC motor.The proposed system worked well and completely filled the plant under consideration with fully water.Also, it automatically cut off the water, when the sample plant was completely irrigated.So, the proposed system works well as required.

5. CONCLUSION

Thus a novel Arduino and GSM based automatic water irrigation system has been proposed in this work.. It not only saves time of the farmers bu also saves their money due to energy consumption.Also, manual labour is also reduced.Hence, the benefits opf the work is manifold. Further works are going on to consider the temperature also as a parameter so as to consider the present day status of crops and intimate it to the farmers in order to take necessary steps.

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EFFECT OF BREATHING TECHNIQUE ON EMOTIONAL FACTORS OF WOMEN

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ABSTRACT

The study was designed to investigate the Effect of breathing technique on emotional factors of women. To investigate the study, thirty women were randomly selected from house women at Coimbatore and their age was ranged between 30 and 35 years. The subjects were randomly assigned to two equal groups (n=15). All the subjects were divided in to two groups with 15 subjects each as experimental and control group. Group-I underwent Breathing technique for a period of 12 weeks and group-II acted as control who did not participate in any special training other than the regular routine. The emotional factors variables such as anxiety and stress were selected as dependent variables. Pre and post-test random group design was used for this study. The dependent 't' test was applied to determine the difference between the means of two groups. To find out whether there was any significant difference between the experimental and control groups. To test the level of significant of difference between the means 0.05 level of confidence was fixed. The result of the study shows that, there was a significant improvement takes place on anxiety and stress of women due to the Effect of breathing technique. And also concluded that, there was a significant difference exists between experimental and control groups in anxiety and stress. The control group did not improve the selected criterion variables.

KEYWORDS: *Breathing Technique, anxiety and stress,*

INTRODUCTION

Breathing is a necessity of life that usually occurs without much thought. When you breathe in, blood cells receive oxygen and release carbon dioxide. Carbon dioxide is a waste product that's carried back through your body and exhaled. Improper breathing can upset the oxygen and carbon dioxide exchange and contribute to anxiety, panic attacks, fatigue, and other physical and emotional disturbances. The next time you're feeling anxious, there are a variety of anxiety breathing exercises to try. Learn how to use breathing exercises to help relieve feelings of anxiety and stress. This type of breathing, called thoracic or chest breathing, causes an upset in the body's oxygen and carbon dioxide levels, resulting in increased heart rate, dizziness, muscle tension, and other physical sensations. Your blood is not being properly oxygenated, and this may signal a stress response that contributes to anxiety and panic attacks. Diaphragmatic or deep breathing, on the other hand, stimulates the parasympathetic nervous system, which is part of the peripheral nervous system responsible for regulating heartbeat, blood flow, breathing, and digestion. Deep breathing helps you avoid the "fight-or-flight" response (acute stress response) to mentally or physically terrifying situations. Any type of deep breathing exercise can be effective for relieving

anxiety. Sheryl Ankrom (2012)

METHODOLOGY

The purpose of the study was to find out the Effect of Breathing technique. To achieve the purpose of the study, thirty house women were Coimbatore. The subjects were randomly assigned in to two equal groups namely, Breathing technique group (BTG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The respective training was given to the experimental group the 3 days per weeks for the training period of 12 weeks. The control group was not given any sort of training except their routine.

DESIGN

To evaluate emotional factors variable anxiety was questioner test and stress was by questioner test. The parameters were measured at baseline and after 12 weeks of Waling technique were examined.

STATISTICAL ANALYSIS

The collected data before and after training period of 12 weeks on the above said variables due to the Effect of



breathing technique was statistically analysed with ‘t’ test to find out the significant improvement between pre and post-test.

In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P<0.05)

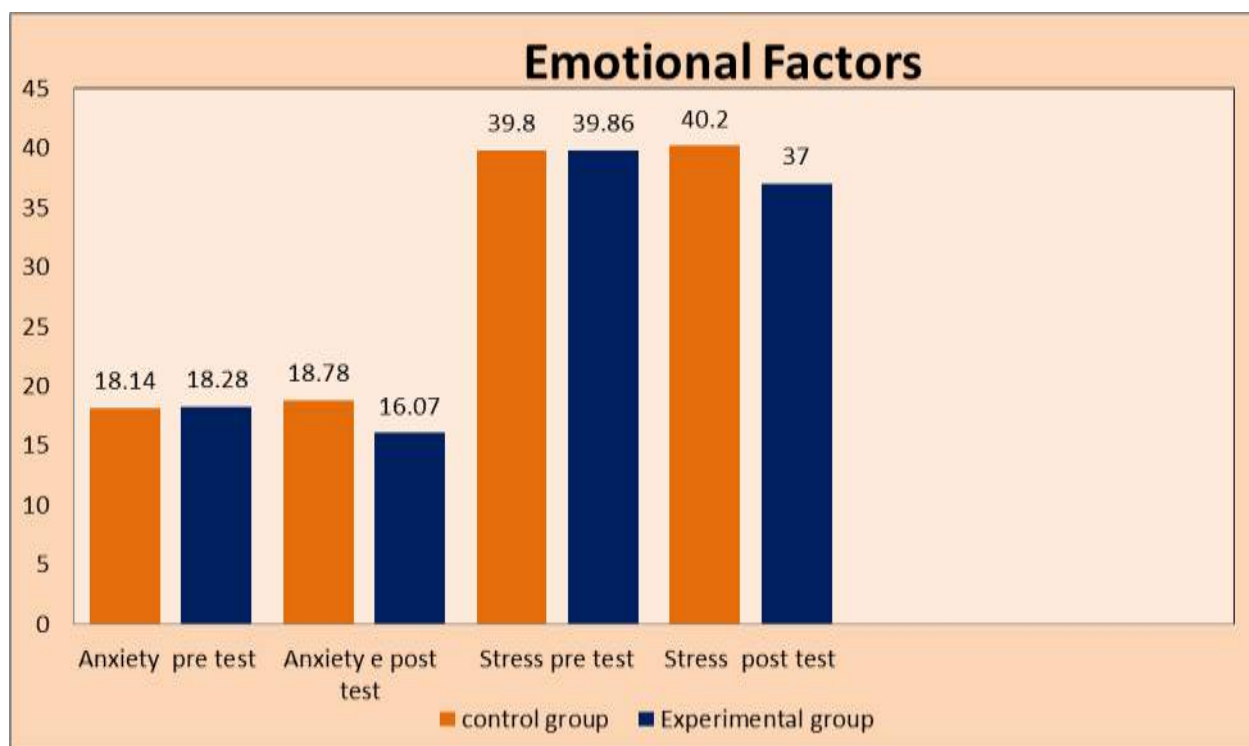
Table I
 Computation of ‘T’ Ratio on experimental group and Control group selected House women Coimbatore.

Group	Variables		Mean	N	Std. Deviation	Std. Error Mean	t ratio
Experimental Group	Anxiety	Pre	18.28	15	1.58	0.29	7.38*
		Post	16.07	15	1.38		
	Stress	Pre	39.86	15	2.50	0.50	
		Post	37.00	15	1.96		
Control Group	Anxiety	Pre	18.14	15	2.76	0.46	1.38
		Post	18.78	15	3.06		
	Stress	Pre	39.80	15	4.74	1.01	
		Post	40.20	15	3.70		

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table I reveals the computation of mean, standard deviation and ‘t’ ratio on selected emotional factors variable namely anxiety and stress of experimental group. The obtained ‘t’ ratio on anxiety and stress were 7.38 and 5.66 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant. Further the computation of mean,

standard deviation and ‘t’ ratio on selected Health related fitness variable namely anxiety and stress of control group. The obtained ‘t’ ratio on anxiety and stress were 1.38 and 0.39 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained ‘t’ values were lesser than the table value it was found to be statistically not significant.





DISCUSSION ON FINDINGS

The result of the present showed the Effect of breathing technique on emotional factors of women.. And there was a difference between experimental group and control group. The findings of the present study are in line with investigator referred in this study. Anxiety and stress developed due to the game specific training after 12 week training period. **Deniz (2021)** The Effect of Breathing Exercise on Stress Hormones. **Rickard(2015)**. Breathing techniques associated with improved health outcomes. **Vagedes (2014)** The Buteyko breathing technique in children with asthma. Investigated Effect of breathing technique on emotional factors of women. From the result of the present study, it is speculated that the observed changes in anxiety and stress may properly designed game specific which are suitable for male tennis players.

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CONCLUSION

1. There was a significant improvement takes place on selected emotional factors variable due to the effect of 12 weeks breathing technique.
2. There was a significant difference exists between experimental and control groups on selected emotional factors variable such as anxiety and stress.

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EXAMINING MACRO-ENVIRONMENTAL FACTORS OF PHARMACEUTICAL INDUSTRY

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ABSTRACT

The pharmaceutical sector is expected to change as a result of a number of factors, including technological advancements, new laws, rising drug production costs, and new consumer demands. The organisation that establishes the comprehensive framework on the performance of the pharmaceutical industries, dictating all aspects of the behaviour of the market actors, is indirectly influenced by macro-environmental elements such as Political, Economic, Social, Technological, Legal, and Environmental factors. In order to have a competitive advantage over other market participants, the purpose of this research is to comprehend the macroeconomic reasons responsible for the business model revolution. To provide a comprehensive picture of the current market environment internationally and in the context of India, the study's existing literature on macroeconomic factors influencing the pharmaceutical landscape has been studied.

KEYWORDS: *Pharmaceutical Industry, Macro-Environment Element, Competitive Advantage*

1. INTRODUCTION

The phrase "macro environment" refers to all external factors that significantly affect a company's performance, strategy, and decision-making. A wide range of external factors, such as societal, legal, economic, and technological conditions, make up the macro environment. Governments and businesses both struggle to totally control external factors. But deliberate decisions and methods can mitigate the impact on the economy. Understanding the key macroeconomic issues affecting the pharmaceutical sector globally and in India is the main objective of this study. The article goes on to analyse corporate-specific macro factors using Sun Pharmaceutical Industry Ltd. as an example.

Pharmaceuticals are a class of newly formed organic substances that have improved our quality of life. Branded and generic medications are developed, manufactured, and marketed by the pharmaceutical business (González et al., 2021). The market was worth over USD 1.25 trillion in 2019 as opposed to USD 390 billion in 2001. By 2023, it is anticipated that the global pharmaceutical market would reach USD 1.5 trillion. The US continues to dominate the pharmaceutical market, with North America accounting for 48.9% of global pharmaceutical revenue. However, recently, a number of emerging nations have begun to have significant influence. Emerging markets include nations with economies like Brazil, India, Russia, Colombia, and Egypt. Although Latin American nations participate in the expanding industry, their contribution to global earnings is still minimal. Comparatively, the Chinese pharmaceutical sector has experienced the fastest growth rates in recent years (Mikulic, 2020).

In addition to the pharmaceutical market, pharmaceutical consumption was also rising globally, in part due to changes in clinical practise and a rising demand for medications to address age-related and chronic disorders. It is certain that the COVID-19 pandemic in 2020 and the subsequent years will change the pharmaceutical industry in terms of income and investment in new chemical and biological entities as a result of the efforts to produce stronger and more potent vaccines against the SARS-CoV-2 virus. (CIHR, 2019).

In terms of volume and value, the Indian pharmaceutical sector is the third largest in the world. It is one of the markets with the fastest rate of growth and the biggest volume exporter of generic medications. India is the country with the most pharmaceutical production facilities that have received USFDA approval outside of the US. In terms of value and volume, the domestic pharmaceutical market makes up around 2% of the worldwide industry. In the years 2019 through 23, it is expected that India's pharmaceutical spending would increase by 8–11% CAGR and total between US\$28–32 billion. India is aptly known as the "Pharmacy of the World" due to the affordable prices and excellent quality of its pharmaceutical products. (Raveendran, 2022).

The purpose of this paper is to study the key geopolitical, economic and legal aspects of the pharmaceutical industry globally and in Indian context.



2. CRITICAL ANALYSIS OF KEY GLOBAL GEOPOLITICAL, ECONOMIC AND LEGAL ENVIRONMENTAL ASPECTS OF THE PHARMACEUTICAL INDUSTRY

2.1 Geopolitical Factors: Governments are the primary source of most political influences, while corporations have very few regulatory powers. The capacity of a business to service and retain consumers while turning a profit is mostly impacted by political considerations. Political factors that affect business include taxation, employment laws, and political stability. They have an effect on how businesses operate, which may be advantageous or disadvantageous. The pharmaceutical sector must adhere to tight regulations in practically every nation. A complicated regulatory framework, made up of various government bodies and drug-related laws, governs the pharmaceutical industry. This frequently relates to the potency and safety of medications.

Additionally, it can affect the way and places that medicines are distributed. Regardless, the complex regulatory framework that exists creates a considerable barrier to entry for new competitors in the pharmaceutical industry, making life considerably easier for the established drug producers and distributors. In the US, pharmaceutical companies are free to establish whatever price for their goods. Many pharmaceutical companies choose to mark up the prices at which they sell their goods, which has recently caused a great deal of resentment. When medications, like those used to treat diabetes, are vital to someone else's survival, it seems horribly unfair to charge such high prices for them. As a result, governments are starting to express interest in controlling the prices at which drugs can be sold. This would ultimately lead to less profit for pharmaceutical corporations when everything is said and done.

2.2 Economic Factors: Business operations are significantly impacted by the economy. Major economic factors that affects pharmaceutical industry in India include consumer spending, inflation rate, economic policy of government and prices of products. Due to sedentary lifestyle and increase in chronic diseases the healthcare spending on an individual in India is increasing considerable. The increased awareness on insurance and government incentives for below poverty line made people to spend more healthcare. Whatever the causes, this can only mean more money for the pharmaceutical sector.

2.3 Legal Factors- Federal rules, state laws, and norms imposed by custom are only a few types of laws that have an impact on enterprises. Frauds are rather frequent in the pharmaceutical and healthcare industries. This is why most governments have imposed tight restrictions that audit the growth of these corporations. Pharmaceutical businesses must therefore take care to operate in compliance with all legal obligations. Today's pharmaceutical firms rely heavily on data. They must therefore ensure that they are protected from online attacks. Customers could lose faith in a company's goods and services if they are vulnerable to cyber threats.

3. CRITICAL ANALYSIS OF KEY GEOPOLITICAL, ECONOMIC AND LEGAL ENVIRONMENTAL ASPECTS OF THE PHARMACEUTICAL INDUSTRY IN INDIA

3.1 Geopolitical Factors: The government's inability to create a clear regulatory framework and the lack of incentives at first caused the Indian pharmaceutical industry to grow at a relatively slow rate from 1947 to 1970. Currently, the industry is characterised by a plethora of governmental restrictions and policy changes, strict price controls, strict formulation rules, and a lack of global patent protection. The Drug Price Control Order (DPCO) and the Indian Patents Act (IPA) were both passed in 1970. Although DPCO served as a barrier to pharmaceutical companies' attempts to make free pricing unlawful, it achieved the objective of offering high-quality medications to the general people at affordable prices. The introduction of the IPA, which only recognised process patents and did not recognise product patents, gave the industry and businesses a tremendous boost and allowed them to start manufacturing bulk medications and formulations at reduced costs through reverse engineering. Due to the proliferation of several small businesses, this caused the sector to become highly fragmented.

3.2 Economic Factors: Health care costs represent a very modest fraction of Indians' income. As a result, the industry's growth has been inhibited and the demand has decreased. Spending on healthcare has a low priority because the average Indian has a low per capita income. Only in cases of emergency does an Indian seek medical attention. This has caused the number of unqualified doctors to soar and the use of non-standard medications to proliferate. Tax incidences are quite high. There are a number of taxes and fees that must be paid, including Excise Duty (State & Central), Custom Duty, Service Tax, Profession Tax, License Fees, Royalty, Pollution Clearance Tax, Hazardous Substance (Storage & Handling) License, Income Tax, Stamp Duty, and a plethora of other levies and charges. Specialty medications don't have adequate transportation or storage options. According to studies, around 60% of retail pharmacies lack proper refrigeration and store their medications in less-than-ideal settings. As a result, the pharmaceuticals given out will be of worse quality, which naturally raises the price. India's train system and roadways are both inadequate. As a result, transportation takes longer. Longer delivery times and higher inventory carrying expenses are required. All of this raises the unaccounted-for costs. Good highways have only recently been built, within the last couple of years.

3.3 Legal Environment: Today's pharmaceutical sector is heavily regulated and enforces compliance. As a result, the industry must bear significant legal, regulatory, and compliance costs. This tends to limit its dynamism, although in recent years, the government has started to ask the industry for recommendations on regulatory overheads in an effort to spur innovation in response to growing



threats from external markets. There is a sizable PSU section in the pharmaceutical industry that is extremely ineffective. The government improperly subsidises inefficient units by transferring surpluses from efficient units to the price equalisation account of inefficient units. Long term, this has rendered almost everyone ineffective. With effect from January 2005, the government switched from basing excise duty on manufacturing costs to MRP (Maximum Retail Price), raising the price of finished goods. The present administration has made several essential medicines unaffordable to the poor for a small profit.

4. CONCLUSION

Global geopolitical pressure, the economic downturn, legal issues, technological innovation, and social concerns are the main influences on the pharmaceutical sector today. While there are many elements influencing its rise, including increased purchasing power and technology advancements, others, including rigorous rules and health-conscious lifestyles, are causing it to fail. The pharmaceutical sector has undergone significant upheaval during the past few years, and this phase of change is still ongoing. The market players must discover alternatives due to the decline in drug approvals. The market is dominated by greater understanding among the various stakeholders, new market participants, excessively rising R&D costs, and rising demand for generic drugs. To be competitive over the coming years, pharmaceutical businesses will need to modify their business models, engage in mergers and acquisitions, work with venture capital, and partner with various market players.

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IMPACT OF STARTUPS IN INDIAN GDP IN 2022

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ABSTRACT

Indian start-ups have made their mark on the global stage. The ecosystem's rapid growth and maturity have unleashed a tremendous appetite for scalability, alternative funding options, global market expansion, and the ability to enable millions of jobs. This meteoric rise of start-ups has made India the world's third largest start-up ecosystem, and it has had a significant impact on the Indian economy, demonstrating the ability to contribute approximately 4-5 percent of India's GDP. This report aims to highlight the impact of start-ups on the Indian economy, as well as the ecosystem's inherent ability to foster inclusivity, sustainability, and growth. Start-ups do not exist in isolation; rather, they are part of a larger corporate environment dedicated to developing solutions with significant social and economic impact. Because start-ups are incubators for cutting-edge inventions, they create jobs, which means more career opportunities; more employment leads to a stronger economy, and a stronger economy has a direct impact on the growth of cities where start-ups are located.

KEYWORDS: *GDP- Gross domestic product; Start-ups; Unicorn; Financial benefits; Indian economy; Macroeconomics; Impact on economy; Indian business.*

INTRODUCTION

A start-up is technically any business that focuses on developing, commercializing, and developing novel goods, services, or systems powered by innovative technology or intellectual property. Over the last 20 years, the Indian startup environment has grown rapidly, and more assistance is now available in all areas. Startups do not exist in isolation; rather, they are part of a larger corporate environment dedicated to developing solutions with significant social and economic impact. Because start-ups are incubators for cutting-edge inventions, they create jobs, which means more career opportunities; more employment leads to a stronger economy, and a stronger economy has a direct impact on the growth of cities where startups are located. Start-ups will demonstrate a new perspective on entrepreneurship, assist newcomers in establishing their businesses, and connect to form a dynamic network of start-ups. This program will only benefit the country's most talented young people, who will also be able to create new jobs.

STARTUP CULTURE IN INDIA

India is a young country, with 65% of its population between the ages of 25 and 35. The number of start-ups in India has increased gradually rather than abruptly. If one had to pinpoint the exact year when India's start-ups revolution began, it would be 2008. We are all aware of the global recession that began in 2008, forcing businesses all over the world to reallocate resources and lay off massive numbers of workers. It primarily impacted Indian IT professionals, who developed intense job-related fear and began looking for alternative means of support. The young nation was shaken by this fear, which was accompanied by an insatiable desire to prove one's worth, and as a result, its people broke free from the shackles of mediocrity and rose to the occasion.

"A thousand mile journey begins with one step." —
From Lao Tzu

The scenario is the same every time: someone, usually from a middle-class family, begins to put a brilliant idea into action. They put in a lot of effort to put their ideas into action, attract investors' attention, gather useful human resources, and build their own brands.

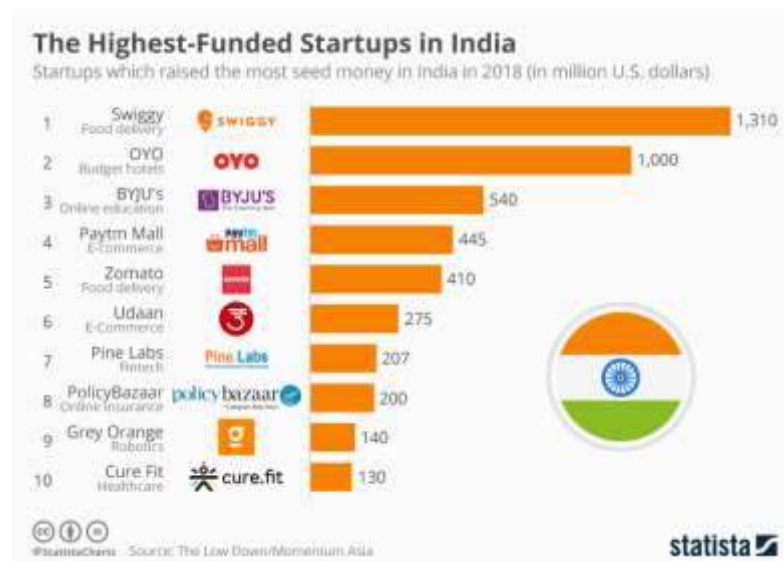


Fig 1 : Start-up Fund in India

Start-ups in India are known for their welcoming work environments, late-night gatherings, and a culture that encourages fair treatment of co-workers. According to Inc42, India has over 6,000 start-ups, and Prime Minister Narendra Modi believes that 44% of them are headquartered in Tier II and Tier III cities. India currently has the world's second-largest start-ups ecosystem. According to a survey conducted by Innoven Capital, the following are the primary reasons why India is among the countries with the best start-ups environments in the world:

1. When compared to other countries, the cost of doing business is relatively low.
2. Both customers and vendors live in close quarters.
3. The domestic market has grown significantly as a result of the 7 million graduates who choose to work in start-ups over MNCs each year.
4. Because India has the second-largest internet user population after China, businesses can communicate with their local markets more easily by using Facebook and WhatsApp.

DEVELOPMENT OF STARTUPS IN INDIA

According to data from the Commerce Ministry as of June 30, 2022, the number of recognised start-ups in the country increased from 471 in 2016 to 72,993 in 2022, a phenomenal increase of more than 15,400%. 4,500 start-ups in new technology fields such as the internet of things (IoT), robots, artificial intelligence, analytics, and others are among the 56 diverse industries represented by the recognised start-ups. The Indian start-up community benefits greatly from venture capital (VC) funding. "Investors appear to be growing more confident in Indian start-ups. In India, venture capital (VC) investment deal volume increased by 39% year on year (YoY) during the first half (H1) of 2022, reaching 976. Global Data, a leading data and analytics firm, reports that "the equivalent announced fundraising amount too logged a 4.5% increase to \$15.6 billion."

"India saw a positive trend in both VC funding value and volume in H1 2022 compared to H1 2021," says Aurojyoti Bose, Lead Analyst at Global Data.

Several significant transactions were also announced in the country during the first half of 2022. During the period, Verse Innovation received \$805 million in funding, Think and Learn (Byju's) received \$800 million in series F funding, Bundl Technologies (Swiggy) received \$700 million, Polygon received \$450 million, and Xpressbees received \$300 million. These are just a few of the notable transactions announced at the time.

GOVERNMENT SUPPORT TO THE START-UPS

On January 16, 2016, the government unveiled the start-up India programme in an effort to foster India's start-up culture while also fostering economic growth, entrepreneurship, and significant job opportunities. The Start-ups India Action Plan, Fund of Funds for Start-ups (FFS) Scheme, start-up India Seed Fund, Start-ups India: The Way Ahead, start-up India Showcase, and start-up India Hub are among the Centre's initiatives, as are three years of income tax exemption and self-certification under labour and environmental laws.

Furthermore, a number of government agencies have launched a variety of programmes to assist the start-up sector. In 2016, the Department of Science and Technology launched the National Initiative for Developing and Harnessing Innovations, an overarching programme for start-ups. Furthermore, through the Biotechnology Industry Research Assistance Council, the biotechnology department fosters and supports entrepreneurs (BIRAC). The Centre's Innovation and Agri-entrepreneur Development initiative promotes innovation and agri-preneurship. Furthermore, the Defence Ministry's Innovations for Defence Excellence (iDEX) programme seeks to promote innovation and technological advancement in the aerospace and defence sectors in order to achieve self-sufficiency.



However, the sector as a whole has been struggling due to disruptions in the global supply chain that have resulted in a funding shortage. Because they rely so heavily on outside investment, Indian companies are suffering the most. A number of companies, including unicorns like Unacademy, Byju's, Vedantu, and Cars24, have laid off employees. According to reports, over 12,000 Indian start-up employees have been laid off. Meanwhile, over 22,000 employees in the tech and start-up industries worldwide have been affected.

Few Government initiatives to boost Start-ups.

- Make In India
- Start-up India
- AIM Platform
- STEP Platform
- NewGen IEDC
- Biotech Push
- NSDM

INDIA’S GDP

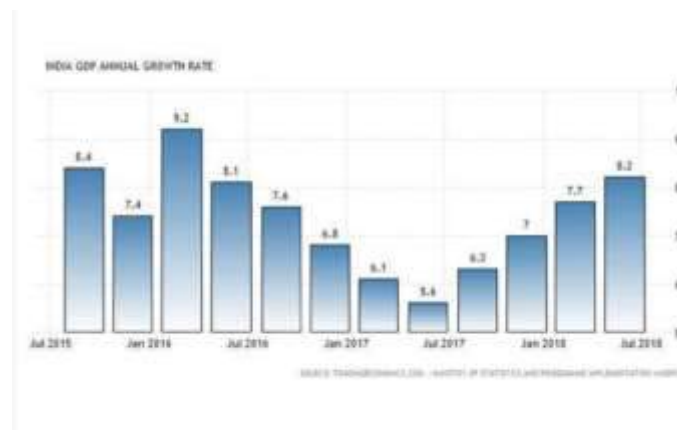


Fig 2 : Indian GDP Annual Growth Rate

Year over year (y-o-y), service exports increased by 30.2%, owing to increases in software, business, and travel services. Net services revenue increased both annually and sequentially. The net outgo of the primary income account, which primarily reflects payments of investment income, increased from US\$ 9.8 billion to US\$ 12.0 billion in the previous year. Private transfer receipts totalled US\$ 27.4 billion, a 29.7% increase over the same period last year, and were primarily comprised of remittances from Indians working abroad. Over the previous year, net foreign direct investment in the financial account fell from US\$ 8.7 billion to US\$ 6.4 billion.

IMPACT OF STARTUPS ON GDP

According to a StrideOne survey, India's ecosystem, which includes over 60,000 registered companies, has the

potential to contribute 4-5% to the country's GDP over the next three to five years. According to Economic Survey 2021-22, India has the world's third-largest start-up ecosystem after the United States and China, with approximately 61,400 registered start-ups.

"With the rise of start-ups, India has become the world's third-largest start-up ecosystem, with a significant impact on the Indian economy. This rise of start-ups has demonstrated the ability to contribute roughly 4-5% of India's GDP "StrideOne, a tech-enabled non-banking financial company, was founded by Ishpreet Singh Gandhi (NBFC).



555 Unique Investors Participated In Startup Funding In H1 2020
 Sequoia Capital emerged as the top investor in H1 2020

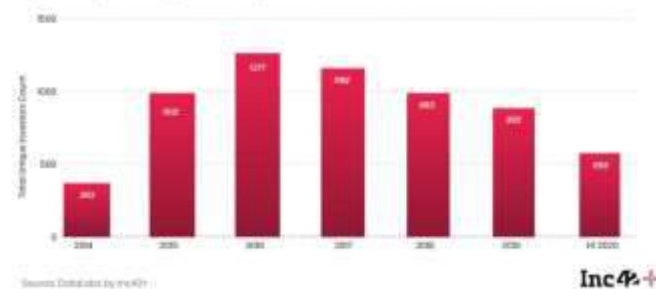


Fig 3 : Start-up Funding

In contrast to the 20,000 platforms predicted to be registered in 2021, the research predicts 24,500 platforms to be registered in 2022. According to the data, between 2022 and 2027, new start-up registration is expected to increase by 25% per year. The report predicts that job growth among start-ups will increase by 24% between 2022 and 2027. According to the report, start-ups will likely add approximately 2,30,000 new jobs in 2022, up from about 1,92,000 in the previous year.

It also discovered that start-up investment has been rapidly increasing, with total funding raised increasing 42% per year between 2016 and 2021 and deal count increasing 23%. The majority of the money raised was invested in SaaS, fintech, logistics, and autotech.

However, according to a survey conducted by market intelligence platform Tracxn, investment in Indian start-ups fell 35% year on year (up to 5 December) to \$24.7 billion, with a decrease in late-stage funding being the primary contributor. The textile industry accounts for approximately 2.3% of the country's GDP. According to the report, more than 28% of India's micro, small, and medium-sized enterprises (MSMEs) use start-up platforms to find business opportunities. Their revenues increased by 29% after joining these platforms in 2022. According to a chart of the nation's contribution to the gig economy, over 70% of fast-commerce firms' workforce bases in 2022 will be made up of gig workers. While approximately 8 million gig workers made up 1.5% of the workforce in India in 2020-21, it is expected that by 2024, their share of total employment will increase to 4%. Start-ups are limiting the number of full-time employees they hire. Gig workers are beginning to replace these permanent employees. According to the report, a 15% increase in enterprises have adopted a semi-gig worker model since October 2021. According to the survey, small truck owners account for roughly half of the country's start-ups in the B2B logistics sector, including Delhivery and Shadowfax. This industry is expected to grow fivefold by 2025. It also stated that thanks to the digitalization and platformisation provided by start-ups, fleet owners can improve utilisation by reducing 40-50% of their fleet's idle time.

FUTURE EXPECTATION OF STARTUP

When the Covid-19 pandemic began in early 2020, a global shutdown severely harmed the start-up sector. To deal with the extreme situation, most businesses slashed spending and suspended hiring. However, the reform did not go as badly as expected until about a year later. Investors made significant bets on a new era of capital-efficient technologies and clever business strategies as markets remained strong and funding for IT companies continued to flow. Even the labour market processes were in the employee's favour. When many people resigned from their jobs in search of better opportunities during The Great Resignation, hiring increased dramatically across the board as businesses scrambled to fill the talent gap.

However, when Russia invaded Ukraine in February 2022, the situation changed. The newfound euphoria in the start-up community in India and elsewhere has been tempered by the impact of geopolitical instability on the global economy, as well as collapsing markets, rising inflation, and concerns about a prolonged global recession. In terms of start-up financing, digital has a promising future. As the use of blockchain and fintech-based money movement grows post-pandemic, it won't be long before all capital investments are funded using decentralised frameworks that aim to increase cross-border money movement and improve both business and investor security.

As investors' fear of missing out (FOMO) has given way to traditional belt-tightening, the philosophy for firms large and small has shifted from "expansion at any cost" to making a profit. To put it another way, this year has been marked by "loud" layoffs (done vehemently on all types of communication channels, particularly social media), and all indications indicate that the chaos will undoubtedly continue well into 2023.

PREDICTION and EXPECTATIONS

Experts predict that Indian firms with strong unit economics will fare better than their overseas competitors during the current economic downturn. Despite global market challenges, India has emerged as a shining light when compared to wealthy nations such as the United States and Europe, and it will continue to do so. According to the



Economic Survey, at least one new business was established in 555 of India's districts, reflecting the country's rapid growth in the number of start-ups over the previous six years, with a significant majority of them based in IT-related businesses. Because they are at a crossroads, many firms in the Indian start-up ecosystem are being forced to make "hard decisions" about how to proceed with future expansion. Over the next two to three years, there will be a large number of IPOs (initial public offerings) from the Indian start-up ecosystem in the digital and tech medium.

RECOMMENDATIONS

Government Initiatives and Subsidies will create a great impact in boosting Start-up culture in India. Encouraging Entrepreneurship education and awareness among students to know about the benefits and scope of opportunities available. Knowledge about Resources and Govt benefits available in India will create a greater boost in start-up culture in India.

CONCLUSION

Start-ups are proliferating at an unprecedented rate. Both male and female entrepreneurs are launching new ventures. In order to maintain their credibility, women are contributing more ideas and taking risks. Indian start-ups strive to create a start-up environment by focusing on important education, talent, innovation, and incubators, as well as communicating with funding agencies. The government is now assisting new businesses. According to NASSCOM, India has the world's third largest start-up ecosystem. The economy expanded by more than 65% in 2015. A start-up allows an entrepreneur to educate and inspire others while they consider what to do and how to do it. Although entrepreneurs face challenges, they are being addressed at the same time. They are determined to establish and redirect their energy to plan, support, and execute their dreams while also contributing to the growth of the economy. This new start-up initiative promises faster approvals for starting a business, easier exits, tax breaks, and faster patent registration. This initiative has the potential to create jobs at a time when the manufacturing sector is in decline. For any new idea to become a successful venture, it requires appropriate support, synchronisation, and mentoring from stakeholders, the government, and the community.

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ANTERIOR CRUCIATE LIGAMENT, DESCRIPTION, RUPTURE AND TREATMENT

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SUMMARY

Introduction: the anterior cruciate ligament (ACL) along with the posterior cruciate ligament are the central stabilizers of the knee. Rupture of the ACL usually occurs in active and young people. For a correct diagnosis it is necessary a good clinical history, examination and a complementary study. The literature recommends surgical treatment in athletes and young people.

Objective: to detail current information related to anterior cruciate ligament injury, embryology, anatomy, biomechanics, incidence, risk factors, diagnosis, management, approach and treatment of the disease.

Methodology: a total of 72 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 46 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar, SciELO and Cochrane; the terms used to search for information in Spanish, Portuguese, German and English were: ACL, anterior cruciate ligament, anterior cruciate ligament, Vordere Kreuzband.

Results: ACL deficiency not only causes instability episodes but also changes in joint mechanics that may lead to degenerative changes. Meniscal lesions are linked to 50% of these injuries. The Lachman test is the most accurate clinical diagnostic test, with a reported combined sensitivity of 85% and specificity of 94%. The anterior drawer test has high sensitivity and specificity for chronic ACL tears (92% sensitivity and 91% specificity), but lower accuracy for acute cases. In MRI, the following statistics were found in patients with acute ACL injuries in several studies: specificity 98-100% and sensitivity 94%.

Conclusions: The ACL is a specialized band of connective tissue located in the knee joint that joins the tibia and femur. It consists primarily of collagen fibers, making up 70% of its dry weight. Variation in the anatomy of the intercondylar groove of the distal femur is a factor that appears to be related to an increased risk of ACL injury. ACL injuries are rarely diagnosed with an MRI, but in some circumstances, such as a meniscal tear or bone contusion, this test may be useful. The decision on the course of treatment for a patient with an ACL injury depends on a number of variables. Surgical reconstruction in anterior cruciate ligament (ACL) tears has proven to be a very effective technique that usually provides satisfactory results. Patients with ACL insufficiency may receive conservative treatment, which may involve activity modification, rehabilitation, and sometimes bracing. Proprioception and strength deficits should be taken into account when designing rehabilitation programs for knees with ACL insufficiency.

KEY WORDS: ligament, anterior cruciate, ACL, rupture.



INTRODUCTION

The anterior cruciate ligament (ACL) together with the posterior cruciate ligament (PCL) are the central stabilizers of the knee. It maintains the stability of the tibia against increased internal rotation and anterior translation(1).

ACL rupture generally occurs in active and young people; it can have negative psychological and physical impacts. For a correct diagnosis it is necessary a good clinical history, examination and a complementary study; in this case the ideal would be an MRI, to be able to verify the rupture of the ligament. The ideal approach is to restore knee function, in addition to preventing further injury, osteoarthritis and to address psychological barriers to perform better the activities and ensure a quality of life for the patient(2,3).

Among the main treatment choices we have: rehabilitation followed by ACL reconstruction (ACLR) in patients who develop functional instability, ACLR followed by postoperative rehabilitation and preoperative rehabilitation followed by ACLR plus postoperative rehabilitation(2,3).

The literature recommends surgical treatment in athletes and in young people, as it may eventually reduce the risk of other relevant meniscal and cartilage injuries. ACL injury shows a significant psychological effect and a negative psychological state thus influencing the reduction or cessation of sports participation after ACL reconstruction surgery. In some countries the standard of surgical treatment is ACL reconstruction with an autologous tendon graft. Although in some cases the preservation of the ACL through arthroscopic refixation presents favorable results(4).

METHODOLOGY

A total of 72 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 46 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar, SciElo; the terms used to search for information in Spanish, Portuguese, German and English were: ACL, anterior cruciate ligament, anterior cruciate ligament, Vorderes Kreuzband.

The choice of the bibliography exposes elements related to the anterior cruciate ligament, its approach, anatomy, biomechanics, incidence, risk factors; in addition to these elements, the diagnosis, management and treatment of the disease are investigated.

DEVELOPMENT

The authors consider it important, before discussing anterior cruciate ligament (ACL) rupture, to first address its embryology, anatomy, biomechanics and risk factors, to continue with the natural history, diagnosis and treatments of ACL rupture.

EMBRYOLOGY OF THE ACL

From a mesenchymal concentration, the knee begins to form at four weeks of gestation. At 6 weeks of gestation, a knee joint can be discerned. Between 6 and 7 weeks, the fetal blastoma shows the formation of the anterior cruciate ligament (ACL). At nine weeks of gestation, both the ACL and the posterior cruciate ligament (PCL) are visible, well-oriented structures. Initially, the ACL is a ventral ligament, but as the intercondylar space grows, it migrates posteriorly at the knee joint. The PCL remains in its initial position(5-7).

ACL ANATOMY

The ACL is a band of specialized connective tissue located in the knee joint that joins the tibia and femur. It consists primarily of collagen fibers, making up 70% of its dry weight. Type I collagen represents 90% and type III collagen (10%) (5,6).

The anterior cruciate ligament usually presents an approximate size of 4-7 mm in thickness, 7-12 mm in width and 25-38 mm in length. In the proximal portion near the femoral origin the ligament is narrower, subsequently it widens when it reaches the tibial insertion. The tibial insertion of the ACL is in an anterior fossa and lateral to the medial spine; this insertion is 11 mm wide and 17 mm in the anteroposterior direction. The insertion in the tibia sends front fibers that cross under the transverse meniscal ligament(6,8,9).

The ACL is intracapsular as it is covered by the synovial membrane. Due to its spiral arrangement the fibers that come from the most posterior and proximal portion of the lateral femoral condyle and insert into the most anterior and medial portion of the tibia, form the so-called anteromedial band (AM). The fibers that begin at the most anterior and superior part of the femoral origin and are routed to the most posterolateral part of the tibial insertion, give rise to the posterolateral band (PL). Because of this configuration, the PL band and the AM band of the ACL experience tension throughout the range of motion. The PL band experiences tension in hyperextension, where it becomes even tighter(8,10).

The ACL is supplied by the medial genicular (terminal ligamentous branches) and inferior and lateral genicular (terminal branches) arteries; also from the synovial plexus attached to the infrapatellar fat(8).

BIOMECHANICS

The first restriction of anterior tibial displacement is the ACL. The ACL, along with the PCL, controls how the tibia and femur slide and roll with each other to form the kinematics of the normal knee. Therefore, ACL deficiency not only causes episodes of instability but also changes in joint mechanics that can lead to degenerative changes(8).



INCIDENCE OF RUPTURES

Among athletes, 78% of ACL injuries are caused by soccer, baseball, basketball, and skiing. ACL injuries occur 60% to 70% of the time, according to Noyes' research using arthroscopic evaluation of patients with acute traumatic hemarthrosis of the knee. In addition, meniscal injuries are linked to 50% of these injuries. In soccer and basketball, ACL tears occur three times more frequently in women than in men, according to a recent meta-analysis; the injury rate for expert alpine skiers is the lowest(8,11).

Multiligamentary knee injuries are rare and occur in only 0.02% to 0.2% of orthopedic injuries, but in 50% of high-energy trauma(12,13).

RISK FACTORS

Variation in the anatomy of the intercondylar groove of the distal femur is a factor that appears to be related to an increased risk of ACL injury, particularly in noncontact circumstances. In patients with acute ACL tears, the intercondylar groove is smaller and the difference is statistically significant. The risk of ACL injury is determined by comparing the width of the groove to the width of the entire distal femur; if the ratio is less than 0.2, the groove is considered narrow(8).

They can be divided into intrinsic and extrinsic categories; examples include subtalar joint pronation, limb misalignment and anteroposterior knee laxity. The second factor consists of how the shoe interacts with the ground, the playing field and modified neuromuscular control techniques(8).

Table 1. Risk factors for ACL rupture.

RISK FACTORS	
ENVIRONMENTAL	<ul style="list-style-type: none"> ● Type of playing surface ● Protective equipment ● Weather conditions ● Footwear
ANATOMICAL	<ul style="list-style-type: none"> ● Alignment of the lower extremity ● Joint laxity ● Muscle strength ● Intercondylar groove ● ACL size
HORMONALS	<ul style="list-style-type: none"> ● Effect of estrogens on the mechanical properties of the ACL ● Increased risk of injury during the preovulatory phase of the menstrual cycle.
BIOMECHANICAL	<ul style="list-style-type: none"> ● Altered neuromuscular control influencing movement patterns ● Increased joint loads

Source: the authors.

NATURAL HISTORY

A patient's activity level and quality of life can be significantly affected by an ACL tear, which is a devastating injury. When complete, it can lead to osteoarthritis, meniscal and cartilage surface damage, instability and other long-term knee problems. Two-thirds of patients who undergo conservative treatment for a complete ACL tear develop chronic knee instability and, as a result, meniscal or articular cartilage damage. Only 31% of patients with an ACL tear had moderate to severe limitations in their ability to walk, compared to 44% who had limitations in other daily activities and 77% who had limitations in sports(8).

The natural course and treatment of anterior cruciate ligament (ACL) tears of the knee are debatable because in some people the joint becomes inefficiently functional after an ACL tear, while in others it is relatively asymptomatic and the patient can

resume strenuous athletic activity at least temporarily. It has been a challenge to determine the true natural history of the evolution of the ACL-injured knee, which has been based on follow-up of cases in which conservative nonsurgical treatment has been used. The level of activity and quality of life that a patient may experience after sustaining an ACL tear can be significantly affected. Complete ACL tears can lead to osteoarthritis, meniscal and cartilage surface injuries, instability and other chronic knee problems. The menisci and/or articular cartilage are subsequently damaged in two-thirds of patients with complete ACL tears, who also have chronic knee instability(14,15).

As a result of ACL and meniscal injuries, damage to the articular structures of the knee has also been shown to result in osteoarthritis, which can significantly restrict the patient's independence and negatively impact daily activities(8).



DIAGNOSIS

A good anamnesis is crucial in evaluating serious knee injuries and may be the most reliable sign of an ACL tear. An athlete who lands on his or her foot and feels a snap and sharp pain in the knee probably has a torn ACL, can no longer exercise, and over the course of the next 12 to 24 hours develops joint edema. Numerous patients describe how their knee felt "out of place"(8).

The physician will combine the patient's medical history, physical examination and, if necessary, imaging results to make an accurate diagnosis of an ACL tear. The meniscus, cartilage or other knee ligaments may also be injured at the same time as an ACL tear. To correctly diagnose significant concomitant injuries, special care must be taken. ACL tear should always be considered if the patient reports a mechanism of injury involving deceleration/acceleration combined with valgus loading of the knee, hearing or feeling a "pop" at the time of injury, or hemarthrosis within the knee two hours after the accident(2).

A rotational knee injury, followed by a snap, functional disability and edema, is a common ED history. Although ACL tears can occur during direct contact in sports, non-contact rotation and unexpected deceleration or hyperextension are the most frequent causes(8).

PHYSICAL EXAMINATION

To help the patient relax, you should begin by examining the uninjured and apparently healthy knee. Beginning with observation of the patient's active range of motion without involving the examiner, the injured knee should be examined. If a painful effusion is discovered and the knee is strained, it can be punctured to aspirate the hemarthrosis following strict aseptic procedures and administering lidocaine into the joint to relieve pain. The blood that is drawn is then examined for fat droplets that may be a sign of an osteochondral fracture(8).

If the injured knee is found to be hyperextended, an ACL tear and possible injury to the posterolateral ligamentous complex may be suspected; if a full extension lock is discovered, a meniscal injury may also be present. Check the patella and medial retinaculum for tenderness, as this may indicate patellar dislocation. To determine if they are damaged, palpate the medial and lateral collateral ligaments. The presence of pain on both sides of the knee is a sign that the ACL may have been injured, although the pain may also be meniscal or capsular in origin. The likelihood of an ACL injury increases when the knee is injured on both sides. Two clinical tests for ACL damage assess anterior tibial translation: the anterior drawer with the knee in 90° flexion and the Lachman test. The Lachman test is the most accurate clinical diagnostic test, with a reported combined sensitivity of 85% and specificity of 94%. The anterior drawer test has high sensitivity and specificity for

chronic ACL tears (92% sensitivity and 91% specificity), but lower accuracy for acute cases(2,8,16-18).

Tests showing anterolateral rotation laxity, such as the Pivot Shift, Losse's test, flexion/rotation box test and Slocum's test, are a crucial component of the clinical examination in cases of chronic ACL injury. According to recent meta-analyses, the Pivot Shift has the best positive predictive value. When positive, it is a very clear indication of an ACL rupture (98% specificity). However, a negative test is not sufficient to rule out injury (24% sensitivity), whereas the Lachman test has the best negative predictive value in cases of suspected ACL injury(2,8,16,17).

IMAGING STUDIES

Plain Radiography

Plain radiographic examinations should be performed in every knee suspected of having an ACL injury. Anteroposterior (AP), lateral, and weight-bearing views of the patellofemoral joint of the knee, as described by Merchant at 45 degrees of flexion, should be part of routine radiologic examinations. The groove or tunnel is the fourth projection, which is very useful in chronic conditions. It is pathognomonic of an ACL injury to see Segond's fracture or lateral capsular sign on the AP projection of the lateral border of the tibia(8).

Magnetic resonance imaging (MRI).

ACL injuries are rarely diagnosed with an MRI, but in some circumstances, such as a meniscal tear or bone contusion, this test may be useful. The following statistics were found in patients with acute ACL injuries in several studies: specificity 98-100% and sensitivity 94%. It was found that scarring of the ACL stump that attaches to the posterior cruciate ligament may make it difficult to distinguish between chronic tears and the intact ligament. In chronic tears, sensitivity drops to 80% but specificity remains at 93%. Only in 70 to 90% of cases, arthroscopy proves the suspicion of an ACL tear indicated by MRI(8).

The patient's history and clinical examination combined with the evaluation by an experienced evaluator are usually sufficient to determine whether the patient has an ACL tear. Although it may be difficult to find the injury during a clinical examination due to pain and effusion in an acute setting. In an orthopedic emergency unit, half of the patients with an acute ACL tear were misdiagnosed as having a simple knee sprain, a common occurrence. Repeat clinical examination or subacute MRI may be necessary to rule out the injury. MRI has diagnostic accuracy comparable to Lachman's test and is useful for patients with suspected ACL tears when the clinical diagnosis is unclear and when evaluating concurrent knee injuries that may be more difficult to diagnose clinically(2,16-18).

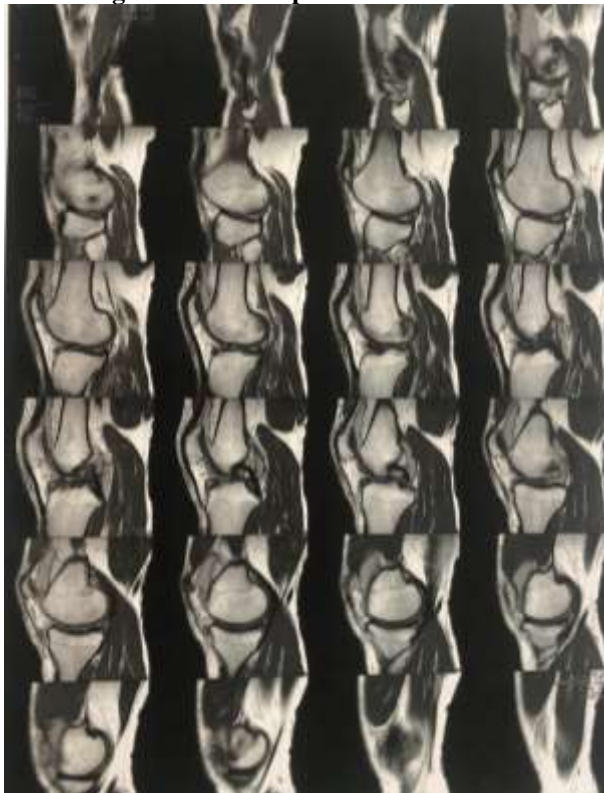


Figure 1. Total rupture of ACL (RMN).



Source: The Authors.

Figure 2. Total rupture of ACL. RMN.



Source: The Authors.



Differential Diagnosis

The Ottawa knee rule should be used to eliminate a fracture after significant acute trauma to the knee. The rule is intended to accurately rule out knee fractures (sensitivity 98.5), but is insufficient to specifically rule out a fracture (specificity 48.6). Patients who provide at least one affirmative answer to any of

the five questions should be considered for x-ray imaging. Acute effusion in adolescents who have sustained a rotational knee injury should also be carefully evaluated to rule out dislocation(2,19-22).

Table 2. Validation Ottawa Knee Rules.

A knee radiographic examination is only required for patients with acute knee injuries with one or more of these findings related to age, tenderness, or function

- Age 55 years or older.
- Tenderness at head of fibula
- Isolated tenderness of patella
- Inability to flex to 90°
- Inability to bear weight both immediately and in the emergency department (ED) (four steps)

Source: Empananza JI, Aginaga JR. Validation of the Ottawa Knee Rules(23).

ASSOCIATED INJURIES

Concurrent injuries should be considered when treating a patient with ACL disease.

Meniscal Injuries

ACL injuries, both acute and chronic, can coexist with meniscal injuries. Depending on whether or not they had an ACL tear, Noyes studied patients with acute hemarthrosis and found partial or complete meniscal damage in 62% of the former and only 25% of the latter. Meniscal injury occurs in 65% of persons with ACL injury, according to similar findings by other investigators. The following frequencies of meniscal injury have been identified in patients with ACL tears: 77%, 45%, and 64%(8,24-26).

Meniscal injuries are more common and are linked to chronic ACL instability. Patients with this instability had a 91% incidence of these injuries, according to Indelicato and Bittar. In a group of patients with symptomatic chronic ACL instability, meniscal tears were reported 73% of the time, on average 5.8 years after ACL injury(8,25).

Ligamentous Injuries

ACL tears isolated from other ligamentous tears are more frequent in acute injuries. 48% of isolated ACL tears, 29% of medial collateral ligament (MCL) tears, 13% to 18% of combined ACL and MCL injuries, 1% of combined ACL and lateral frame injuries, and only 4% of isolated PCL injuries(8).

Associated Articular Cartilage Injuries

Articular cartilage injuries following acute trauma caused by ACL injury have been described in 6-22% of cases, with this frequency being even higher in chronic cases. MRI has shown subchondral bone contusions in 48% to 90% of patients with ACL injuries(8,24).

Osteochondral Fractures

Very rarely related to an ACL injury and could be the cause of loose fragments in the joint(27).

Patellar Dislocation

Despite its rarity (less than 1% of patients experience it), it is essential to detect it in order to avoid chondral and osteochondral fractures(8,28).

TREATMENT

The decision on the course of treatment for a patient with an ACL injury depends on a number of variables, including the patient's age, occupation, severity of injury, activity level, presence of coexisting injuries, participation in sports, frequency and severity of instability episodes, and the patient's commitment to postoperative rehabilitation(8).

Depending on the degree of pathological laxity and the percentage of involvement, the treatment strategy for patients with partial ACL tears is determined. Conservative treatment is recommended if a partial tear on arthroscopic examination appears to involve less than half of the ligament and the Pivot-Shift test is negative; however, if the Pivot-Shift test is strongly positive or if the tear involves more than 50% of the ligament, the patient should be treated as if he/she has a complete tear(8,29).

Participation in high-risk activities and recurrent instability are the main risk factors for patients with complete ACL tears. When these risk factors are present, conservative treatment is generally not recommended. Patients who experience instability during daily activities, patients who wish to continue playing sports that require the ACL, such as soccer, basketball or volleyball, patients who have associated meniscal lesions that can be repaired even when they are less active, and patients with an associated ligamentous tear, such as injury to posterolateral structures, are all candidates for surgical treatment with ligament reconstruction(8).



Surgical reconstruction in anterior cruciate ligament (ACL) tears has proven to be a very effective technique that usually provides satisfactory results. However, despite the fact that most patients recover their function after this procedure, ACL reconstruction (ACLR) is still imperfect(30,31).

Conservative Treatment

Patients with ACL insufficiency may receive conservative treatment, which may involve activity modification, rehabilitation and sometimes bracing. The level of activity performed by the patient is probably the most crucial element in the success of conservative treatment(8).

Rehabilitation

According to some recent meta-analyses and reviews, there is insufficient data to support the use of any particular exercise program for the rehabilitation of patients with ACL injuries(32).

Proprioception and strength deficits should be taken into account when designing rehabilitation programs for ACL-injured knees. The neuromuscular response to anterior tibial translation and periarticular musculature are affected by the loss of proprioception caused by an ACL tear. Patients with chronic ACL insufficiency have been shown to have significant quadriceps atrophy, particularly in the vastus medialis obliquus, and less knee flexor atrophy. Treatment of acute ACL injuries should focus on reducing swelling and pain, restoring range of motion, regaining muscular endurance, and protecting the knee from further damage. Early restoration of range of motion should be undertaken while attempting to prevent escalation of pain and edema. If the latter persists and range of motion does not improve, there may be a displaced meniscal tear that needs to be surgically repaired. Early isometric exercises for the gastrocnemius, knee flexors and quadriceps should be performed to prevent muscle atrophy and loss of strength; full active extension and normal gait should be attempted within the first seven to ten days. Over the course of one to three weeks, the inflammatory phase slowly subsides. Once the problem is resolved and full range of motion is achieved, a more rigorous rehabilitation program is initiated to increase muscle endurance. To avoid excessive load on the secondary restrictors and to prevent patellofemoral symptoms, exercises that cause anterior tibial translation, such as open chain quadriceps, should be avoided. Begin closed-chain quadriceps and knee flexor exercises, which reduce anterior tibial translation and patellofemoral loading. These exercises include squatting, using

stairs or steps, trying to sit down by pressing a ball between the thighs, and cycling. There is no restriction because the knee flexors are a dynamic stabilizing group that prevents anterior tibial displacement, but they need to be strengthened. In addition, it is advisable to promote resistance exercises such as swimming and treadmill jogging, as well as hip and leg strengthening exercises (gastrosoleus)(8,28,33).

To improve dynamic stability during the strengthening and endurance phases of the rehabilitation process, neuromuscular control must begin to be developed. To stabilize the knee, patients must learn to recruit the correct muscles, especially the knee flexors, with the correct amount of force, at the correct time and in the correct order. Proprioceptive neuromuscular facilitation techniques are used once strength and endurance have reached at least 70% of the healthy side, starting with controlled, low-velocity, low-force movements and progressing to sudden, uncontrolled, high-force, high-velocity movements. Then, patients progress with stop-and-start movements, cutting movements, jumping, dodging or dribbling, and turning. The usefulness of functional knee orthoses is a matter of debate. They offer only modest mechanical stability to the joint, according to scientific studies, but many patients still request them because they seem to increase confidence and give more "feel" to the knee, which helps prevent re-injury(8,34,35).

SURGICAL TREATMENT OF LCA INJURY

Knee instability related to ACL insufficiency can be stabilized by a wide range of surgical techniques. Extra-articular, intra-articular, or both procedures are employed. According to a review of the literature, intra-articular reconstructions produce more favorable, reliable and repeatable results. Consideration needs to be given to edema, range of motion and capsular induration. When the tissue is soft and smooth, range of motion is normal, and neuromuscular coordination has returned along the entire length of the extremity, surgery is performed. Surgery on a stiff knee ensures that it will remain stiff after surgery because a stiff knee has a worse natural history than a knee with an insufficient ACL. The arthroscopic technique is currently used for most ACL reconstructions and its benefits include improved aesthetics, less disruption of the quadriceps mechanism, faster recovery, and preservation of articular cartilage hydration(8,36,37).



Figure 3. Patellar approach



Source: The Authors.

GRAFT SELECTION

The initial stiffness and strength of the natural ACL should be taken into account when choosing the type of graft to use, as well as the ease of stable fixation to allow for adequate graft remodeling and a rehabilitation program. In addition to allografts, which are primarily from the patellar and Achilles tendons, autologous goosefoot, quadriceps, and ipsilateral and contralateral patellar tendons grafts are also used. Each type of graft has advantages and disadvantages(8).

With respect to knee laxity in particular, allograft and autograft were compared in ACL reconstruction without revealing

appreciable differences in results. Disadvantages of allograft include a slower incorporation rate, the potential for transmission of viral disease, and observations by some authors that there may be more residual laxity and less strength than with autologous reconstructions. Some investigators have concluded that autologous patellar tendon grafts should be the first choice, and that allografts should be suggested for revision surgery (new ACL tear already repaired) or when multiple grafts are needed due to complex instabilities; they are most effective when used in patients who perform low-intensity physical activity(8,38-40).

Figure 4. ACL preparation. Gracilis tendon.



Source: The Authors.



Figure 5. ACL preparation. Gracilis and Semitendinosus tendon



Source: The Authors.

Figure 6. Patellar tendon preparation.



Source: The Authors.

RECONSTRUCTION RESULTS

Fox et al. in a review of the literature on the results of patellar tendon graft reconstruction found that the frequency of patellar pain ranged from 3 to 17 percent; today, this frequency is lower than it was 20 years ago, most likely due to a more rapid rehabilitation process that emphasizes early limb support. Most surgeons still employ patellar tendon grafting as their method of access, particularly for young, competitive athletes. There have not been many research-based studies comparing the results of ACL reconstruction with patellar tendon graft or hamstring tendons; the results were comparable in terms of patient satisfaction, objective assessment of stability, ultimate recovery of muscle strength, and time to return to sporting activity; the

only difference was the finding of a higher level of activity in the patellar tendon group(8,41).

Arthroscopic ACL reconstruction is known to have the following benefits: faster recovery, less postoperative pain, and a better ability to see where the bone tunnels are located. A full arthroscopy (one incision), a two-incision arthroscopy, and a mini-incision technique (without dislocating the patella) have produced similar results. However, no discernible differences in outcomes have been found. After reconstruction, anterior cruciate ligament rehabilitation is similar to that described for conservative treatment: continued passive mobility, early support, sporadic bracing, home rehabilitation, open and closed kinetic chain exercises, neuromuscular electrical stimulation and, in some patients, accelerated rehabilitation(8,42).



Figure 7. Patient with previous ACL reconstruction.



Source: The Authors.

Figure 8. Patient with previous ACL reconstruction.



Source: The Authors.



Figure 9. Reinsertion of the new ACL.



Source: The Authors.

EMERGING TRENDS

Several factors, including the likelihood of osteoarthritis (OA), graft healing, and mechanical restoration of the ACL, should be considered in patients with ACL injuries undergoing surgical reconstruction. Recent work has compared the results of reconstruction with patellar tendon (PT) versus semitendinosogracilis tendon (ST-G) autografts. Keays in Australia found that six years postoperatively there was no difference between the two groups with respect to stability, but that the frequency of radiological changes of osteoarthritis was 62 percent in the PT group and only 33 percent in the ST-G group. Comparing the two grafts in a study with a five-year follow-up, Sajovic in Slovenia found that while stability was the same in both groups, the frequency of OA was 50 percent higher

in the PT group and 17 percent in ST-G. Roe et al. , seven years after the intervention, found that the PT group had an incidence of OA of 45 percent compared to 14 percent in the ST-G group. Age greater than 25 years, time between injury and surgery, and any associated chondral or meniscal injury have been identified as risk factors for developing OA after ACL reconstruction. Ligation of the graft, which has less mechanical and functional properties, malpositioning of the bone tunnels in the femur or tibia, and inadequate initial graft tension are some factors that may affect the development of OA. It is understood that the graft used for ACL reconstruction heals through a process known as avascular necrosis, which is followed by revascularization and subsequent remodeling. The following graft stages have been observed(8,43,44):

Table 3. Ligation stages.

PHASES	
SYNOVIALIZATION	1 TO 4 WEEKS
AVASCULAR NECROSIS	1 TO 6 WEEKS
REVASCULARIZATION	6 TO 12 WEEKS
CELL PROLIFERATION	20 WEEKS
REMODELING (MATURATION)	24 TO 48 WEEKS

Source: The Authors.

Biological augmentation (BA) techniques of various types have been used, mainly in animal models, to improve these results. These include growth factors (such as bone morphogenetic protein, epidermal growth factor, granulocyte colony-stimulating factor, basic fibroblast growth factor, transforming growth factor, hepatocyte growth factor, vascular endothelial growth factor and fibrin clot), autologous tissue, mesenchymal stem cells, various pharmaceuticals (such as matrix metalloproteinase inhibitors alpha.-2- macroglobulin

bisphosphonates), biophysical/environmental approaches (hyperbaric oxygen, low-intensity pulsed ultrasound, extracorporeal shock wave therapy), biomaterials (fixation techniques, biological coatings, biosynthetic bone substitutes, osteoconductive materials) and gene therapy. Clinical studies on BA published to date are very heterogeneous and have a low level of evidence, although all of them have shown good results in experimental studies. Platelet-rich plasma has so far been the most widely used method (30,31,35,45,46).



CONCLUSIONS

The ACL is a band of specialized connective tissue located in the knee joint that joins the tibia and femur. It consists primarily of collagen fibers, making up 70% of its dry weight. Formed by the anteromedial and posterolateral bands. Deficiency of the ACL not only causes episodes of instability but also changes in joint mechanics that can lead to degenerative changes. Meniscal lesions are linked to 50% of these injuries. Variation in the anatomy of the intercondylar groove of the distal femur is a factor that appears to be related to an increased risk of ACL injury. The Lachman test is the most accurate clinical diagnostic test, with a reported combined sensitivity of 85% and specificity of 94%. The anterior drawer test has high sensitivity and specificity for chronic ACL tears (92% sensitivity and 91% specificity), but lower accuracy for acute cases. ACL injuries are rarely diagnosed with an MRI, but in some circumstances, such as a meniscal tear or bone contusion, this test may be useful. The following statistics were found in patients with acute ACL injuries in several studies: specificity 98-100% and sensitivity 94%. The decision on the course of treatment for a patient with an ACL injury depends on a number of variables. Surgical reconstruction in anterior cruciate ligament (ACL) tears has proven to be a very effective technique that usually provides satisfactory results. Patients with ACL insufficiency may receive conservative treatment, which may involve activity modification, rehabilitation, and sometimes bracing. Proprioception and strength deficits should be taken into account when designing rehabilitation programs for ACL insufficiency knees.

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AN OVERVIEW OF THE LANDSCAPE OF ADULTS WITH DISABILITIES IN SINGAPORE. A LITERATURE REVIEW

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ABSTRACT

Children with disabilities grow up and become adults. In Singapore and the rest of the world, there is a lack of research on adults. In 2017, the National Council of Social Services (NCSS) in Singapore, conducted and piloted a study about the Quality of Life for adults with disabilities. It was conducted employing the WHOQOL (World Health Organisation Quality of Health) assessment to better understand the needs of vulnerable adults, including persons with disabilities. In this study, 1,000 persons (adults) with disabilities aged 18 and above were surveyed. It was found in this study that persons with disabilities want to feel enabled and to live their lives as independently as possible. These adults that were surveyed also conveyed that they wanted easier and seamless access to information and pertinent services, including receiving appropriate social support and developing the confidence of participants as active members of society.

INTRODUCTION

“It must be unimaginable that someone with cerebral palsy could be married with two beautiful children, run his own consultancy firm and complete a kayaking expedition around Singapore to raise funds. Indeed, I would have never achieved these milestones if my mother had sent me to an institution when I was born, on the advice of the paediatrician, as there was “nothing much she could do” – that my life wasn’t worth the effort.”

Mr Leo Chen Ian
 Founder and Partner,
 Insight Access Pte Ltd

The above message was a quote from Mr Leo Chen Ian, who believes that if he had lived his life in an institution, he would not have experienced the same fulfilment and quality of life as he is now (included in the community). Thus if this is the scenario in Singapore, where the majority of adults with disabilities are living in institutions or segregated type settings, how can we improve and enhance their quality of life for them? How can we better the standards in these institutions so that the adults living in these institutions may have a better chance of being ‘discharged’ from the institutions so that they will be better prepared to live in the community independently? How can we better and enhance the care aspect for adults with disabilities in Singapore?

GROWING TRENDS IN THE ADULT DISABILITY SECTOR IN SINGAPORE

According to the National Council of Social Services NCSS (2017), the following are growing trends in the disability landscape in Singapore.

- Firstly, persons with disabilities are living longer and have a longer life span. It is imperative that society

prepares and enables them to live independently as they grow older.

- Secondly, the rate and number of persons diagnosed with autism (ASD) are increasing and therefore services to support this group will need to be enhanced and improved.
- Thirdly, as the population starts to age and family size shrinks, elderly caregivers will find it challenging to take care of their adult children and themselves. Thus society’s support for older persons who are in caregiving roles also needs to expand and improve. Therefore services to assist the caregivers and their charges will need to be met across the entity of disabilities.

The points mentioned above, especially the third point about elderly and ageing parents experiencing challenges taking care of their adult children are crucial points to consider. Singapore (society) must hence also plan and strategise policies and services to assist these adults with disabilities to achieve a better quality of life. It is imperative that the goal of such planning and strategies to enhance the lives of adults with disabilities to their fullest potential are met.

3rd ENABLING MASTERPLAN

In line with the government’s initiation and belief in the inclusion of persons with disabilities, the 3rd Enabling Masterplan (2017– 2021) was set up. This Masterplan signifies and embodies one more noteworthy step concerning empowering persons with disabilities to achieve their fullest potential. These adults will be accepted as important, integral and contributing members of Singapore’s society. This will blend and synergise with Singapore’s government and



society’s belief that Singapore will strive towards being an inclusive community. The 3rd Enabling Masterplan sets forth a multi-faceted plan to improve the quality of life of persons with disabilities, support their caregivers and build a community that is more caring and inclusive. It is evident that in this 3rd Enabling Masterplan, the person with disabilities’ well-being is at the centre of all that is being planned and considered.

FACTS CONCERNING THE ADULT DISABILITY SECTOR IN SINGAPORE

In Singapore, the National Council of Social Services – NCSS (2017) supports and believes in a person-centred and ecosystem approach towards helping individuals achieve a quality of life. A person-centred approach functions on the

Key Descriptors	
1)	34% of Singaporeans aged 18 to 49 have a disability
2)	49% of individuals with disabilities in Singapore have a moderate to severe disability.
3)	13.3% of Singaporeans aged 50 and above have a disability
4)	30.4% have more than 1 disability type (co-morbidity). For example, Down Syndrome and Autism

It was also noted in this study that persons with disabilities experience a lower quality of life than the general population. It was also interesting to note that the score was even lower for persons with complex needs.

It was noted as well that although persons with disabilities with mild special educational needs (SEN) have a better chance of finding some form of employment or furthering their education, most graduates (18 years and above) from special education schools (SPED) are faced with limited options and opportunities. These would include: staying at home, joining a day activity centre, entering a sheltered workshop or being admitted into an institution (Raghunathan, Balakrishnan, Smith, & Kadir, 2015; Poon & Sidhu, 2017; Wong 2016). Without meaningful engagement, adults with disabilities will typically suffer a deterioration in their physical, mental and emotional health. Therefore, it is imperative that individuals in centres or residing in institutions will also need the right professional care and expertise to assist these adults with disabilities to reach their fullest potential and to prevent or slow down their decline.

CONCLUSION

Institutions or centres need qualified staff and trained staff who are able to work with adults with disabilities. They will be able to better assess and evaluate their clients’ abilities, challenges and needs (Janicki, 2011; Rose & Gallivan, 2019; Zijlmans, Embregts, Gerits, Bosman, & Derksen, 2015.) This will also include the best possible methodologies to help, provide and support these adults across the different life stages in their adulthood via appropriate and suitable training programmes, services and assistive devices to help them achieve the best possible outcomes. It was also noted that when staff are not properly trained or qualified, it can lead to the adults with disabilities’ detriment. One of the key findings is that it can actually aggravate and can cause self-injurious behaviour including meltdowns for these adults (Oliver, Hall,

premise that an individual has the capability to comprehend, communicate, decipher and work through problems and difficulties in life and be able to make wise decisions with regard to overcoming these challenges. This is also the message which lies behind the Social Service Sector Strategic Thrusts (2017-2021). It is part of the study that NCSS took up and it is titled, ‘Understanding the quality of Life of Adults with Disabilities’. This study was published in 2017. This plan also shows a 5-year roadmap for the social service sector.

Below are some facts concerning the adult disability sector in Singapore as depicted in the study by NCSS (2017).

Hales, & Head, 1996; Snow, Langdon, & Reynolds, 2007). It is difficult for non-profit organisations or voluntary welfare organisations (VWOs) to stay effective without adequate resources and continuous quality training and development.

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BRIEF REVIEW ABOUT NEUROLOGICAL, HEMATOLOGICAL, GASTROINTESTINAL, CARDIOVASCULAR AND PULMONAR MANIFESTATIONS OF SYSTEMIC ERYTHEMATOSUS LUPUS

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ABSTRACT

Systemic Lupus Erythematosus is an autoimmune multisystem pathology, characterized by being more prevalent in women, especially African women. One of the most frequent pathologies is usually the presence of Lupus Nephritis (1). The prevalence is higher in women in relation to men in a ratio of 9:1, with an age onset between 15 and 44 years of age (2).

Objective: to detail the current information related to cardiovascular, neurological, hematological manifestations of systemic erythematosus lupus, analyzing which pathologies are present in this disease.

Methodology: a total of 32 articles were analyzed in this review, including review and original articles, resulting in the election of 15 bibliographies due to the relevance of them. The sources of information were PubMed, Google Scholar and UpToDate; the terms used to search for information in English was: Systemic Erythematosus Lupus and its manifestations.

Results: The most frequent gastrointestinal manifestations are regurgitation, peptic ulceration, protein-losing enteropathy, pseudo-obstruction and mesenteric vasculitis; neurological manifestations include seizures, stroke, optic neuritis, altered mental status, aseptic meningitis, chorea, psychosis or depression. At the hematologic level, anemia, thrombocytopenia, leukopenia, thrombotic thrombocytopenic purpura is usually manifested, so the patient's clinical manifestations should be analyzed and any other etiology of the patient that is not related to systemic lupus erythematosus should be ruled out. Pulmonary manifestations usually include pleuritic pain, lupus pneumonitis, interstitial pulmonary alterations and pulmonary hypertension. Cardiovascular manifestations should be ruled out considering that patients with lupus have an increased risk of cardiovascular disease.

Conclusions: This bibliographic review sought to show the symptoms of patients diagnosed with systemic lupus erythematosus, and which are related to the most important organs; in this case, at the neurological, cardiovascular, pulmonary, hematological and gastrointestinal levels. This review shows us that we must consider several pathologies in patients with Lupus; however, we must remember that the diagnosis of these entities is a rule-out diagnosis, which means that if we have a symptomatology of a certain apparatus or system, we must rule it out with the most frequent, and then consider the less frequent pathology, related to lupus.

KEYWORDS: Systemic lupus erythematosus; Protein-losing enteropathy; Treatment.



INTRODUCTION

Genetic studies have identified more than 80 loci that are associated with increased susceptibility to systemic lupus erythematosus, among which the most important is the signal transducer and activator of transcription (STAT). It is responsible for producing an inflammatory response, continuing with receptor stimulation and INF-I receptor non-signaling. A recent study has determined that IL-12 mediated co-activation of STAT1 and STAT4 alters histone modification, with altered expansion of Tfh-Th1 sequencing. This leads to the induction of pathogenic Tfh cells, which may be useful in the case of studying the effect on these specific cells (3).

There are several endotypes and dominant organs that systemic lupus erythematosus affects; an example is childhood-onset systemic lupus erythematosus (they have high activity and tend to be more severe and need more aggressive therapy), organ-dominant lupus erythematosus, lupus with antiphospholipid syndrome. Patients who manifest idiopathic thrombocytopenic purpura, hemolytic anemia, serositis are those patients who have to be well evaluated and well controlled (4).

Although the pathophysiology of lupus is not known in depth, it has been determined that the manifestations of lupus are associated with the formation of antibodies and the creation of immune complexes. The fact of immune complex deposition and subsequent complement activation in the kidney produces tissue damage, characteristic of lupus nephritis. The pathogenic potential of immune complexes depends on the characteristics of the antibody and the capacity of mediators to produce inflammation, the nature of the antigen and the capacity of the immune complex to be solubilized by complement and bind to the receptor (5).

GASTROINTESTINAL DISORDERS

Dysphagia is usually the most frequent manifestation and is associated with the presence of heartburn, retrosternal pain, odynophagia or regurgitation. The cause of this pathology is usually due to a motility disorder gastroesophageal reflux disease or pill esophagitis. In addition, patients may manifest peptic ulcer, manifested as epigastric pain, early satiety, and nausea. However, it is necessary to rule out any pathology that may produce this symptomatology and to consider at that time the possibility that it may be generated by Lupus itself. Intestinal pseudo-obstruction is characterized by symptoms related to mechanical obstruction of the small or large intestine. Normally, patients usually present abdominal distension and abdominal pain. There is a pathology called protein-losing enteropathy, which is characterized by the appearance of hypoalbuminemia in the absence of proteinuria of nephrotic range and deep edema. Another variant present in these patients is mesenteric vasculitis, which usually manifests as postprandial abdominal pain, food aversion, nausea, vomiting, diarrhea and weight loss. Treatment of this variant is usually with high-dose corticosteroids to control the disease. When symptoms are recurrent or do not respond to glucocorticoid therapy, Cyclophosphamide is initiated;

surgery is only for patients who present advanced ischemia or do not respond to medical therapy. Primary peritonitis secondary to lupus presents as abdominal pain with surgical features, although symptoms may be masked by the use of corticosteroids. Chronic peritonitis manifests with gradual painless ascites (6)(7).

NEUROLOGICAL MANIFESTATIONS

Strokes occur 1.5 to 3 times more often in patients with systemic lupus erythematosus, with a 3 times higher risk of ischemic stroke and a 3 times higher risk of hemorrhagic stroke; the pathogenesis is thought to be caused by arterial thrombosis in situ, or by cardiogenic embolisms. These cardioembolic accidents are usually generated due to valvular diseases or due to atrial fibrillation. A pathology called non-inflammatory microangiopathy is defined as a hyalinization of small vessels, which is associated with microinfarcts. In these patients, management is performed with thrombolytic therapy and mechanical thrombectomy; to continue the management of lupus, it should be maintained with hydroxychloroquine or chloroquine since it reduces thrombotic events.

Another event that usually occurs is seizures; these occur in 4 to 12% of patients. The risk of presenting seizures increases when the patient has positive antiphospholipid antibodies and is being treated with corticosteroids. Usually, the patient presents with focal seizures and altered consciousness, which may progress to generalized seizures.

The altered mental status is usually characterized by delirium or psychosis. Moreover, the latter is often also called lupus psychosis, most frequently occurring in young people and with males. In these patients, immunomodulatory therapy has to be used; it is suggested to start high doses of glucocorticoids added with cyclophosphamide or mycophenolate; in refractory cases, rituximab or intravenous immunoglobulins can be used.

Optic neuritis is usually a pathology present in 1% of patients, characterized by acute loss of vision, with the presence of scotomas and pain on eye movement. On physical examination it may manifest with afferent pupillary defect. For this pathology, glucocorticoid pulses (1 gram of methylprednisolone) should be administered for 3 to 5 days; in these patients, it is necessary to escalate immunosuppression with the use of cyclophosphamide, and continue its use for 3 to 6 months; mycophenolate, azathioprine or rituximab can be used as an alternative for the control of the pathology.

Aseptic meningitis is a rare manifestation presenting with headache, nuchal rigidity, and lymphocytic pleocytosis with elevated cerebrospinal fluid protein; it is treated with a course of glucocorticoids once infectious causes have been excluded.

Chorea is characterized by movement disturbance, manifested as involuntary, stereotyped and brief movements, unilateral or bilateral; it may be associated with cognitive disturbances or stroke; infarcts at the basal ganglia level are usually present. On some occasions, this condition usually resolves in a few weeks, with or without treatment; although



hydroxychloroquine and glucocorticoids are usually added; and if not effective, rituximab or intravenous immunoglobulins are administered.

Depression and anxiety are common in these patients; 24% of patients present depression and 37% of patients present anxiety. It is necessary to diagnose this pathology and treat it in a timely manner (8)(9).

HEMATOLOGIC MANIFESTATIONS

Anemia affects more than half of the patients with Lupus; it can be produced by multiple causes, among which are: chronic inflammation, iron deficiency, medication, autoimmune hemolysis, vitamin B12 deficiency, and thrombotic microangiopathies, such as thrombotic thrombocytopenic purpura. The evaluation of these patients should be directed towards a blood count, accompanied by reticulocytes and red blood cell index. The presence of leukopenia is common in patients with Lupus, and is related to disease activity; neutropenia may be caused by immunosuppressive medication or hypersplenism. Lymphopenia can even be caused by autoantibodies; in these cases, immunosuppressive medication or lupus therapy is usually necessary. Mild thrombocytopenia is common in these patients (less than 100,000), but platelet counts less than 50,000 are not very common. An important point is that thrombocytopenic purpura can occur prior to the development of lupus, as a chronic complication or acutely at disease activation. In these patients it may include splenomegaly, thrombotic microangiopathy or antiphospholipid syndrome. Pancytopenia is less common than individual cytopenias, but may occur in patients with Lupus. In these patients, it is necessary to rule out hematophagocytic lymphohistiocytosis, sepsis, thrombotic microangiopathy or vitamin B12 or folate deficiencies. Antiphospholipid syndrome is detected in 30 to 40% of patients with Lupus. Antibodies can prolong the partial thromboplastin time and, less frequently, the prothrombin time (10) (11).

When speaking of pulmonary disorders, it may involve pathology at the level of the lung, its vasculature, diaphragm or pleura. Cough or dyspnea are the most important points to investigate in these patients, especially in order to rule out infections. In cases of chest pain at the pleuritic level, with or without evidence of pleural effusion, it may be caused by lupus. In cases of pleural pathology, they have a good response to non-steroidal anti-inflammatory drugs, and those who do not respond should be treated with glucocorticoids. Chest pain usually has several sites of involvement: muscles, connective tissues or costochondral joints. Another pathology that can be evidenced is acute lupus pneumonitis, which is characterized by an abrupt onset of fever, cough, dyspnea, radiographic pulmonary opacities, hypoxemia and basal crackles. The diagnosis of these is based on clinical and serological evidence; however, it is necessary to mention that heart failure, infections, pulmonary embolism, diffuse alveolar hemorrhage and malignancy should be excluded. Another important entity to consider is pulmonary hemorrhage, which usually appears abruptly, manifested with dyspnea, cough and

hemoptysis; bleeding is sufficient to produce anemia. On chest X-ray and CT scan it usually manifests as patchy opacities or diffuse bilateral opacities. For diagnosis, flexible bronchoscopy with bronchoalveolar lavage should be performed; treatment includes high-dose glucocorticoids in combination with immunosuppressive agents. Interstitial lung disease is an entity that produces non-productive cough, dyspnea and decreased exercise tolerance; a restrictive pattern is usually evidenced, with decreased diffusion capacity; high resolution chest CT is the radiological imaging of choice; when there are doubts about the diagnosis, lung biopsy can be performed. In these patients, management should be with glucocorticoids and immunomodulators. Pulmonary hypertension is a rare complication that usually manifests with palpitations, fatigue and exercise intolerance (12) (13).

CARDIOVASCULAR MANIFESTATIONS

The risk of coronary heart disease is highly increased in these patients compared to patients without lupus. Lupus patients have an increased prevalence, both due to glucocorticoid treatment and disease activation. For the detection of their symptomatology, it is always necessary to evaluate any atypical symptoms. Now, it is clear that cardiovascular pathology due to systemic lupus erythematosus is performed after ruling out pleuritis, pericarditis, pulmonary emboli, pneumonia, interstitial lung pathology and even gastroesophageal reflux. In general, prevention and treatment of cardiovascular disease is based on not smoking, regular exercise, optimization of lipid levels, controlling blood pressure, with prophylactic use of aspirin and minimizing the use of glucocorticoids; hydroxychloroquine, which is widely used in lupus, has been shown to have an additional antithrombotic and anti-atherogenic benefit (14) (15).

CONCLUSIONS

This bibliographic review sought to show the symptoms of patients diagnosed with systemic lupus erythematosus, and which are related to the most important organs; in this case, at the neurological, cardiovascular, pulmonary, hematological and gastrointestinal levels. This review shows us that we must consider several pathologies in patients with Lupus; however, we must remember that the diagnosis of these entities is a rule-out diagnosis, which means that if we have a symptomatology of a certain apparatus or system, we must rule it out with the most frequent, and then consider the less frequent pathology, related to lupus.

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FEATURES OF NEUROLOGICAL DISORDERS IN CHILDREN WITH CONGENITAL AND ACQUIRED SENSORINEURAL HEARING LOSS

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ABSTRACT

Sensorineural hearing loss is currently the most important medical and social problem and is an urgent problem of neurology. According to various researchers, from 6% to 36% of the world's population suffers from ear pathology, of which 60-80% have sensorineural hearing impairment (damage to the cochleo-vestibular nerve receptor - the cochlea of the inner ear). Deafness is the most common defect in sensory systems in children and occurs in 1: 750 cases, and in adults 4-36% depending on age, which reflects the interaction of environmental factors and individual genetic predisposition (Tranebjaerg L., 2000). About 400 genetic syndromes that include hearing impairment have been described (Friedman T.V., Griffith A J., 2003).

KEY WORDS: sensorineural hearing loss, neurological disorders.

Purpose: to study clinical and neurological features in patients with sensorineural hearing loss.

MATERIALS AND METHODS

105 children were examined. Of these, 67 were children with congenital NSHL and 38 were children with acquired NSHL. To characterize the state of the central nervous system, data on the neurological status of the examined patients were used. All patients underwent an extended clinical and neurological examination, SAEP, EEG, and MRI of the brain.

The subjects underwent an audiological examination by a computer audiometric method. Depending on the genesis of the development of hearing loss, the patients were divided into two groups: the 1st group - patients with NSHL that arose as a result of exposure to infectious-toxic factors in the perinatal period (congenital hearing impairment), the 2nd group - with NSHL formed as a result of exposure to exogenous environmental factors in postnatal ontogenesis, including infectious diseases transferred at an early age (acquired hearing loss).

Registration of the total bioelectrical activity of the brain (EEG) was carried out using a computer encephalograph. When examining patients, short-lateral auditory evoked potentials were recorded on a four-channel computer device

"Neuro-MEP". To register SAEP, monoauricular acoustic stimulation was performed using headphones, with a rectangular tone stimulus with a frequency of 10 Hz. The stimulus intensity was selected individually based on 70 dB above the subjective threshold and ranged from 100 to 120 dB.

We analyzed the absolute latencies of peaks I, II, III, IV, V, VI, peak-to-peak intervals I-III, III-V, I-V, peak amplitudes as peak-to-peak I-Ia, III-IIIa, IIIa-IV, IV-V, V-Va, Va-VI, as well as the amplitude ratio of the peaks I-Ia/III-IIIa, I-Ia/V-Va and III-IIIa/V-Va.

RESULTS

The reason for patients to visit a specialist was complaints about the lack of speech and reaction to sounds, and violation of the stages of psychoverbal development, as a result of which sensorineural hearing loss of varying degrees and deafness were detected in these patients.

Hearing loss II degree was diagnosed in 9 (16%) of the examined, III degree - in 11 (17%), and IV degree - in 40 (67%).



Table. 1

Pathological condition in children during the neonatal period, %

Pathological conditions	1 group, n=68	2 group, n=37
Asphyxia during childbirth	36	25*
Hyperbilirubinemia	3	72,5
Prematurity	49*	50
The use of ototoxic drugs	28	67**
Viral infections	13	37
Anemia	19	30

Note: * - p-values are < 0.05 ** - p values are < 0.001
 Asphyxia during childbirth among the examined groups 1 and 2 occurred in 36 and 25%, respectively, hyperbilirubinemia - in 72.5 and 3%. Ototoxic drugs were used in 67% and 28% of children, prematurity occurred in 49 and 50%.

Most children with NSHL were found to have diffuse organic neurological symptoms, as well as central insufficiency of the

VII and XII pairs of cranial nerves, anisoreflexia, and revitalization of tendon reflexes.

In the examined patients, individual analysis of the parameters of the SAEP waves was carried out, provided that the intensity of the stimulating signal was counted from the hearing threshold of each patient (dB SL).

Table. 2

Latent periods of ABR waves when measuring the sound pressure value from the hearing threshold (dB SL) in persons with sensorineural hearing loss, M±m

dB	Waves SAEP		
	I	III	V
10	3,34±0,07 (80)	6,04±0,10 (80)	8,32±0,13 (80)
20	1,98±0,04 (80)	4,32±0,14 (80)**	6,26±0,13 (80)**
30	1,91±0,03(80)**	4,17±0,08 (80)**	5,96±0,09 (80)**
40	1,88±0,02 (80)**	3,94±0,06 (80)**	5,96±0,09 (80)**
50	1,85±0,03 (80)**	3,86±0,04 (80)**	5,77±0,06 (80)**
60	1,83±0,03 (65)**	3,75±0,04 (65)**	5,69±0,04 (65)**

Note: * - p-values are < 0.05 ** - p values are < 0.001

By the results obtained in children aged 2-5 years with hearing impairments, the maximum for the P1 component was recorded in the occipital region. At the same time, in children with congenital sensorineural hearing loss, the registration of the maximum P1 component was detected in the right hemisphere, and in children with acquired it was found in the left area of the brain.

In children aged 3-6 years with NSHL, two maxima of the amplitude values of the N1 component were present in the

frontal and left occipital regions. In addition, in these areas of the brain, an asymmetry in the formation of the N1 component was found: in children with acquired NSHL - mainly in the right, in children with congenital - in the left hemisphere.

When studying the results obtained in children with acquired sensorineural hearing loss, a wider display of interhemispheric connections was found than in children with congenital hearing loss or deafness.

Table. 3

The bioelectric activity of the brain in groups of patients, %

EEG data	1 group, n=68	2nd group, n=37
Delayed maturation	40,0	28,5
Diffuse changes	30,0*	28,2*
Focal changes	25,0	14,2
Paroxysmal activity	10,0*	21,4
Epileptiform activity	15,0	-
Variant of the age norm	-	-

Note. * - pvalue<0.001; ** - significant EEG differences between groups (p <0.001).

In 69.6% of patients, bilateral EEG asymmetry and asynchronization were detected, and a wide range of changes in the regulatory and organic genesis of mild to moderate severity was diagnosed.

The obtained EEG data in children with congenital NSHL indicate that they have more changes that are significant in the bioelectrical activity of the cerebral hemispheres than in children with acquired NSHL. In 25% of children of the 1st



and 14.2% of the 2nd group, focal changes are mainly represented by outbreaks of slow-wave activity.

Table. 4
MRI in the examined groups, %

MRI data	1group, n=68	2 group, n=37
Expansion of the subarachnoid spaces	61,1	31,7
Ventriculomegaly	61,1	31,7
Focal lesions of white matter and basal ganglia	27,9	7,3
Periventricular changes	16,8	4,7
Anomaly of development	2	-

In children with congenital NSHL, there was an expansion of the subarachnoid spaces (55.6%), ventriculomegaly (55.6%). Among children with congenital NSHL, developmental anomalies were noted in 2%, which characterizes a violation of the maturation of the nervous tissue in the background of intrauterine lesions.

CONCLUSIONS

1. Risk factors for the development of early hearing impairment in children are related to marriage (72.8%), the use of ototoxic drugs during pregnancy, as well as in the perinatal period (70%, 67%), hyperbilirubinemia (72.5%).
2. An in-depth examination of children with hearing impairment using clinical, otoneurological, ophthalmic functional studies makes it possible to determine the structure of various factors that lead to hearing impairment and influence the further course of the disease.
3. Sensorineural hearing loss is characterized by disorganization and disruption of the configuration of the component composition of I, III, and V SAEP waves.
4. In children with sensorineural hearing loss, the process of formation of the alpha-rhythmic activity of the electroencephalogram is impaired relative to the control group

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UPTAKE AND COMPLETION RATES OF HEPATITIS B VACCINATION AMONG HEALTH CARE WORKERS AT A REFERRAL HOSPITAL IN UYO, AKWA IBOM STATE

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ABSTRACT

Health care workers are four times more likely to contract hepatitis B infection. Thus, the hepatitis B vaccination is recommended as a preventive measure to protect health workers. This study determined the uptake and completion of hepatitis B vaccination among health workers and the factors associated with vaccination uptake and completion in Uyo, Akwa Ibom State, Nigeria. The study was a descriptive, cross-sectional design, carried out in 2021 among all cadres of health workers at the only tertiary/referral hospital in Uyo, the capital of Akwa Ibom State. A pretested, semi-structured, self-administered questionnaire was completed by health workers that consented on information relating to socio-demographic data, vaccination history, knowledge of hepatitis B vaccine and infection, and risk perception of hepatitis B infection. These were analyzed in SPSS version 20 as means and proportions with 95% Confidence Intervals. Chi-square test for Independence was used to examine association between variables at a P-value set at 0.05. Of the 281 study participants, females were 158 (56.2%) and 123 (43.8%), males; mean age was 37.4±8.5 years. Less than half, 132 (47.0%) had received at least one dose of hepatitis B vaccine. Of the 129 that had ever been vaccinated, 31(24%) had fully been vaccinated (completed required three doses). Years of practice ($P=0.011$), education ($P<0.01$), professional role ($P<0.01$ and type of staff ($P<0.01$) were associated with uptake of vaccination. For completion of vaccination, years of practice ($P=0.042$) and professional role ($P<0.01$) The study found a low uptake of hepatitis B vaccination, and even lower complete vaccination rates among the health care workers in a tertiary hospital in Uyo. Years of practice and type/professional role of staff were found to influence uptake and completion of vaccination. Given its importance hepatitis B vaccination is advocated to be included as part of the orientation exercise and periodic examination for hospital staff.

KEYWORDS: Hepatitis B, Hepatitis B Vaccination, Uptake, Completion Rate, Health Care Workers, Akwa Ibom State Nigeria

INTRODUCTION

Around two billion people are estimated to be living with hepatitis B infection globally ⁽¹⁾. This infection is caused by the Hepatitis B virus (HBV), which affects the liver causing liver cirrhosis and hepatocellular carcinoma in chronically infected persons ⁽²⁾. The WHO has characterized the universal burden of hepatitis B into three categories: high, middle, and low endemicity; highly endemic zones such as North America, Asia, and Sub-Saharan Africa having prevalence above 8% ⁽³⁾.

Hepatitis B infection is a serious occupational concern for health care workers (HCWs) who work with patients and/or infectious materials such as body fluids, sperm, and vaginal secretions, contaminated medical supplies and equipment, and contaminated surfaces ⁽⁴⁾. To safeguard against infections, the World Health Organization (WHO) recommends that high-

risk populations, such as HCWs, be targeted for routine vaccination against vaccine-preventable diseases such as hepatitis B ⁽⁵⁾. Despite evidence that HBV infection can be prevented by vaccination, and the vaccine been produced for this purpose, there are vast disparities in hepatitis B vaccination uptake around the world, including among healthcare personnel ⁽⁶⁾. Nigerian healthcare workers are particularly vulnerable because the country is an endemic area with a 15%–37% HBV carrier rate ⁽⁷⁾. In health-care settings, HBV is most commonly transmitted by needle prick injuries and a lack of compliance to universal precautions, thus reiterating the importance of vaccination ⁽⁸⁾. The vaccination schedule involves a 3-dose timeline vaccination which begins with receiving the primary dose at month 0. Taking only this initial dose protects the individual up to 30-50%. The second dose is scheduled for a month following the first dosage, and



taking this additional dose protects against HBV in adults as high as 75%. After 6 months, the concluding dose is given, which provides 90% protection to the individual ⁽⁹⁾. In developing countries, vaccination uptake is as low as between 18-39% compared to high vaccination rates throughout developed countries where vaccination among health workers is as high as 67-79% ⁽¹⁰⁾. In Nigeria, however, research has consistently indicated poor percentages of Hepatitis B immunization among healthcare personnel with several challenges accounting for the vaccination uptake in Nigeria ⁽¹¹⁾. This study aimed to determine the rate of uptake and completion of hepatitis B vaccination among health care workers, and also identify factors associated with uptake and completion of hepatitis B vaccination.

METHODOLOGY

This descriptive, cross-sectional study was carried out at the University of Uyo Teaching Hospital, Uyo, Akwa Ibom State, Nigeria. Three hundred and nine (309) participants were selected through a multistage sampling method between June and July 2021. The study population included doctors, pharmacists, medical laboratory scientists, health records officers, nurses, physiotherapists, administrative staff, radiographers, environmental health personnel, community

health officers, cleaners, and ward attendants. A semi-structured, self-administered questionnaire comprising sections on sociodemographic data, history of vaccination, reasons for vaccination/non-vaccination, knowledge of hepatitis B, and risk perception of health workers, was distributed among the participants.

The questionnaire was pre-tested in different hospital among 40 health care workers. A reliability test yielded Cronbach's alpha coefficient of 0.94, while validity was assured at an item-total correlation of 0.89. Approval for the study was obtained from the Research and Ethics Committee of the University of Uyo Teaching Hospital, while informed consent was obtained from each study participants. Analysis of results was conducted using SPSS version 20, and Chi-square test for independence was used to determine the association between variables at a *P*-value of 0.05.

RESULTS

Out of the 309 questionnaires distributed, 290 were returned, 19 were not returned, and nine were omitted from the analysis due to inappropriate completion. Consequently, only 281 were used in this research, yielding a 90.9% response rate.

Socio-demographic characteristics of study participants

Table 1: Socio-Demographics of the Respondents

Demographic variables	No. of Respondents (n= 281)	Percentage (%)
Sex		
Male	123	43.8
Female	158	56.2
Age (years)		
Less than 20	3	1.1
20-30	64	22.8
31-40	136	48.4
41-50	52	18.5
51-60	26	9.3
Education*		
Primary	3	1.1
Secondary	44	15.8
Tertiary	232	83.2
Religion**		
Christianity	277	98.6
Traditional	1	0.4
Years of practice		
<1 year	28	10.0
1-5 years	99	35.2
6-10 years	83	29.5
11-15 years	34	12.1
>15 years	34	12.1
No Response	3	1.1
Professional role		
Admin Staff	26	9.3
Pharmacist	26	9.3
Doctor	25	8.9
Medical Lab Scientist	25	8.9
Ward attendant	24	8.5
Environmental Health officer	23	8.2

Radiographer	23	8.2
Records Officer	23	8.2
Cleaner	22	7.8
Nurse	22	7.8
Physiotherapist	22	7.8
Community Health Officer	20	7.1
Type of staff		
Clinical	189	67.3
Non-Clinical	92	32.7

* Two missing responses **Three missing responses

The characteristics of participants are presented in Table 1. The respondents' average age was 37.37 ± 8.51 years. The age of the respondents was between 20 and 59 years. The results showed that 3 (1.1%) of the respondents were less than 20 years, while nearly half, (48.4%, $n=136$), about two-fifth (18.5%, $n=52$), and about one-tenth (9.3%, $n=26$) of the respondents were between 31-40 years, 41-50 years and 51-60 years respectively. The sex distribution showed that below half, 123 (43.8%) were males and 158 (56.2%) were females. All the participants had one form of formal education or

another with most, 232 (83.2%), having had tertiary education. . The breakdown of their Years of Practice showed that 28 (10.0%) were less than 1 year, 99 (35.2%) were within 1-5 years, while 83 (29.5%), 34 (12.1%), and 34 (12.1%) were within 6-10 years, 11-15 years and over 15 years of practice, respectively. The distribution of the professional role was almost even at 23 (8.2%) because of the disproportionate stratified random sampling used in which equal numbers of respondents were selected from each of the professions. Result however, showed that overall, 189 (67.3%) were clinical staff and 92 (32.7%) were non-clinical staff.

Uptake and completion of hepatitis B vaccination

Level of Uptake of Hepatitis B Vaccination among the health workers

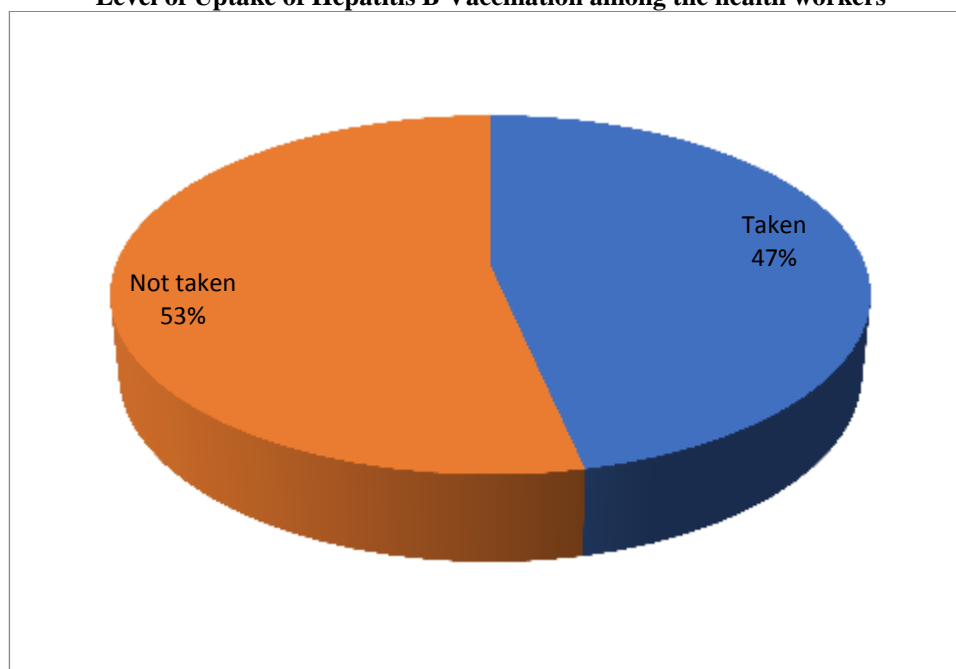


Figure 1: Level of uptake of Hepatitis B Vaccination among the health workers in UUTH

The proportion of health workers in UUTH that have ever taken Hepatitis B Vaccination was 47% ($n=132$) while 53% ($n=149$) had never taken the vaccination (see Figure 1).

Table 4.2: Possible reason for not receiving hepatitis B vaccination

Reasons for not have received hepatitis B vaccination	No. of Respondents	Percentage (%)
Lack of awareness of hepatitis B vaccination	49	35.8
Not Know where to go to receive it		
Too busy	31	22.6
Not offered a chance for vaccination	23	16.8
Long vaccination schedule	22	16.1
Fear of needles/injection	13	9.5
I am very careful	6	4.4
It is expensive	5	3.6
I do not need it	2	1.5
	2	1.5

The result in Table 4.2 presents possible reasons why the health personnel did not receive the vaccination which was analyzed and the result obtained is as presented in Table 4.2. From Table 4.2, lack of awareness of hepatitis B 49 (35.8%),

not knowing where to go to receive it 31 (22.6%) were the two major reasons why the health workers have not received the vaccination.

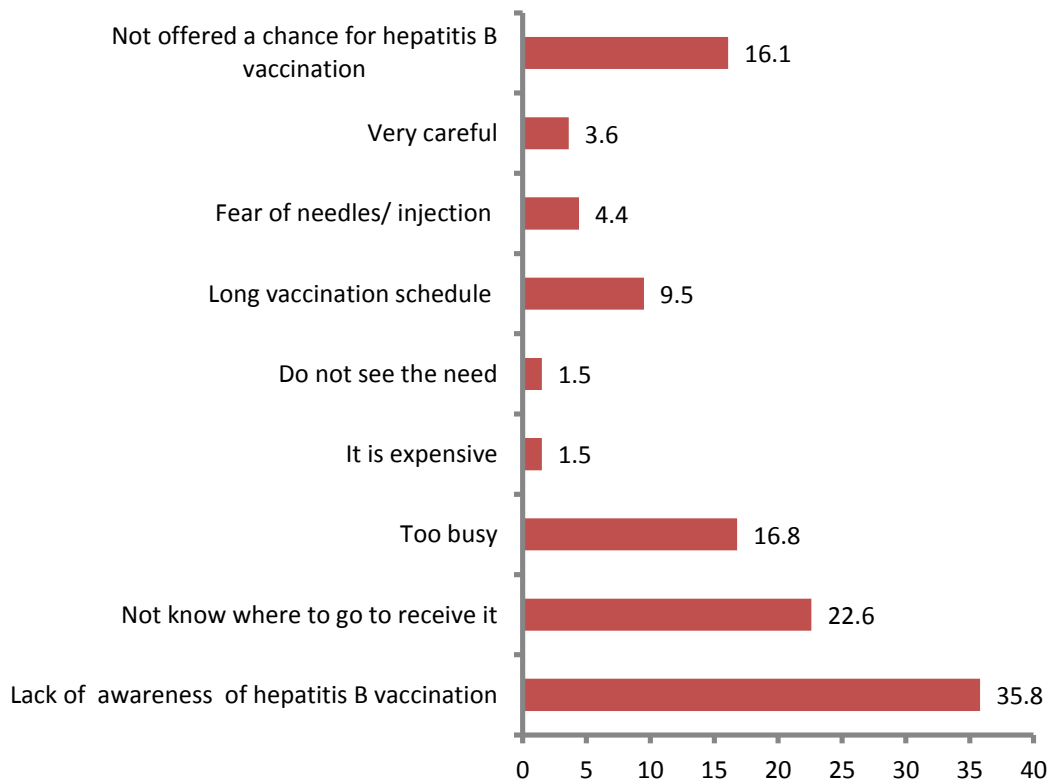


Figure 4.2: Reasons for not receiving hepatitis B vaccination by health workers in UUTH.

This result is also depicted using a bar chart as shown in Figure 4.2. Figure 4.2 also shows that lack of awareness of

Hepatitis B vaccination was the major reason among the health workers for not receiving hepatitis B vaccine.

Completion of ≥ 3 doses of hepatitis B vaccination among the health workers in UUTH

Table 4.3: Doses of hepatitis B vaccination received by the health workers

Doses received	No. of Respondents	Percentage
1 dose	73	56.6
2 doses	25	19.4
3 or more doses	31	24.0
Total	129	100.0

No response =3.



Table 4.3 presents the percentage of health workers that took different doses of hepatitis B vaccination. Results revealed that 73 (56.6%) of the health workers in UUTH that took hepatitis B vaccination in UUTH took only 1 dose, 25 (19.4%)

took 2 doses while only 31 (24.0%) of the respondents took 3 or more doses of the vaccination. This implied that only 31 health workers in the University of Uyo Teaching Hospital completed their dose of hepatitis B vaccination.

Table 4.4: Possible reasons why the health workers in UUTH received Hepatitis B vaccination

Reasons for receiving the vaccination	No. of Respondents	Percentage (%)
I am at risk of hepatitis B infection	104	79.4
Hospital policy instructs health workers to take the vaccine	28	21.4
Previous needlestick/sharps injury	4	3.1
Friend/co-worker developed occupational hepatitis B	0	0.0

Possible reasons for this were analyzed and the result presented in Table 4.4. The result in Table 4.4 indicates that feeling of being at the risk of hepatitis B was the major reason

why a majority of the health workers received the vaccination 104 (79.4%).

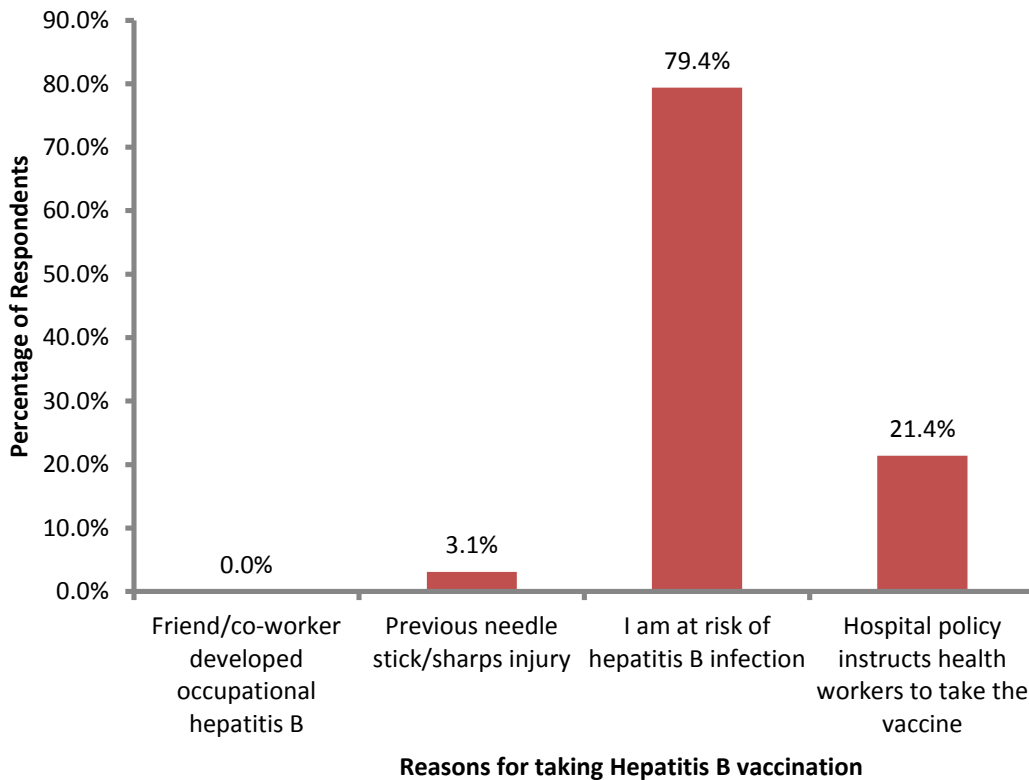


Figure 4.3: Reason why health workers in UUTH took hepatitis B vaccination.

This is also represented pictorially using a bar chart in Figure 4.3 which also reveals that perception of being at the risk of

hepatitis B infection was the major reason why most health workers in the study area received the vaccination.



Factors associated with the uptake of Hepatitis vaccination among health workers in UUTH

Table 4.5: Association between demographic variables and uptake of Hepatitis B Vaccination

Demographic variables	Taken (n=131) %	Not taken (n=150) %	P-value
Sex			
Male	48.0	52.0	0.780
Female	45.6	54.4	
Age (years)			
Less than 20	0.0	100.0	0.146
20-30	42.2	57.8	
31-40	46.3	53.7	
41-50	46.2	53.8	
51-60	65.4	34.6	
Education			
Primary	66.7	33.3	0.000**
Secondary	11.4	88.6	
Tertiary	53.4	46.6	
Religion^F			
Christianity	46.6	53.4	0.468
Traditional	100.0	0.0	
Years of practice			
<1 year	46.4	53.6	0.074
1-5 years	35.4	64.6	
6-10 years	51.8	48.2	
11-15 years	58.8	41.2	
>15 years	52.9	47.1	
Professional role			
Admin Staff	19.2	80.8	0.000**
Cleaner	9.1	90.9	
Community Health Officer	80.0	20	
Doctor	84.0	16	
Environmental Health officer	26.1	73.9	
Medical Lab Scientist	88.0	12	
Nurse	68.2	31.8	
Pharmacist	57.7	42.3	
Physiotherapist	27.3	72.7	
Radiographer	52.2	47.8	
Records Officer	26.1	73.9	
Ward attendant	20.8	79.2	
Type of staff^c			
Clinical	59.3	40.7	0.000**
Non-Clinical	20.7	79.3	

*P-values were generated from Chi-Square test of independence. F- p-value computed based on Fisher's Exact Test, c- p-value computed based on Continuity Correction, *Significant at 5 % (p<0.05), **Significant at 1 % (p<0.01)*

Results in Table 4.5 show the association between demographic variables and uptake of Hepatitis B Vaccination. There was no significant difference between the average age of the health workers that have taken the vaccination (38.45±8.50 years) and those that have not taken (36.74±8.56 years) (p = 0.103, p>0.05). The result indicates that none of the health workers with less than 20 years of practice have received the vaccination while more than half of the health workers between the age group 51-60 years 65.4% have received Hepatitis B vaccination. Result in Table 4.7 reveals

that less than half of the male (48.0%) and female (45.6%) have taken the vaccination while more than half of the health workers who have primary education (66.7%) and tertiary education (53.4%) has also taken the Hepatitis B vaccination. For those with secondary school education, only 11.4% of them have taken the vaccination. In terms of years of practice, more than half of the respondents with 6-10 years (51.8%), 11-15 years (58.8%), and more than 15 years of practice (52.9%) have taken the Hepatitis B vaccination while less than half of the respondents who have 1- 5 years of practice



(46.4%) and 1-5 years of practice (35.4%) have taken the vaccination. Result also indicates that more than half of the community health officers (80.0%), Doctors (84.0%), Medical Lab Scientist (88.0%), Nurses (68.2%), Pharmacists (57.7%) and Radiographers (52.2%) have taken Hepatitis B vaccination while less than half of health workers in other professional role have taken the vaccination. Result also shows that the majority of the clinical staff (59.3%) have taken the vaccination while only a few non-clinical staff have

taken the vaccination (20.7%). Result indicates that education ($p= 0.000$, $p<0.01$), professional role ($p =0.000$, $p<0.01$) and type of staff ($p =0.000$, $p<0.01$) are significantly associated with the uptake of Hepatitis B vaccination ($p<0.05$) while other demographic variables were not significantly associated ($p>0.05$).

Therefore, education, years of practice, professional role, type of staff, were significantly associated with the uptake of Hepatitis B Vaccination ($p<0.05$).

Factors associated with completion of Hepatitis B vaccination among health workers in UUTH

Table 4.6: Association between demographic variables and doses of Hepatitis B Vaccination received by the health workers in UUTH

Demographic variables	One dose (n=73) %	Two doses (n=25) %	≥ 3 doses (n=31) %	P-value
Sex				
Male	52.5	18.6	28.8	0.502
Female	60.0	20.0	20.0	
Age (years)				
Less than 20	0.0	0.0	0.0	0.107
20-30	42.3	38.5	19.2	
31-40	59.7	11.3	29.0	
41-50	58.3	16.7	25.0	
51-60	64.7	23.5	11.8	
Education				
Primary	100.0	0.0	0.0	0.225
Secondary	100.0	0.0	0.0	
Tertiary	54.1	20.5	25.4	
Religion				
Christianity	56.7	19.7	23.6	0.684
Traditional	100.0	0.0	0.0	
Years of practice				
<1 year	53.8	23.1	23.1	0.042*
1-5 years	57.1	22.2	11.4	
6-10 years	58.5	31.4	36.6	
11-15 years	40.0	25.0	35.0	
>15 years	72.2	4.9	5.6	
Professional role				
Admin Staff	100.0	0.0	0.0	0.000**
Cleaner	100.0	0.0	0.0	
Community Health Officer	12.5	43.8	43.8	
Doctor	50.0	5.0	45.0	
Environmental Health officer	33.3	50.0	16.7	
Medical Lab Scientist	45.5	31.8	22.7	
Nurse	53.3	13.3	33.3	
Pharmacist	73.3	13.3	13.3	
Physiotherapist	66.7	33.3	0.0	
Radiographer	52.2	0.0	16.7	
Records Officer	83.3	0.0	0.0	
Ward attendant	280.0	20.0	0.0	
Type of staff				
Clinical	55.0	18.9	26.1	0.384
Non-Clinical	66.7	22.2	11.1	

*P-values were generated from Chi- Square test of independence. *Significant at 5 % ($p<0.05$), **Significant at 1 % ($p<0.01$).*



There was no significant difference in the average age of health workers that took 1 dose (39.81±8.97 years), 2 doses (36.60±8.82 years), and those that have completed their dose (37.00±6.79years) (F-calc. = 1.987, p = 0.141, p>0.05). The result in Table 4.6 revealed that years of practice (p = 0.042, p<0.05) and professional role (p =0.000, p<0.01) were the only demographic parameters significantly associated with the completion of the recommended doses of Hepatitis B vaccination (p<0.05). The result showed that more health workers between 31-40 years (29.0%) and 41-50 years (25.0%) have completed their recommended dose compared with health workers in other age groups. The result indicated that the largest percentage of those that have completed their dose were health workers with 6-10 years of practice (36.6%) followed by those with 11-15 years of practice (35.0%). In terms of professional roles, a larger percentage of Community Health Officers (43.8%), Doctors (45.0%) have completed their recommended dose compared with those in other professional roles.

DISCUSSION

The purpose of this study was to assess hepatitis B vaccine uptake, completion, and associated factors among health staff at the University of Uyo Teaching Hospital. This is the first study that I am aware of that looks at the hepatitis B vaccination situation among health professionals at the University of Uyo Teaching Hospital in Akwa Ibom State.

Uptake of the vaccine among health workers in UUTH

Hepatitis B vaccine was found to have low uptake. Only 47% had ever gotten the vaccine, which is smaller than the results reported by ⁽¹²⁾ in nearby Bayelsa State and Jos in the North of Nigeria where the vaccination had been received by 65% of the researched population. This difference in result could be because this study looked at a broader variety of employees, such as cleaners, pharmacists, and administrative personnel, whereas the Bayelsa and Jos studies only looked at doctors, nurses, and laboratory scientists. Higher vaccination grades have been found in studies conducted in Ghana 53.1% ⁽¹³⁾, Ethiopia 57.7% ⁽¹⁴⁾, the United States 75% ⁽¹⁵⁾, and China 86% ⁽¹⁶⁾. This study's result is above the 22.4% obtained among professionals in Enugu ⁽¹⁷⁾, 14.2%, ⁽¹⁸⁾, and higher than results found in studies in Tanzania 8.6% ⁽¹⁹⁾ and Zambia 19.3% ⁽²⁰⁾. It is, however, almost the same as the result in the study conducted in Sokoto State where vaccine uptake was found to be 40.3% ⁽²¹⁾ and South-Sudan 44.2% ⁽²²⁾.

According to respondents who have been vaccinated, most of them affirmed that being at risk of hepatitis B infection 70.4%, hospital policy on vaccination 21.4% and previous needle stick injury 3.1% were some of the reasons why they had gotten vaccinated. Table 4.3

For persons who responded to not ever being vaccinated, Table 4.2, reasons for this were mostly lack of awareness of hepatitis B vaccination (35.8%), Not knowing where to go to get the vaccine (22.6%), being too busy (16.8%), and long

vaccination schedules (9.5%) are a few of the reasons for not getting vaccinated.

Complete vaccination among health workers in UUTH

Regarding being vaccinated fully, findings from this study indicate even more reduced rates, as only 24% of the sampled population has been properly immunized (Figure 3). This finding is comparable to ⁽²³⁾ findings who observed that respondents from their study who were fully vaccinated accounted for 20% of their study population. Although the study population for their study was targeted at only dental surgeons, this study explored a more diverse group of workers. Also, the findings on complete vaccination from this study might be from some respondents not being due for their concluding dose of the vaccine. Others may be ignorant that they need to take 3 doses to complete the vaccination. The finding for this study is also comparable to similar results from studies in Cameroon 24.5% among resident doctors and 22.1% in South-Sudan ^(24, 22). This study included a wider group of health workers compared to the study in Cameroon which was undertaken among only resident doctors. The logic for the similarity between the study in Cameroon and this current study is unclear.

65% had been fully vaccinated in Ife ⁽²⁵⁾. The higher completion rate found in Ife compared to this study may be due to the existence of occasional vaccination programs in Ife. Elsewhere in Libya, complete vaccination was as high as 72% ⁽²⁶⁾. Also, this study's findings in terms of complete vaccination was higher than those obtained in Enugu 3.7% and Yobe State 18.13% ^(17,27). This suggests that below half of the employees in the University of Uyo Teaching Hospital are fully protected from hepatitis B infection and are likely to contract the infection if exposure should occur.

Factors Associated with the uptake of hepatitis B vaccination

In this study, analysis of the association between uptake of hepatitis B vaccine and sociodemographic variables was determined. Findings from our study reveal the following.

Age and uptake of hepatitis B vaccination

The age of the health workers had no bearing on whether or not they received the vaccine, according to this study. The basis for this result is unknown, although it is comparable to the findings of research in South Sudan, which found no link between health workers' age and vaccination uptake ⁽²²⁾. This differs from the outcome of a nearby study in Enugu, which revealed a link between the age of health professionals and the adoption of the hepatitis B vaccine ⁽¹⁸⁾. This disparity could be attributed to the sizable sample size employed in the Enugu study versus this one.

Years of practice and uptake of hepatitis B vaccination

In this study, an association was found between years of practice and uptake of the hepatitis B vaccine. Health workers with more length of time in the health profession had higher vaccine uptake. The most likely explanation for this outcome



may be that with long years in the profession, health workers may have had experiences that motivated them to receive the vaccine on a precautionary basis. This conclusion is harmonious with outcomes from surrounding investigations. Years of practice were found to be linked to vaccination uptake in Enugu⁽¹⁷⁾.

⁽¹²⁾ also found years of practice to be associated with vaccine uptake among health workers in Bayelsa and Jos. Likewise, studies outside Nigeria in Ghana and Sweden have observed the same association between years of practice and uptake of hepatitis B vaccination^(13, 28). This finding is however in contrast to results from Serbia and Uganda where those who had worked for under 5 years were found to have higher vaccine uptake among the surveyed groups of health workers.^(29, 30)

Professional role and uptake of hepatitis B vaccination among health workers in UUTH

The professional role was observed to be associated with the uptake of hepatitis B vaccination in this study's findings. This is comparable to the findings of a neighboring study in Sokoto which also found an association between professional roles of the health employees and uptake of the vaccine⁽²¹⁾. Findings from this study indicate that medical laboratory Scientists had the highest vaccination uptake among other professions in the cadres of health workers studied, followed closely by doctors. This is akin to observations from studies conducted elsewhere in Zambia where it was shown that laboratory personnel had higher vaccination rates than other groups in the study⁽²⁰⁾. The occupation was also found to be associated with vaccine uptake in Cyprus⁽³¹⁾ found that vaccination was highest among Doctors, Laboratory personnel, and Nurses.

The health worker groups of cleaners, health attendants, and administrative staff had the lowest vaccine uptake in this study. This finding is perhaps due to health workers' low-risk perception of hepatitis B infection among this class of workers. A similar observation was also found in the study in Sokoto State⁽²¹⁾.

Factors associated with complete hepatitis B vaccination among health workers in UUTH

For complete hepatitis B vaccination, findings from this study only found an association in years of practice and professional role. Other demographic parameters gender, age, educational attainment, religion, and category of staff (clinical or non-clinical) had little bearing on the completion of the vaccination schedule amongst health personnel at the University of Uyo Teaching Hospital. In addition, all other factors assessed like knowledge of the vaccine and infection, risk perception, and knowing where to get the vaccine were not associated with complete hepatitis B vaccination among the health workers in the University of Uyo teaching hospital.

Professional role and complete hepatitis B vaccination

For the sociodemographic factors which were found to be associated. The professional role was found to be associated with completing the vaccination schedule. This finding is

comparable to a neighboring one in Ilorin⁽³²⁾. Similar findings were also recorded from the study in Saudi Arabia where an association was found between professional role and complete vaccination⁽³³⁾.

Completed vaccination was found to be higher amongst medical doctors, and community health officers closely followed by nurses and medical laboratory scientists having values of 45%, 43%, 33%, and 22.7% respectively. The lowest completion rates were found among cleaners, admin staff, physiotherapists, records officers, and ward attendants with no one in these groups completing the dose and thus had 0% complete vaccination. Pharmacist and Environmental health officers by contrast had complete vaccination of 13.3% and 16.7% respectively.

Although the finding that community health officer from this study is new and not comparable to any other studies, this is perhaps because of the across-board selection of health worker cadres involved in this study compared to other studies that investigated vaccination patterns among just medical doctors, nurses, or laboratory scientists.

Years of practice and complete hepatitis B vaccination

Years of practice was also found to be associated with complete vaccination in this study. Similar results were found among health workers in Uganda⁽³⁰⁾. Another study that compares well to this study in terms of years of practice is the study conducted in Saudi Arabia where years of practice was associated with being fully vaccinated⁽³³⁾.

CONCLUSIONS

This study found that in the University of Uyo Teaching Hospital, Akwa Ibom State, less than half of the workers have taken hepatitis B vaccination and only 24% have gone ahead to complete the required doses. It is also evident that professional groups of doctors, nurses, medical laboratory scientists, and community health staff have received their vaccination than other sets of the health workforce. Furthermore, those who have worked for long years have better hepatitis B vaccine uptake and completion rates. Ignorance about where to receive the vaccine, a hectic schedule, and protracted immunization schedules were some of the factors contributing to low vaccine uptake among health workers at the University of Uyo Teaching Hospital, according to the findings.

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THE IMPORTANCE OF IMPROVING LEXICAL COMPETENCE OF MEDICAL STUDENTS IN THE EFL CLASSROOM

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ABSTRACT

The article describes the importance of improving lexical competence of medical students in the English as a foreign language classroom. The article deals with some issues related to teaching foreign language vocabulary in the medical field at a medical university. In the paper, descriptive and comparative methods analyses have been used.

KEY WORDS: *education, EFL (English as a foreign language), communicative competence, medical students, teaching.*

INTRODUCTION

In modern era of educational sphere, tasks of the university course of a foreign language are determined by the communicative and cognitive needs of specialists. The purpose of the course is the acquisition by students of communicative competence, the level of which at certain stages of language training allows the use of a foreign language practically both in professional activities, and for the purposes of self-education. Decree of the President of the Republic of Uzbekistan "On measures for the further development of the higher education system", aimed at developing the system of continuous education, providing highly qualified personnel for the country's dynamically developing economy, expanding the participation of higher education in the strategically integrated development of all regions and industries. This is another important practical step. In modern conditions, there are serious requirements for the level of training of any specialist. A very important and essential component of this preparation is the knowledge of a foreign language [1].

One of the ways for students to achieve communicative competence is the formation and improvement of language skills, which include the development of lexical skills. Possession of foreign language vocabulary of the professional sphere provides the specialist's ability to dialogue with others, the ability to comprehend and understand what unites him with his partner, allows him to convey his thoughts to the interlocutor, exchange information, and the results of work. It should be noted that there are a number of contradictions in the theory and practice of teaching foreign language vocabulary in the medical field at a medical university:

- Between the need of modern society for the personality of a specialist capable of perception, assimilation and successful use of lexical knowledge and speech skills in the process of improving foreign language communication and an insufficiently developed theoretical basis for the formation

of lexical skills when teaching foreign language vocabulary of the medical sphere to medical students;

- Between the need to create a clearly structured corpus of foreign language lexical units in the medical field, meeting the needs of a future specialist, and the existing practice of teaching foreign language vocabulary in the professional field, which does not take into account interdisciplinary connections;

- Between modern requirements for quality improvement teaching a foreign language as a means of professional communication and an insufficiently developed methodology for teaching foreign language vocabulary in the medical field;

- Between the requirements of the program of the university course of study

a foreign language to the knowledge of a graduate-specialist in a foreign language as a means of intercultural professional communication and an insufficient level of formation of foreign language skills and abilities, necessary for professional communication in a foreign language [6], among graduates of a non-linguistic (medical) university.

LITERATURE REVIEW

The theoretical basis of the study is: the concept of a systematic approach (B.F. Lomov, V.P. Bepalko.); theory of activity in general psychology (L.S. Vygotsky, A.N. Leontiev, S.L. Rubinshtein); theory of speech and foreign language speech activity (N.I. Zhinkin, I.A. Zimnyaya and others); theory of perception, comprehension and understanding in psychology and psycholinguistics (L.S. Vygotsky, A.A. Smirnov, S.L. Rubinstein, A.R. Luria, A.I. Novikov, Yu.A. Sorokin); the concept of a personal-activity approach in training and education (L.S. Vygotsky, A.N. Leontiev, I.A. Zimnyaya); the concept of a communicative approach to teaching a foreign language (I.E. Passov, L.V. Skalkin); the concept of a cognitive approach to teaching a foreign language (T.K. Tsvetkova, A.A. Leontiev, V.A. Artemov, R.K. Minyar-Beloruchev); theoretical foundations for teaching foreign



vocabulary (N.I. Zhinkin, A.N. Sokolov, V.A. Bukhbinder, Yu.N. Gnatkevich, I.V. Rakhmanov); exercise theory (I.L. Bim, I.V. Rakhmanov, E.I. Passov) [2. p.5].

Other researchers believe that the productivity of memorization is determined by the linguistic features of foreign vocabulary. These features are a complex factor, including grammatical meanings, semantics, morphological, phonetic and spelling forms of the word (N.V. Nikolaev, A.A. Zalevskaya) [4]. Speaking about the peculiarities of memorizing foreign-language lexical units of the medical sphere by medical students, one cannot but pay attention to the fact that teaching foreign-language lexical units of the medical sphere is carried out in parallel with teaching Latin-language lexical units [1]. In this regard, memorization and assimilation of foreign-language lexical units of the medical sphere is faster if medical students have already studied the Latin equivalents of these lexical units.

METHODOLOGY

During the study, we have tried to find out the reasons preventing memorization of vocabulary, and questionnaires were developed and proposed to determine main difficulties. The results of the survey led to the following conclusions:

- 1) Based on the opinion of students and teachers, it becomes necessary to clearly identify the lexical units of a foreign language and determine their number necessary for assimilation in the process of studying at a medical university;
- 2) There is a need to systematize the lexical minimum for students, which could meet the requirements of the work program of the discipline and educational standards;
- 3) The main reasons for the insufficient knowledge of lexical material are the low level of basic school training of students and the low motivation of students to learn a foreign language, which may be caused by the monotony of the educational process, as well as the lack of a clear understanding of the requirements for training specialists;
- 4) Increase the motivation of students to learn a foreign language can be facilitated by the introduction into the educational process of a variety of personality-oriented tasks and materials that resonate with the main field of activity of students;
- 5) The results of the survey showed the inability of students to work independently; therefore, one of the tasks that are set before the teacher is teaching students to work independently on foreign language lexical material;
- 6) The main ways to increase the knowledge of the lexical minimum can be the practice of compiling and maintaining individual dictionaries and the development of teaching materials, including various types of classroom and extracurricular exercises.

Considering the entire corpus of lexical units for 1st and 2nd year students of medical specialties, it seems possible to distinguish three main categories for classifying lexical units according to semantic characteristics (comparisons of the words in the English and Karakalpak languages): 1) the structure of the human body (for example, head - bas; eye - ko'z; neck - moyin); 2) internal diseases (for example, gastritis - gastrit; nausea - kewil ayniwi; ulcer - jara); 3) society and

medicine (for example, rehabilitation - ta'wir boliw; ward - palata/bo'lme; supervise - ku'zetiwi). Within the first broad category "Structure of the human body", we consider it appropriate to single out narrower sections, which in turn can also be divided into even more differentiated lists of lexical units, for example: 1) parts of the body, for example: thumb - bas barmaq (hands); neck - moyin; jaw - jaq; 2) cells: a) structure, for example: membrane - qabiq; nucleus - yadro; b) functions, for example: production - islep shig'ariw; synthesis - sintez; diffuse - tarqatiw. 3) fabrics: a) structure, for example: bundle - tu'yin; fiber - talshiq; b) functions, for example: sense - seziw, reception - qabil etiw; regenerate - qayta tikleniw.

Taking into consideration of solution to the problem of effective accumulation of the lexical minimum requires its psychological substantiation. Therefore, this issue must be considered, taking into account the general psychological features of memorizing the lexical units of a foreign language. As it is known, effective memorization and reproduction by a person of this or that material is associated with the forms of memory. According to the nature of the participation of the will in the processes of memorization and reproduction of material, memory is divided into involuntary and arbitrary. In the first case, students mean such memorization and reproduction, which occurs automatically and without much effort on the part of a person, without setting a special mnemonic task (for memorization, recognition, preservation or reproduction). In the second case, such a task is necessarily present, and the process of memorization or reproduction itself requires volitional efforts.

CONCLUSION

Thus, learning activity from the point of view of memory is the ratio of the arbitrariness of efforts to memorize the material, the conscious focus on memorizing the material and the involuntary assimilation of information in the course of a consistent and deep understanding of the educational material. Thus, it is remembered - as it is realized - first of all, what constitutes the goal of the subject's action. Therefore, if the given material is included in the target content of the given action, it can be involuntarily remembered better than if, in case of voluntary memorization, the goal is shifted to the memorization itself. But what is not included in the target content of the action, during which involuntary memorization takes place, is remembered worse than with voluntary memorization aimed specifically at this material. Everything depends primarily on how the subject's action is organized and directed, during which memorization is performed. Therefore, unintentional, involuntary memorization may not be a matter of chance as it can be regulated indirectly, indirectly. Thus, in the pedagogical plan, the most important task arises - to organize the learning process so that students remember the essential material even when they work with this material, and not just memorize it. The patterns of memory activity described above are also reflected in the memorization of lexical units of a foreign language.



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TECHNOLOGIES FOR TEACHING STUDENTS LISTENING COMPREHENSION IN ENGLISH CLASSES AT A NON-PHILOLOGICAL UNIVERSITY

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ANNOTATION

The purpose of this article is to consider some methodological aspects of teaching listening and their practical application at the stages of selecting audio material, preparing exercises and conducting classes.

KEYWORDS: *foreign language, text, listening, methodology, skills and abilities, tasks, exercises.*

ТЕХНОЛОГИИ ОБУЧЕНИЯ АУДИРОВАНИЮ НА ЗАНЯТИЯХ АНГЛИЙСКОГО ЯЗЫКА В НЕФИЛОЛОГИЧЕСКОМ ВУЗЕ

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Аннотация

Целью настоящей статьи является рассмотрение некоторых методических аспектов обучения аудированию и их практического применения на этапах отбора аудиоматериала, подготовки упражнений и проведения занятий.

Ключевые слова: *иностраный язык, текст, аудирование, методика, навыки и умения, задания, упражнения.*

The domestic method of teaching a foreign language considers listening as a goal and as a means of learning, and these functions are combined and complement one another. As a learning tool, this type of speech activity enables students to get acquainted with new speech and language material, forms the skills and abilities of reading, speaking, writing, and actually auditive skills and abilities. When working with audio texts, phonetic, lexical, grammatical skills are simultaneously worked out.

When selecting and preparing audio material, it should be borne in mind that the purpose of the audition may be:

- listening to the main content, when you need to understand the most important information, ignoring the details;

- listening with full understanding, in which both the main content and the details are important;

- listening with selective understanding, aimed at isolating and understanding only the information of interest or the one indicated in the task;

- listening followed by critical reflection.

The following criteria for selecting material for audition should also be taken into account:

- The level of language proficiency of students;

- Volume of audio text;

- Subject matter of the audio text;

- The interests of students.

When organizing the auditing process, it is important to remember some of its features:

- The speaker's speech must be authentic;

- The pace of speech should be natural for the given

language;

- The connection of the visual and auditory channels creates a better opportunity to extract the required information;

- If the speech source is visible, the percentage of speech understanding from hearing will be much higher than in its visual absence2;



- The speech presented by a man is perceived more easily than the speech of a woman or a child;

- the main information expressed at the beginning of the message is understood by 100%, at the end - by 70%, in the middle of the message - by 40%;

- The level of redundancy of information should be natural, and key information is represented by vocabulary known to students;

- The more complex the audio text, the greater the importance of visual supports and exercises to remove language difficulties, preparing students for listening to the text.

There are several types of exercises performed when working with a connected audio text: pre-text, text and post-text tasks. The exercises performed before the start of listening most intensively control the process of perception of foreign language speech. They contribute to the creation of motivation among students, the mood to listen to a text of a certain content, the removal of linguistic (lexical, grammatical and phonetic) difficulties, relieve psychological stress, and improve the level of understanding of speech. Prelistening exercises can perform the following tasks:

- predict the content of the audio text;
- give a general idea of the content;
- arouse interest and activate students' knowledge on a given topic (for example, group or pair discussion);
- provide basic information on the material if students encounter it for the first time;
- activate already studied vocabulary;
- introduce new vocabulary (for example, by doing an exercise to match words and definitions or fill in gaps in sentences);
- give students the opportunity to get acquainted with the tasks in detail (in some cases it is possible to try to predict the answers).

The choice of pre-text exercises depends on the level of knowledge of students and the time available. If the level is low, the amount and time of exercise should be increased; in groups with a sufficiently high level of knowledge, it is possible to focus only on the contextual aspect. Thus, the same audio text can be used in groups with different levels of training.

As for text (while-listening) exercises, they should be aimed at facilitating the understanding of the audio text as much as possible and should be designed in such a way as to give the student the opportunity to get a general idea of the content already at the stage of the first presentation, while the second presentation requires more detailed study. Examples of these types of exercises can be:

1. Listen and label a diagram/picture/map/ graph/chart;
2. Listen and fill in a table;
3. Listen and make notes on specific information (dates, figures, times);
4. Listen and reorder information;
5. Listen and identify location/speakers/places;
6. Listen and label the stages of a process/instructions/sequences of a text;
7. Listen and fill in the gaps in a text;

8. Listen and decide whether the statement is true or false.

Post-listening tasks perform a controlling function. As a rule, they perform a dual task: checking the understanding of the content and analyzing the language material. The latter can be done by working out lexical units, for example, phrases or grammatical material. In any case, the main task of this kind of exercise is to activate the studied material, to use it in independent statements.

Considering the practical side of teaching listening, it should be noted that the use of multimedia technologies provides qualitatively new opportunities for this task. The use of such technologies leads to an improvement in the quality of education, improves the system of organization of education in the classroom, increases the information culture of students, reduces fatigue and increases student motivation, making the learning process more efficient.

All of the above theoretical provisions were implemented by the author of the article in the preparation of the practical lesson of the optional course "Financial English", the plan of which was drawn up as follows:

Topic of the lesson: Loans and Credits. Lending decisions. Sources of bank's money.

The place of the lesson in the study of the topic: the lesson completes the topic.

Used in class:

- Didactic material for oral test and role play;
- Technical teaching aids for presenting material on slides and video demonstrations;

Purpose and objectives of the lesson:

- Development of listening skills;
- Repetition of grammatical constructions Gerund / Infinitive;
- Control of assimilation by students of the material on the studied topic;
- Control of students' monologue speech skills on the topic;
- Control of students' ability to use an active vocabulary on the topic in dialogical speech.

The order of the lesson

1. Checking readiness for the lesson, announcement by the teacher of the topic of the lesson.

2. Preparatory stage:

a) Performing a test task on the vocabulary of the lesson, checking it;

b) conversation-discussion on the subject of the lesson;

3. Listening to audio text 1:

a) fulfillment of the pre-text task, its verification;

b) Fulfillment of the text task, its verification.

4. Listening to audio text 2, performing a text task.

5. Practicing grammatical constructions;

6. Role play (pair work of students on the topic of the lesson).

7. Viewing (listening to the audio sequence) video clip:

a) conversation-discussion on the subject of the video;

b) Listening to extract general information, discussion;

c) Execution of a test task (finding definitions), its verification.



8. Summing up the lesson by the teacher: evaluation of students' work and explanation of homework.

The level of language proficiency of the students of the group in which the lesson was held corresponds to the Intermediate level, and their motivation for learning, taking into account the optional nature of the course, is really high.

For the preparatory stage, the students were offered the following tasks:

- Oral performance of a test task to activate the studied vocabulary;
- Discussion of the Loans and Credits topic in a question-answer form.

The task performed the function of pre-text exercises. They were carried out in a free form and were not mandatory: students optionally gave answers to the questions of the test, making comments, participated in the discussion; errors were corrected by the students themselves. This helped to create a comfortable working atmosphere, remove possible psychological barriers, since the lectures of the department were present at the lesson, which inevitably leads to some stiffness of the students. At the same time, this type of task successfully performed the function of warming up, that is, "warming up" students, allowing them to tune in to the topic of the lesson and activate vocabulary.

The recording for the English for Financial Sector course was chosen as the audio material for the behavior of the lesson. For the first audio text, a pre-text exercise was proposed in the form of matching words and their definitions (matching). As a text exercise, a task was given to extract specific information from the listened text in the form of sentence recovery (close procedure).

The same function for the second audio text was performed by the task in the form of answers to questions, which students had the opportunity to get acquainted with before listening, that is, at the stage of performing the pre-text task. Audio recordings were presented twice.

Before performing a post-text task in the form of a role-playing game on the topic "Loan Decision", based on slides, grammatical constructions (Infinitive / Gerund) used to express advice, recommendations or suggestions were worked out. This allowed students to successfully complete the communicative task.

To discuss the final topic of the lesson, Sources of Banks' money, students were offered a four-minute episode from the animated film Money as Debt to watch. As a pre-text exercise, the topic was discussed: "Where does the money that banks provide their customers in the form of loans come from?". The video has been submitted twice. The text task for the first presentation as a text exercise was the question: "What is the main idea of the episode?" with the control of comprehension that followed after viewing. For the second viewing, the task was to replace words and phrases with synonyms used in the video (Replace the word combinations in italics with their synonyms used in the video). The test showed that this type of exercise did not cause difficulties for students to complete the task. The post-text exercise was writing a 1000-word essay on the topic of the video, which was used as homework.

As a result, about 70 minutes were used to complete the task of developing listening skills and all types of exercises presented for three audio texts during the lesson. The tasks for the role-playing game were given to the students in advance, otherwise the time frame of one lesson would not have allowed the use of this type of exercise.

Taking into account the criteria for selecting material, taking into account the variety of exercises for developing listening skills and the peculiarities of the organization of the process, the teacher can choose the form of the lesson that will correspond to the content of the educational material, take into account the level of preparation of the group of students. The practice of conducting the lesson showed that the volume and subject of the audio material, as well as the choice of exercises performed at different stages of working with audio texts, made it possible to increase the effectiveness of the lesson, achieve the goal set by the teacher and complete the tasks.

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HUMAN, SOCIETY AND ENVIRONMENT: A COLLABORATIVE STUDY

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ABSTRACT

Individual opinions about social objects are known as social attitudes. Individual attitudes that are so substantially inter-conditioned by group interactions are referred to be collective attitudes. These attitudes are extremely standardised and homogeneous within the group. The ability to adjust to changes in one's physical, vocational, and social environment is known as adjustment. Adjustment, then, is the behavioural process of balancing opposing demands or needs that are hampered by environmental challenges. Animals and people make routine adjustments to their surroundings on a. Through this essay, researcher wants to highlight the various facets of a social being and how a social being adapts to different spheres of life while displaying his social views.

KEYWORDS: *Intelligence, Adjustment, E-learning, Attitude, Education,*

INTRODUCTION

Social attitudes are individual attitudes toward social objects. Collective attitudes are individual attitudes that are so heavily influenced by group interactions that they become extremely standardised and reliable within the group. While most social attitudes are universally inter-conditioned and standardised, other perceptions, such as those of antisocial and maladjusted people and those who live in the past, are equally important. The attitude is initially a trial response (an interrupted, substitute conduct that develops within an incomplete adjustment response), but it has the possibility to become the organism's permanent set.

Adjustment refers to the ability to adapt to changes in one's physical, occupational, and social environment. Adjustment is, in other words, the behavioural process of settling incompatible demands that are hampered by environmental challenges. On a daily basis, both humans and animals adapt to their surroundings. When their physiological state provokes them to seek food, for example, they eat to express their hunger and thus adapt to the hunger signal. Adjustment disorder develops when a person struggles to respond normally to a requirement or stress in their environment. A high standard of living is dependent on successful adjustment. People who have difficulty adjusting are more likely to develop clinical anxiety or depression, as well as a sense of hopelessness, anhedonia, difficulty concentrating, sleep problems, and reckless behaviour.

INTELLIGENCE AND SOCIAL ADJUSTMENT

People deal with or handle the demands and problems of daily life through the psychological process of adjustment. It carries the connotation of conformity and is focused with how a person adapts to their surroundings and everyday

requirements. The ability of the organism to control needs, conflicts, and wants on the inside as well as the exterior, as well as external expectations and demands, is aided by psychological adjustment. There are social beings that can adapt to their environment and take part in society, according to the findings of numerous studies. A poll indicates that there are significant gender disparities among secondary school students, but no differences were found in terms of where they live. Given that these disparities are found to be highly significant for gender across all areas of adjustment, including family, peer, and societal adjustment, there appears to be an urgent need for reform. Academics, governments, families, and all other interested parties must prioritise developing strategies to promote secondary school students' improved coping skills (Pramanik, et al. 2014). A study at Sidho-Kanho-Birsha University in India looked at undergraduate students' adjustment skills in relation to gender, study stream, and social intelligence utilising samples from several colleges. The results of the study revealed that while undergrads in the humanities and sciences did not substantially differ from one another in terms of their ability to adjust, they did so significantly in terms of their social intelligence (Kundu, et al. 2015). There were no discernible differences in the attitudes toward social adjustment between male and female undergraduate students in the Purulia District of West Bengal, India, or between rural and urban undergraduate students, rural male and urban male, or rural female and urban female (Ansary, 2022).

Additionally, social scientists have boldly hypothesised that there might be a connection between mood and physical traits like height and BMI. A study found that IQ and height have a considerable correlation, IQ and weight have a weaker correlation, and IQ and BMI have no significant correlation (Karmakar, et al. 2016). According to research made on



students in higher secondary schools, emotional intelligence and adjustment are related. This shows how emotional intelligence affects peer, family, and academic adjustment. Students with high emotional intelligence can therefore successfully deal with life's challenges (Kar, et al. 2016).

Leaders, social scientists, and educators have actually been concerned about leadership styles and flexibility. A study on West Bengali undergraduate students examined the relationship between leadership style and adaptability. The results revealed a significant relationship between leadership style and adaptability among undergraduate West Bengali students. This demonstrates that more flexible students may be better leaders since effective leadership requires both collaboration and interpersonal adjustment (Kar & Saha, 2021).

A study compared Chinese American and European American teenage personalities and social functioning. According to the study's findings, adolescent Chinese and European Americans become more similar to one another over time as a result of developmental and acculturative processes (Huntsinger, C. S. & Jose, P. E. 2006). A study looked at the various paths of effect on parenting techniques and a child's social adjustment. The results of this study revealed a connection between parenting styles and child social problem-solving, peer disliking, and peer-reported social behaviour (Domitrovich, C. E. & Bierman, K. L. 2001).

CREATIVITY AND SOCIAL ADJUSTMENT

Creativity is no longer a biological constant. Creativity is the attribute of the human intellect that is most prized (Saha & Maji, 2013). It is seen more as a "variant" that is subject to ongoing change as a result of environmental, socioeconomic, and cultural variables. Since psychologists and educators realised the importance of creativity in human development, discovering and nurturing a child's creative potential in the classroom has taken on greater significance. Everyone has some level of creativity, and the idea of "creativity" is becoming increasingly widely acknowledged. There are various methods that can be used to see and precisely measure them. This skill can be fostered by planning and organising an educational atmosphere that will encourage the growth and expression of creativity. Therefore, finding and fostering children's creativity is both a chance and a challenging obligation for educators. In actuality, schools are where some coordinated efforts can be made to lay the foundation for cultivating in kids the core competencies, dispositions, attitudes, and drives necessary for self-realization and creative life successes (Saha, 2012). In order to be creative, one must be alert to difficulties like issues, deficiencies, gaps in information, missing components, disharmonies, etc. Identifying the issue, seeking solutions, guessing or forming hypotheses about the shortcomings, testing and retesting these hypotheses, potentially changing them, and presenting the results are additional processes (Saha, 2013). According to a study, boys are more creative than girls, and there is no obvious difference between students in rural and urban settings. Additionally, there is no obvious connection between

place of residence and gender in terms of creativity (Paul, et al. 2017). In order to compare and provide information on the socioeconomic standing, environmental awareness, and creative skills of higher secondary school students with ages ranging from 16 and older, another study was conducted in Birbhum District, West Bengal. A random data collection involved 300 students from eight higher secondary schools in the Birbhum District. The results revealed that there are no discernible variations in students' socioeconomic position (SES), knowledge of the environment, and creativity between male and female students (Saha, et al. 2012).

EDUCATIONAL AND TECHNOLOGICAL FACTORS

The entire world is praised for the great quantity of assistance that the internet has given. Because of all the ways we use the internet for shopping, blogging, finance, education, communication, and other things, our lives are not only increasingly constrained but are also being undermined (Gorain, et al. 2022). This overuse of the internet, which also causes social isolation and depression, steals one's sociocultural life. The behavioural, cognitive, and emotional patterns that are originally influenced by biological and environmental factors have thus been demonstrated to be significantly impacted by this reliance. Internet use, loneliness in social settings, and personality factors are all intimately associated (Mondal, et al, 2018). Both a cause-and-effect link and a reverse relationship exist between the first two components mentioned above. Internet Personality characteristics have a significant impact on dependence and social isolation. It is generally believed that dependence and social isolation are the primary causes of altered personalities. Therefore, compared to any other set of independent variables, it would be more accurate to examine the differences between these three dependent variables (Gorain, et al. 2021).

Since the world has become more globalised, technology has permeated every aspect of our lives. Modernization is developing swiftly, and electronic learning is now possible thanks to technological advancements (Kar, et al. 2014). A flipped classroom is set up to help develop students' conceptual knowledge instead of lecturing about theoretical subjects. It offers students the option to interact with classmates in person while still learning via technology in a relaxing environment (Mahato, et al, 2022). The tough reality of second language learning is presented by the target language learners. Every learning environment exposes teachers to a variety of pupils, each of whom has a different capacity for assimilating learning experiences depending on their level of openness, creativity, and intelligence (Chakraborty and Saha, 2014).

The difficulties and potential benefits of e-learning among EFL students at Bisha University were described in a study. The researcher advises that before full-scale e-learning is implemented, teaching staff and students should receive thorough training in the field of e-learning abilities and use a blended learning strategy (Ja'ashan, et al. 2020). The usage of interactive e-learning elements boosts undergraduate students'



motivation for the learning process, according to a study on e-learning and students' motivation. The study examined how e-learning impacts higher education (El-Seoud, et al. 2014). An exploratory and integrative evaluation of the definition, methodology, and elements that support e-learning efficacy was done in a paper on the effectiveness of e-learning. This study made the case that the quality of the interactions might be used to assess the success of online learning (Noesgaard, S. S. & Orngreen, R. 2015).

ATTITUDE TOWARDS ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

Sustainable development is one of the most delicate and crucial issues facing our planet in the twenty-first century (Halder, et al. 2022). It is one of the phrases that people use the most these days. The concept of sustainable development has permeated society and been incorporated into a variety of daily activities since the publication of Our Common Future by the World Commission on Environment and Development in 1987 and Agenda 21 by the United Nations Conference on Environment and Development in 1992. Environmental issues are increasingly being carefully addressed by people. Our society, economy, and environment are three interrelated factors that must work together for us to enjoy a healthy and productive existence. More than only our generation are impacted by the concept of sustainable development today. Actually, it increases our awareness of the requirements of future generations (Saha & Maji, 2013). Only if we took into account the environmental services would we be able to decide how to arrange their usage effectively. Three interrelated characteristics can create a safe, sustainable world where everyone can prosper if they are employed appropriately in real-life situations. The interconnection of society, the economy, and the environment is the cornerstone of sustainable development. A study on the subject revealed information and disparities regarding the level of environmental awareness among teacher candidates in West Bengal, India. The research revealed that 1) in-service teacher candidates are more conscious than pre-service candidates, 2) science candidate candidates are more informed than humanities candidate candidates, 3) male candidate candidates and female candidate candidates' levels of environmental awareness are not significantly different, and 4) government-aided colleges and private colleges are not significantly different in relation to levels of environmental awareness (Saha, 2012).

According to a study on environmental education and sustainable development, the researchers came to the conclusion that environmental education must confront its own limitations regardless of how it is related to sustainable development (Sauve, L. 1996). According to studies on education, sustainability, and social learning, we are in a unique phase of paradigm shift, and it is crucial to take the risk of developing novel pedagogical methods that are guided by the principles of social learning and sustainability (Jacobi, P. R., et al. 2016).

WOMEN IN SOCIETY AND ATTITUDE TOWARDS SOCIETY

Researchers studying feminism have left an indelible protest to the way social science has defined men, women, and society in light of the last two key decades. Since the outset, discussions on the best approaches to repair faulty and incomplete accounts in the context of traditional analyses have been entwined with issues on epistemology, technique, and methodology (Adhikari & Saha, 2021). To understand the breadth and depth of the metamorphosis of social sciences necessary to recognise women and gender activities, one needed to analyse the consequences of the most obvious approaches one might seek to modify the androcentrism of the traditional analyses. Feminists have "added" women to these analyses. Researchers identify three different categories of women who became inevitable candidates for this mechanism: women who participated in public life and were already the focus of social science research; women who are social scientists; and lastly, women who had been the victims of the most egregious and violative manifestations of male preeminence (Adhikari & Saha, 2021). In South Asia, attitudes toward women's involvement in local politics were investigated. The study's findings revealed that sentiments toward women's involvement in municipal politics are overwhelmingly favourable (Haug, M. et al. 2019).

Sometimes literature plays a significant role in influencing how someone views society. Arundhati Roy assumes the role of a societal critic in *The God of Small Things*. She does not separate herself from the cruelty, inequalities, and system in her environment. Roy has captured the brutal realities of the culture by fusing imagination, history, and pure creation. The taboos that regulate Indian society occasionally have a propensity to upset the delicate social equilibrium. Politics, political rivalry, and a steadfast quest for power can occasionally make things worse. The results are predictable, of course. Higher social position and authority can convince and dictate to the oppressed, leaving their lives vulnerable to attack (Adhikari & Saha, 2021).

ATTITUDE TOWARDS HEALTH AND YOGA

Yoga is a practise that has been around for ages that incorporates mental, physical, and spiritual activities. Yoga is initially mentioned in the Rigveda. There are claims that practising yoga can improve people's life. Yoga is praised for its many benefits since it calms the mind and develops physical strength (Saha, 2021). Students who are enhancing their memory and ability to concentrate, as well as their physical health and mental serenity, are those who will most visibly benefit from yoga. The current study focuses on undergraduate college students in India's West Bengali Purulia district and their opinions toward practising yoga. Data An object set needs to be grouped in such a way that its members are more similar to one another than to members of other groups if it is to be clustered. In order to conduct the current inquiry, two-step cluster analysis establishes five clusters (Saha, et al. 2021). It was the goal of a study to ascertain the opinions of undergraduate students on yoga education. The study's findings indicate that there is no appreciable difference



in the views regarding yoga education between male and female undergraduate students at rural and urban institutions. Another outcome of this study showed that there was no noticeable difference in undergraduate students' opinions toward yoga training between those who majored in the arts and those who majored in the sciences (Khatun, et al. 2022).

In the Cuddalore District, a study was done to find out how secondary school pupils felt about yoga. The results of this study also revealed a substantial attitude difference toward yoga between government and self-finance secondary school students (Sembiyan, 2019). an investigation on how teacher candidates feel about yoga as a structured practise. The findings of this study demonstrated that the training colleges' arts and science teacher trainees had solid knowledge, and the majority of them displayed a positive attitude toward Yoga looked into how it affected pupils' mental wellness (Nanaware and Palanethra, 2019). The results of this study revealed that yoga has a relatively significant and long-lasting impact on students' distress symptoms and sleep quality, at least for a few months (Ulleberg, P. et al. 2020). These studies' conclusions showed that a yoga programme might be used by both adults and kids as a first step toward regular exercise.

CONCLUSION

The way a person views social things is referred to as their social attitudes. Individual attitudes that are so substantially influenced by group interactions as to become extraordinarily stable and standard within the group are referred to as collective attitudes. Adjustment is the capacity to adapt to changes in one's physical, professional, and social environment. To put it another way, adjustment is a behavioural process used to manage expectations or requirements that are out of sync with the environment. Both people and pets adapt to their surroundings. The attitude is initially a trial reaction, which is an interrupted replacement behaviour that appears inside a lacklustre adjustment response, but it has the potential to become the organism's long-term set. The better we treat society and its constituents, the greater response we receive from them, and consequently, the better and more comfortable our social existence becomes.

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MONOPOLY MARKET

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ABSTRACT

In this study, game-theoretic models of entry are used to create new empirical models of market concentration. To explore the consequences of entry in isolated monopolistic markets for new cars, we build our models from inequality conditions that explain entrants' equilibrium tactics in simultaneous-move and sequential-move games. We conclude that monopolistic dealers do not prevent the establishment of a second dealer based on estimations of the market size required to support one or two dealers. Additionally, we discover that entrance does not significantly reduce price-cost margins. In this study, game-theoretic models of entry are used to create new empirical models of market concentration. To explore the consequences of entry in isolated monopolistic markets for new cars, we build our models from inequality conditions that explain entrants' equilibrium tactics in simultaneous-move and sequential-move games. We conclude that monopolistic dealers do not prevent the establishment of a second dealer based on estimations of the market size required to support one or two dealers. Additionally, we discover that entrance does not significantly reduce price-cost margins.

KEYWORDS (*monopoly, market, profit, economic, macro, micro*)

INTRODUCTION

Economists who study industrial organizations have long argued over whether businesses in highly concentrated marketplaces can consistently impose anti-competitive prices. Early empirical research on entry conducted by Bain and colleagues in 1956 raised the possibility that firms in consolidated markets could establish entry barriers and develop market power. Stigler (1968), Demsetz (1974), and other authors afterward provided an alternative entrance theory as well as an alternative reading of the data. Both sides of this theoretical dispute have received support from recent game-theoretic models of entry.

We now have well-posed theoretical models where monopoly rent-earning incumbent businesses can block entry, as well as other theories that suggest potential entry disciplines incumbent conduct. Even though studies have attempted to assess the ramifications of these various theoretical ideas, their examinations are indirect.

The study of seed markets in developing nations has been an afterthought in the body of work on agricultural development. Finding the cause is not difficult. Farmers can conserve, reproduce, trade, and sell novel crop kinds once they have them. But in recent years, the private sector has emerged as a significant source of agricultural varietal technology. Although the tendency is most pronounced in rich nations, the public sector's withdrawal from seed production and distribution is also discernible in emerging nations (Morris, 2002). The emergence

of the private seed industry is linked to the creation of hybrid varieties. Due to the growth of the private sector, the seed market structure now determines how much farmers will benefit from new seeds. Would monopolization in the sector cause small farmers to be priced out of the market? Such apprehensions have expressed by academics and civil society organizations. For instance, a very common statement is that "With the introduction of transgenic crops, the Indian seed business is swiftly evolving into a period of 'corporate control over seeds'" (Shiva, Emani and 1999) In this essay, we investigate the development of the market structure for cotton seeds in India as well as the underlying variables. The Indian cotton seed market is one of the largest cotton seed markets in the world, with sales of more than Rs. 1000 crores. The globe. Although public-sector breeding products have historically dominated this market, private seed companies currently account for the majority of their value. A fundamental shift in the business environment during the past 15 years parallels these processes. The economic reforms of 1991 removed obstacles to both large Indian companies and international companies investing. The Plant Variety Protection Act's introduction of plant breeders' rights and the commercialization of plant biotechnology. There is a dearth of research on the organization of the seed market in emerging nations. Brand loyalty is not an entry barrier to this market, according to Tripp and Pal's (2000) research, which indicated that brand memory was low among Rajasthani pearl millet farmers. Pray, invoke Rama, and In the early 1990s, when private seed companies rapidly increased



their R&D expenditures, Kelley (2001) demonstrated that the market structure became more competitive (as indicated by concentration ratios). According to Shiva and Crompton's (1998) analysis of the Indian seed market, the opposite is true. They predicted that "a few huge businesses with foreign interests will likely merge under the control of the seed sector." They contend that hybrid seed has replaced open-pollinated types.

MEANING OF MONOPOLY MARKET

Definition: A market structure characterized by a single seller, selling a unique product in the market. In a monopoly market, the seller faces no competition, as he is the sole seller of goods with no close substitutes.

In a monopoly market, factors like government license, ownership of resources, copyright and patent, and high starting costs make an entity a single seller of goods. All these factors restrict the entry of other sellers into the market. Monopolies also possess some information that is not known sellers.

Characteristics associated with a monopoly market make the single seller the market controller as well as the price maker. He enjoys the power of setting the price for his goods.

A monopoly market is a form of market where the whole supply of a product is controlled by a single seller. There are three essential conditions to be met to categorize a market as a monopoly market.

1. **There is a Single Producer** - The product must have a single producer or seller. That seller could be either an individual, a joint-stock company, or a firm of partners. This condition has to be met to eliminate any competition.
2. **There are No Close Substitutes** - There will be competition if other firms are selling similar kinds of products. Hence in a monopoly market, there must be no close substitute for the product.
3. **Restrictions on the Entry of any New Firm** - There needs to be a strict barrier for new firms to enter the market or produce similar products.

FEATURES OF A MONOPOLY MARKET

Some characteristics of a monopoly market are as follows.

- The product has only one seller in the market.
- Monopolies possess information that is unknown to others in the market.
- There are profit maximization and price discrimination associated with monopolistic markets. Monopolists are guided by the need to maximize profit either by expanding sales production or by raising the price.
- It has high barriers to entry for any new firm that produces the same product.

- The monopolist is the price maker, i.e., it decides the price, which maximizes its profit. The price is determined by evaluating the demand for the product.
- The monopolist does not discriminate among customers and charges them all alike for the same product.

Some of the monopoly market examples are your local gas company, railways, Facebook, Google, Patents, etc.

WHAT ARE THE SOURCES OF MONOPOLY POWER?

The individual control of the market in a monopoly market structure is due to the following sources of power.

- Legal barriers
- Economies of sale
- Technological superiority
- Control of natural resources
- Network externalities
- Deliberate actions
- Capital requirements
- No suitable substitute

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A STUDY TO ASSESS THE EFFECTIVENESS OF SELECTED NURSING STRATEGIES ON STRESS AMONG THE PATIENTS SUBJECTED TO ELECTIVE CORONARY ARTERY BYPASS GRAFT SURGERY IN A SELECTED HOSPITAL

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ABSTRACT

Introduction: Among the cardiovascular diseases Coronary Artery disease is the leading cause of death worldwide. When the symptoms of these diseases cannot be controlled by pharmacological treatment, Coronary Artery Bypass Grafting (CABG) is the treatment option. Undergoing CABG surgery is the stressful event and that induce physiological and psychological impact to the patient during postoperative period. Nurses play a pivotal role in management of stressors related to CABG surgery and its management. Professional nurses are a major solution for securing optimal health for persons undergoing cardiac surgery. Hence the researcher decided to focus the study to assess the effectiveness of selected nursing strategies on stress among the patients subjected to elective coronary artery bypass graft surgery

Aims: The aim of the present study is to assess the effectiveness of selected nursing strategies on stress among the patients subjected to elective coronary artery bypass graft surgery.

Methods: Quasi-Experimental, Pretest posttest control group design was used in this study. A Convenience sampling consisting of 200(100 Experimental and 100 Control group) selected from Frontier Lifeline Hospital at Chennai. During pretest and posttest the structured knowledge questionnaire to assess the knowledge level regarding CABG surgery and Modified Lazarus scale to assess the stress level were used as a tool for both the groups. Then Experimental group received selected nursing strategies for stress reduction whereas the control group received routine hospital care only.

Results: In the pretest, the mean stress for the experimental group was found to be 78.83. After the intervention, the stress reduced to 39.42 and 30.20 respectively at the posttest-I and posttest-II. The mean stress for the control group was found to be 78.81, 36.01 and 56.02 respectively at pretest, posttest-I and posttest-II. The finding showed that in the experimental group the level of stress reduction was occurred more compared to the control group at $p=0.001$.

Conclusion: Undergoing CABG surgery patient's perception of the stressors had to be paid attention for a smooth recovery.

INTRODUCTION

Heart is an amazing organ in the human body. Once the heart begins to beat, it will continue to beat all the way till the end of the life of an individual. As the heart continues to pump and work properly, the myocardium needs continuous blood supply through coronary arteries. Therefore, the coronary arteries are so vital to the effective functioning of the heart. Atherosclerosis (fat deposition the artery) is one such condition that affects coronary arteries as well as which restricts blood flow to the heart muscle and it leads to fatal condition to the patients. This is because of the changing life style and fast food culture in the modern globalised scenario. Atherosclerosis is a preventable and curable disease condition when people following healthy practice life style means. When the symptoms of these diseases cannot be controlled by pharmacological treatment Coronary Artery Bypass Grafting (CABG) is treatment choice for Coronary Artery Disease. The persons who are undergoing

CABG surgery, Stress and anxiety are the genuine response to patients, which is usually related to lack of knowledge about surgery and possible outcomes regarding their surgery. Therefore, keeping in view of these facts the investigators planned that to give a preoperative education in the form of problem focused coping information may be designed to reduce stress of the patients undergoing CABG surgery.

LITERATURE REVIEW

Cristiane, Olga, Valmira, and Eliana (2012) conducted a qualitative study using semi-structured interviews to evaluate the stress factors among eight patients who had coronary artery bypass graft or heart valve surgery at the hospital Das Clinical De Ribeiro Preto(HCRP). According to the experiences of the patients, the result of the study revealed stress under four categories: 1) the surgical experience: the patients stated that it was really fearful, ; 2) about the ICU environment and post



operative period: the patients stated that they felt isolated, the recovery was the hard part, need will power, and the hardest part was to stay there for three days in the ICU, decreased mobility, and depends on the others; 3) unpleasant experiences about thirst, intubation, and pain; 4) the relationship with health care professionals: the patients stated that professional presence representing safety and clarification. So the study findings concluded that these problems need to be addressed for the patients undergoing CABG surgery.

Miguel, et al., (2011) conducted a prospective longitudinal study to evaluate the preoperative mood disorders in patients undergoing cardiac surgery in a sample of 100 patients. Hospital Anxiety and depression Scale were used to assess the level of anxiety; pain, analgesic use and postoperative morbidity were evaluated in the intensive care unit. The results showed that 32% of the patients developed preoperative anxiety and 19% of the patients developed depression. A length of post-operative hospital stay for more than three days was the main risk factor for preoperative depression. Preoperative anxiety significantly increased the post-operative pain and painkiller consumption. Neither depression nor anxiety significantly modified the rest of the post-operative variables associated with morbidity in the intensive care unit.

Ping (2012) conducted a randomized controlled trial study to evaluate whether a preoperative education intervention could reduce anxiety and improve recovery among 153 (73 usual care and 77 preoperative education that includes information leaflets and verbal advice) Chinese cardiac patients from December 2009 to may 2010 at two public hospitals in Luoyang, China. Anxiety was measured by the Hospital Anxiety and Depression Scale (HADS), pain was measured by the Brief Pain Inventory short form (BPI-sf), and length of ICU stay and postoperative hospital stay were also evaluated. The results showed that participants who received preoperative education experienced a greater decrease in depression score and less interference from pain in sleeping compared with those who did not. There was borderline evidence to suggest a reduced number of hours spent in the ICU among preoperative education patients but no difference in length of postoperative hospital stay ($p=0.17$).

To sum up, review of literature revealed that undergoing CABG surgery patients typically experiences stress related to chances of successful surgery, fear of death due to surgery, fear about the recovery process, fear of pain and discomfort, resumption of

normal life activities after surgery and length of hospitalization etc. Among the patients the stressors related to CABG surgery has to be managed by professional nurses through well designed preoperative educational intervention.

RESEARCH OBJECTIVES

The present study has been aimed to assess the effectiveness of selected nursing strategies on stress among the patients subjected to elective coronary artery bypass graft surgery.

MATERIALS AND METHODS

To carry out the study a Quasi-Experimental, Pretest posttest control group design was adopted. A Convenience sampling consisting of 200(100 Experimental and 100 Control group) selected from Frontier Lifeline Hospital at Chennai. The tool consist of Socio-demographic variable proforma, Knowledge questionnaire regarding CABG surgery, Modified Lazarus scale used to assess the stress level and selected nursing strategies were used for stress reduction.

INCLUSION AND EXCLUSION CRITERIA

The study included patients who are undergoing elective CABG surgery at first time, available at the time of data collection and willing to participate in the study. Patients who had previous cardiac surgery and any other major surgery were excluded from the study.

DATA COLLECTION PROCEDURE

Formal ethical and administrative permission were obtained from concerned hospital. Informed consent was obtained from the sample. The study was explained to the samples and confidentiality was assured. In the preoperative period the data were collected regarding the socio demographic variables of the patients, knowledge questionnaire related to CABG surgery and modified Lazarus stress scale were used to assess the stress level for both the groups. Then the Selected Nursing Interventions were given to the subjects in the experimental group which includes preoperative information and booklet related to CABG surgery to address the problem focused information whereas the control group received routine hospital care only. The posttest knowledge was conducted in the preoperative stage itself and the level of stress were assessed during second and sixth postoperative day for both the groups. The level of stress ranges from mild, moderate and severe.



ResultsL: Table 1: Distribution of selected socio demographic variables of subjects Undergoing CABG surgery by group wise

SL. NO	Variables	Sub-Variables	Experimental Group(n=100)		Control Group(n=100)		Chi-square test value	df	P value
			No	%	No	%			
1.	Age(In Years)	30-40	9	9	6	6	0.885	3	0.829 (NS)
		41-50	20	20	18	18			
		51-60	34	34	37	37			
		61-70	37	37	39	39			
2.	Gender	Male	63	63	70	70	1.100	1	0.294(NS)
		Female	37	37	30	30			
3.	Educational Status	Non-Literature	13	13	09	09	2.289	4	0.683(NS)
		Primary school	18	18	16	16			
		Secondary school	23	23	18	18			
		Higher Secondary	15	15	21	21			
		Graduate and above	31	31	36	36			
4.	Occupation	Coolie	31	31	26	26	0.244	2	0.885(NS)
		Employee	39	39	44	44			
		Business	22	22	19	19			
		Unemployed	08	08	11	11			
5.	Family History of Heart Disease	Yes	23	23	19	19	0.482	1	0.487(NS)
		No	77	77	81	81			
6.	Having Hypertension	Yes	76	76	74	74	0.381	1	0.422(NS)
		No	24	24	26	26			
7.	Diagnosis	Single vessel disease	09	09	14	14	1.684	4	0.794(NS)
		Double vessel disease	16	16	12	12			
		Triple vessel disease	30	30	33	33			
		Left ventricular dysfunction	23	23	21	21			
		Disabling angina	22	22	20	20			

Table 1 shows the distribution of selected socio demographic variables of the study participants undergoing CABG surgery by group wise. The data on age indicates that, among the 37% of the subjects in the experimental group and 39% subjects in the control group were in the age group of 51-60 years. The Chi-square test was applied to verify the similarity in the age distribution for the two groups. The non significant P value of 0.829 indicates that in both groups the age distribution was similar. In relation to the gender, 63% subjects in the experimental group and 70% subjects in the control group were male. The educational status of the subjects showed that, 31% subjects in the experimental group and 36% subjects in the

control group were graduates. Non significant P value 0.683 indicates that the educational distribution was similar in both groups. In relation to the occupation the non significant P value 0.885 indicates that the occupational distribution was similar in both groups. The family history of heart disease revealed that, 23% of the subjects in the experimental group and 19% subjects in the control group had a family history of heart disease. Regarding the condition of Hypertension 76% of the subjects in the experimental group and 74% subjects in the control group had hypertension. Regarding diagnosis, 30% of the subjects in the experimental group and 33% subjects in the control group had a triple vessel disease. The non significant P value 0.794



indicates that the diagnosis distribution was similar in both groups.

Table 2 shows that the Mean and Standard Deviation of the level of knowledge related to CABG surgery among the CABG subjects during the pretest and the posttest wise. During pretest, the mean level of knowledge for the experimental group was found to be 9.25 with standard deviation of 3.54, and in the posttest, the mean score was 16.31 with standard deviation of

3.71. The significant P value of paired-t test revealed that, there is a difference in the level of knowledge between pretest and post. In the control group, the mean pretest knowledge was found to be 9.14 with standard deviation of 3.02, and in the posttest, the mean score was 10.90 with standard deviation of 3.34. The significant P value of paired-t test revealed that, there is a difference in the level of knowledge between pretest and post.

Table 2: Mean and Standard Deviation of the level of knowledge related to CABG surgery among CABG subjects during pretest and posttest group wise.

Group	Control Group		Experimental Group		ANCOVA		
	Mean	Standard Deviation	Mean	Standard Deviation	Source	'F' Value	'P' Value
Pretest	9.14	3.02	9.25	3.54	Group	207.16	0.001
Posttest	10.90	3.34	16.31	3.71			
Paired 't' value	35.49		31.53		Knowledge at Pretest	741.86	0.001 (S)
P value	0.001 (S)		0.001 (S)				

(S)-Significant

Table 3 shows the distribution of overall stress among the CABG surgery during pretest, posttest-I and posttest-II group wise. Out of 100, 82% of the subjects in the control group had severe stress and 5% had mild stress during the pretest among the subjects undergoing GABG surgery, whereas in the experimental group, 77% of the subjects had severe stress and 7% had mild stress during the pretest. During posttest-I among

the subjects, 36% in the control group had severe stress and 14% had mild stress, whereas in the experimental group, 13% of the subjects had severe stress and 61% had mild stress during posttest-I. During posttest-II, among the subjects, 21% in the control group had severe stress and 27% had mild stress, whereas in the experimental group, 11% of the subjects had severe stress and 72% had mild stress during posttest-II.

Table-3: Distribution of overall stress among the CABG surgery subjects during pretest, posttest-I and posttest-II group wise

Level of stress among CABG subjects		Pretest				Posttest-I (2 nd Post operative day)				Posttest-II (6 th Post operative day)			
		Control Group (n=100)		Experimental Group (n=100)		Control Group (n=100)		Experimental I Group (n=100)		Control Group (n=100)		Experimental Group (n=100)	
Level of Stress	Score Range	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Mild	0-47	05	05	07	07	14	14	61	61	27	27	72	72
Moderate	48-70	13	13	16	16	50	50	26	26	52	52	17	17
Severe	71-94	82	82	77	77	36	36	13	13	21	21	11	11

The above findings concluded that more number of subjects had reduction in the level of stress in the experimental group than in the control groups.

DISCUSSION

The findings well recognized that undergoing CABG surgery is a very stressful time for patients. Assessing the level of stress is feasible and it can be measured easily in the preoperative period. Keeping in view these facts the researcher conducted to assess the effectiveness of selected nursing strategies on stress among the patients subjected to elective coronary artery bypass graft surgery. The distribution of analysis revealed that, both the

groups had severe stress in the preoperative period. Thus the selected nursing strategies were given to the subjects in the experimental and its effectiveness was tested. The findings of the study reflect that the selected nursing strategies were extremely effective to reduce stress in the experimental group than control group. Similar finding have also been reported by Odeona (2013) investigated the effects of preoperative nursing education on stress and postoperative complications. Findings revealed that at admission, the level of stress measurements in the intervention and control groups were approximately 56 and 55 in both the groups. Just before entering the operating room, these values reduced to 32.30 and 39.04 respectively.



Lack of preparedness to surgery which leads to acute psychological distress. Excessive preoperative stress can in turn have major implications for the recovery of patients. Stress may trigger activation of the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis. This activation produces a variety of physiological changes that leads to poorer surgical outcomes and prolonged inpatient stay (Lewis et al., 2006). Thus, the health care providers have a role in determining and monitoring the patients' stress, identifying what causes stress, and then find the possible solutions to prevent or decrease it while preparing for CABG surgery.

CONCLUSION

The study finding concluded that the selected nursing strategies was found to be effective to reduce stress and improved knowledge of the patients. The stress of patients undergoing CABG surgery has to be managed by the nursing professional with the help of well designed preoperative education. It is well documented in other countries, that nurse led education programmes reduce the impact of stress on health and is cost effective.

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SOME OPTIONS OF PHONETIC GAMES IN THE PROCESS OF LEARNING THE RUSSIAN LANGUAGE

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ANNOTATION

The article focuses on the fact that the specificity of the language system determines the need to study the features of the pronunciation of different sound units: intonation of a word, intonation of a syntagma and intonation of a sentence. The student perceives the patterns of the Russian language through the prism of his native language and transfers the phenomena of his native language into Russian speech, which often leads to errors. The speech development of this category of schoolchildren is characterized by difficulties in mastering Russian phonetics, agrammatism in coherent statements, a limited vocabulary, etc.

In the problem of predicting phonetic-rhythmic-intonational errors, the concept of interlingual interference acquires decisive importance. The complex nature of sound units causes the emergence of contradictions that accompany the process of contacting different phonetic systems when learning another language, and provokes the appearance of phonetic errors.

KEYWORDS: *Communicative orientation of speech, personality socialization, intonation, variability, auditory-visual imitation, phonetic games.*

The main principle of teaching the Russian language in a general education school is the success of its study, pushing the boundaries of a student's understanding of the language and the meaning of national and global culture through a communicative approach. In the process of learning this language, students gain knowledge that will allow them to apply the acquired skills in any life situation. The communicative orientation of speech to achieve the goal of the statement, programming and predicting the course of speech interaction began to be taken into account more. This includes work on the development of skills to discuss, reason, argue, explain and prove, which contributes to the development of discursive competence.

In the Russian language program, an important place is occupied by active learning, which motivates the student. To do this, we recommend that teachers use the following types of exercises in Russian language lessons:

1. Retelling the text with a change of face or on behalf of another character (for example, the fairy tale "Little Red Riding Hood" on behalf of a girl, on behalf of a grandmother, on behalf of a wolf. Or a fairy tale "A Girl and Three Bears" on behalf of a girl, on behalf of a bear and a little bear cub). This type of work allows the

student to look at the situation from the position of another character.

2. The complex new term "Scanned reading" can be successfully explained by the "Compilation of a cluster" technique according to the plot of the work. (For example, the development of the plot of the fairy tale "Gingerbread Man", "Three Bears").

3. After listening to the text, continue the story. When introducing students to a fairy tale, the teacher tells the content or shows a video and asks: "What do you think will happen next?". Students learn to predict, develop their imagination, the ability to build a consistent speech.

4. Retelling with plot unfolding or plot folding.

5. Description of the picture with highlighting actions, details, mood. (For example, a painting based on M.Yu. Lermontov's poem "A lonely sail turns white" first, the teacher activates the dictionary, attracts the students' attention with questions: What do you see in front of you? What do you hear? What do you feel when looking at the picture?). Students make up a description of the picture, taking into account all the factors that affect the perception of the picture.

6. Drawing up a fairy tale "Creating a masterpiece." The teacher gives the instructions that the students will have to compose a fairy tale, for this they



must listen carefully to each other, develop this topic and enter into communication when it is his turn, developing the plot or describing the emotional experience of the hero or the landscape that opened before the hero's eyes.

7. Role play. Students distribute roles and voice characters according to temperament and character. For example, the fairy tale "Kolobok". Before the role play, the children are asked to reflect on the behavior of Kolobok. Is Kolobok behaving correctly? Why can't you behave like Kolobok? Why can't you run away from your parents? Why can't you walk alone? The teacher offers to come up with a continuation of the story. Or students tell a fairy tale on behalf of one of the characters.

In the process of learning the Russian language, one of the fundamental ones is the need for interconnected teaching of intonation and, subsequently, the orthoepic, spelling literacy of students and the development of speech.

It is known that a large number of intonation errors are observed in the speech of native speakers of the Russian language. The reason for this is seen not only in the great variability of the intonation design of the phrase in the Russian language and the multifunctionality of intonation, but also the lack of due attention to this section of the language in the teaching of the Russian language, both in a general education school, in secondary specialized educational institutions, and in universities.

The specificity of the language system determines the need to study the pronunciation features of different sound units: intonation of a word, intonation of a syntagma and intonation of a sentence. This work becomes the basis for work on the intonation of the text. When studying the intonation pattern of each of the selected units, training is carried out in the sequence of the formation of skills and abilities outlined above. However, in the practice of our work, we often observe such a phenomenon as a student's misunderstanding of the semantic shell of the pronounced syntagma and phoneme. The student perceives the patterns of the Russian language through the prism of his native language and transfers the phenomena of his native language into Russian speech, which often leads to errors. The speech development of this category of schoolchildren is characterized by difficulties in mastering Russian phonetics, agrammatism (a speech

disorder characterized by loss when using phrases, as well as words as an expression of thoughts) in coherent statements, a limited vocabulary and other shortcomings due to insufficient speech practice in the field of Russian language, bilingualism in communication with peers in the yard and with parents. The inculcation of phonemic hearing should begin at the initial stage of education in the section of listening to a simple Russian situational text.

When we speak, we do not separate the sounds from each other, but pronounce them together (and sometimes the sounds overlap or even drop out, as mentioned above). In the flow of speech, sounds are modified under the influence of neighboring phonemes. Thus, the morphological principle allows the preservation of a single letter spelling, although the sounds included in the morpheme may change during pronunciation. Voiceless phonemes are voiced before voiced ones, and voiced ones are deafened before voiceless ones. In addition, only deaf consonants can occur at the end of words (the end of a word is considered a weak position), for example: bow, oak, mouth, tooth, garden, threshold, city, iron, flag, fish, fur coat.

Methods and techniques for the effectiveness of classes on the development of phonemic hearing are outlined on the basis of observations of the project for updating the content of education. Therefore, it is advisable to introduce the inculcation of competent phonemic hearing, the formation of functional literacy at the first stage of education and they can be divided into several stages.

First step. Phonetic games are based on auditory-visual imitation and are in the nature of a fragmented acquaintance. They contribute to the development of phonetic hearing and pronunciation skills of students. The games and exercises of the second stage are subordinated to the task of teaching how to correlate sounds with the graphic outline of letters in the process of comparative reading of syllables and words. Phonetic games should be receptive, receptive-reproductive in nature. The task of the third stage is the practical assimilation of the sound structure of the Russian language. The development and improvement of pronunciation skills consists in reading and memorizing poems, tongue twisters, guessing riddles, riddles, tongue twisters, etc. Exercises are reproductive, reproductive-productive and productive.



Thus, depending on the language proficiency of students, the teacher can make the appropriate permutations, and use some game exercises at all three stages of work, gradually complicating the phonetic material. It is necessary to organize independent work of students in teaching cross-cutting topics using various critical thinking strategies. For example, you can give students tables and ask them to prepare for reading after a certain time, or tasks like “Test yourself!”, Which give students the opportunity to independently check their knowledge, and the teacher - the level of their knowledge.

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METHODS OF TEACHING THE STYLISTIC PROPERTIES OF THE DIALECT OF THE RUSSIAN LANGUAGE OF STUDENTS OF THE UZBEK AUDIENCE

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ANNOTATION

The scientific article discusses a system of exercises for teaching the stylistic properties of the adverbs of the Russian language to students of foreign language groups. The purpose of developing a special system of exercises is to develop stylistic skills and abilities in Uzbek students, knowledge about functional stylistics and stylistic properties of Russian adverbs. The whole system of exercises is aimed at the solid assimilation by students of foreign language groups of the stylistic properties of the adverbs of the Russian language, their skillful and appropriate use of stylistically neutral and stylistically marked adverbs in speech.

KEY WORDS: *stylistics, stylistics of the Russian language, stylistics of adverbs, stylistic properties of adverbs, teaching methods, classification of exercises, language system, language material, speech activity.*

INTRODUCTION

The development of a system of exercises is an important issue in teaching the stylistics and stylistic properties of the adverbs of the Russian language to students who study Russian as a non-native language.

All exercise typologies "... are based on the dichotomy of language and speech, on the distinction between language statics and language dynamics, that is, the statics and dynamics of the language, which are closely interconnected, should be reflected in the minds of students. ... To master the Russian language as a means of professional activity, it is necessary that the statics (language theory, language structure, language structure, system of means of communication) and the dynamics of the language (implementation of this system, the actual process of speech activity) be fully reflected (formed) in the mind of the individual" [1, p. 196].

When developing a system of exercises for teaching the style and stylistic properties of the adverbs of the Russian language to students of the Uzbek audience who study Russian as a non-native language, a system of exercises was taken as a basis, compiled on the basis of the concept of L.V. Shcherby and includes three types:

1) *Exercises for the formation and development of knowledge about the language system;*

2) *Exercises for the formation and development of skills in the analysis of language material;*

3) *Exercises for the formation and development of skills and abilities of speech activity [1, p. 196-199].*

The typology of M. Dzhusupov's exercises, in our opinion, is most appropriate in teaching a non-native language in the CIS, where students to one degree or another know the Russian language or have a formed desire to master it. This system of exercises involves:

1) Teaching the language as a whole (statics, dynamics);
2) Teaching the types of speech activity (reading, writing, listening, speaking, translation, inner speech); communication training.

Let us dwell on the features of this typology of exercises, which will be used in scientific work to compile specific exercises (tasks) for teaching the stylistic properties of the adverbs of the Russian language in the Uzbek audience. Exercises *for the formation and development of knowledge about the language system include both tasks in the form of questions and exercises (tasks)*, the main purpose of which is learning (acquaintance with the language material, training, use, correction and self-correction). Tasks-questions are built according to increasing complexity, that is, from simpler questions to more complex ones.



Students are familiar with functional speech styles from the school curriculum. They are able to distinguish between texts related to the scientific style (abstract, report), journalistic style (informational note), official business style (statement, summary, description), colloquial style of speech, as well as literary and artistic style.

Exercises (tasks) built in the form of questions contribute to the reproduction of the topics studied in the school curriculum, for example:

1. Name the main functional styles of the modern Russian literary language.
2. Define the adverb.
3. Give examples of adverbs.
4. What categories are adverbs divided into?

Further questions become more complicated, for example:

1. What do you know about conversational style? Discuss the difference between this style and other styles of speech.

2. Name the main morphological properties and syntactic functions of adverbs in Russian and Uzbek.

3. Do you know how to form adverbs of the Russian language? What prefixes and suffixes are used to form them? What stylistic features do you think they have? Give examples.

Answers to such tasks in the form of questions require students to generalize, compare, compare certain features and are classified as tasks of a problematic nature. Exercises (tasks) of such a plan help to determine the level of knowledge of students at the initial and preparatory stages of education.

Exercises (tasks) in the form of questions are also accompanied by practical tasks of the following nature:

1. Determine a number of stylistic marks that characterize the emotionally expressive and functional stylistic coloring:

lofty, ironic, contemptuous, scolding, disapproving, jocular, rude; book, colloquial, regional, official, simple, special

2. Write out from the "Explanatory Dictionary of the Russian Language" S.I. Ozhegova and N.Yu. Shvedova several adverbs with the marks "colloquial", "bookish".

3. What adverbs are used in the scientific style of speech: stylistically neutral, bookish, colloquial? Give examples.

Exercises (tasks) of this type are necessary to identify students' knowledge of theoretical material, to consolidate the material being studied and to prepare students for the next, more complex tasks.

Exercises for the formation and development of skills in the analysis of language material are compiled on the basis of proven and acquired knowledge of functional stylistics and stylistic properties of Russian adverbs. Exercises (tasks) of this type include: the correct definition of the stylistic characteristics of a given grammatical category; correct substitution of adverbs in the construction depending on the style; distribution of lexical and stylistic units by types of stylistic coloring; adding synonymous rows of adverbs according to the types of stylistic coloring; selection of synonyms for the dialects of the Russian and Uzbek languages, comparison of their stylistic characteristics; translation of adverbs of the Russian language with suffixes of subjective assessment into Uzbek, their comparison; compiling sentences with adverbs of various stylistic coloring. These are also exercises (tasks), like:

1. Choose synonyms for adverbs. Determine their stylistic coloring according to the Explanatory Dictionary of the Russian Language by S.I. Ozhegova and N.Yu. Shvedova (TSOSH).

Forever, for a long time, sometimes, for a long time.

2. Divide adverbs-synonyms into stylistically neutral, bookish, colloquial:

gradually, gradually, little by little, little by little, little by little, little by little, little by little, little by little; really, actually, really.

3. Choose synonyms for the following dialects of the Russian and Uzbek languages, determine their stylistic coloring.

а) сегодня – today;

в) совсем – at all;

б) тихонько – quietly;

г) иногда – sometimes.

4. Write down the sentences by opening brackets. Specify adverbs, translate into Uzbek. Determine their stylistic coloring in Russian and Uzbek.
She never forced me to do anything. (Paust.)
There was no (when) to think, there was no (where) to leave.

Exercises (tasks) of this kind are preparatory and are performed in writing.



Exercises for the formation and development of skills and abilities of speech activity include: exercises for the formation and development of skills of speech activity; exercises for the formation and development of communication skills (combined exercises), i.e. combining the formation of skills of speech and communication activities. This type of exercise is basic and includes exercises (tasks) that are mostly performed independently. The acquired skills in the first two types of exercises help students to cope with exercises (tasks) aimed at the formation of speech activity, for example: make a dialogue by analogy; write a mini-essay on a specific topic using adverbs; determine the stylistic affiliation of the text; compose a story using this grammatical category; write a story about the family traditions of your family using adverbs, etc.

The skills acquired in the first two types of exercises (tasks) turn into monologue and dialogic speech skills, so this type of exercise is the most difficult. The main objective of exercises of this type is to connect speech skills for the development of speech skills. Exercises (tasks) of this nature include the following:

- 1. Congratulate your friend (girlfriend) on his birthday, using adverbs always, sincerely, beautifully, infinitely many, very much.*
- 2. Write a description of your classmate. Mark his business and personal qualities of character by using these adverbs: successfully, actively, constantly, always, responsibly, in Russian, in English, very, disinterestedly, regularly, diligently. What style of speech would you classify the resulting text as?*

It should be noted that this system of exercises involves their use in textual material, since working with text will give more effective results in teaching Russian as a non-native language. Texts must be selected in such a way that they introduce students to the history, culture, mentality of the people whose language they are learning.

The proposed system of exercises was developed taking into account the similarities and differences in the stylistic properties of the dialects of the Russian and Uzbek languages and provides for overcoming stylistic interference in the Russian speech of students of foreign language groups.

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METHODOLOGICAL CHARACTERISTICS OF THE FORMATION OF STUDENTS BASIC COMPETENCES

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ANNATOTION

The article presents pedagogical work experience on the formation of students basic competencies in biology classes. The article demonstrates the ability to combine effective: innovative technologies with traditional, model lessons of various types and structures.

KEYWORDS: *person – oriented, approach, competence approach, competence of self- development and self- education, social: general cultural competence of effective creative activity, information communication competence ,health care competence.*

O`QUVCHILARNING TAYANCH KOMPETENSIYALARINI SHAKILLANTIRISHNING METODIK XUSUSIYATLARI

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Annotatsiya: Maqolada biologiya darslarida o`quvchilarning asosiy kompetensiyalarini shakllantirish bo'yicha pedagogik ish tajribasi keltirilgan. Maqolada samarali innovatsion texnologiyalarni an'anaviy, har xil turdagi va tuzilmalardagi namunaviy darslar bilan uyg'unlashtirish qobiliyati namoyish etilgan.

Kalit so'zlar: shaxsga yo'naltirilgan yondashuv, faoliyat yondashuvi, kompetensiya yondashuvi, o'z-o'zini rivojlantirish va o'z-o'zini tarbiyalash kompetensiyasi, ijtimoiy kompetensiya, umumiy madaniy kompetensiya, samarali ijodiy faoliyat kompetensiyasi, axborot-kommunikatsiya kompetensiyasi, sog'liqni saqlash kompetensiyasi.

Kirish. Zamonaviy ta'limda kompetensiyaga asoslangan yondashuv zamonaviy jamiyatda sodir bo'layotgan transformatsion jarayonlarga, bilim va texnologiyalarning o'zgarish sur'atlarining o'sishiga, jahon iqtisodiyotining globallashuviga javobdir. Kompetensiyaga asoslangan yondashuvni joriy etish mahalliy ta'lim tizimining jahon ta'lim standartlariga mos kelishini ta'minlash zarurati bilan bog'liq bo'lib, bu talabalar uchun akademik almashinuv dasturlarini amalga oshirish, ularning o'z-o'zini rivojlantirish va o'zini-o'zi anglash imkoniyatini yaratish uchun sharoit yaratadi. Kasbiy tajribaga ega bo'lish va hayotda o'z o'rnini topishni osonlashtiradi.

Ishtan maqsad: Biologiya darslarida innovatsion metod va texnologiyalarni tizimli qo'llash orqali ta'lim sifatini oshirish, o'quvchilarda asosiy kompetensiyalarni shakllantirishga ko'maklashish.

Maqolaning asosiy materialining taqdimoti. Asosiy va to'liq umumiy o'rta ta'limning davlat standarti ta'lim jarayonini shaxsga yo'naltirilgan, kompetensiya va faoliyatga asoslangan yondashuv asosida qurishni talab qiladi. Talabaga yo'naltirilgan ta'limga yondashuv o'quvchilarning akademik, ijtimoiy-madaniy, ijtimoiy-psixologik va boshqa qobiliyatlarini rivojlantirishni ta'minlaydi, faoliyatga asoslangan yondashuv talabani ko'nikma va malakalarini rivojlantirishga, olingan bilimlarni amaliy vaziyatlarda



qo'llashga, kompetensiyaga asoslangan asosiy, umumiy fan va fan kompetensiyalarini shakllantirishga yordam beradi. Shu bilan birga, aksariyat mualliflarning e'tibori insonning muvaffaqiyatli hayoti va turli sohalarida samarali faoliyati uchun zarur bo'lgan eng muhim, eng integratsiyalashgan shaxs sifatida asosiy vakolatlarini shakllantirish masalasiga qaratilgan.

Kompetensiyaga asoslangan yondashuvning maktab o'quvchilarining bilim olishga bo'lgan motivatsiyasiga ijobiy ta'siri yaqqol ko'rinib turibdi. Kompetensiyaga asoslangan yondashuvni shakllantirishni hisobga olgan holda, o'quvchilarning e'tibori o'zlashtirilayotgan materialning amaliy ahamiyatiga, uni real hayotda qo'llash imkoniyatlariga qaratiladi, bu ularning kognitiv qiziqishini, o'rganishga ijobiy munosabatini shakllantirishga yordam beradi.

Kompetensiyaga asoslangan yondashuv o'quvchilarning o'quv materialini va kundalik hayot amaliyoti o'rtasidagi bog'liqlikni anglash, darslarda olingan ma'lumotlardan amaliy foydalanish imkoniyatlarini aniqlashtirish bilan bog'liq bo'lgan o'rganish uchun mazmunli motivatsiyani yaratish uchun juda keng imkoniyatlarni beradi. olingan bilimlarning ijtimoiy va shaxsiy ahamiyatini tushunish. Buning uchun olingan bilim va ko'nikmalar shaxsiy va ijtimoiy ahamiyatga ega bo'lgan kontekstda ko'rib chiqiladi, ularning inson, jamiyat va tabiat hayotidan ma'lum holatlar bilan aloqasi o'rnatiladi.

Hozirgi vaqtda zamonaviy maktab oldiga oliy ma'lumotli, ijtimoiy faol, ijodkor, raqobatbardosh, nafaqat ko'p narsani biladigan, balki bilimdan hayot quroli sifatida foydalanadigan shaxsni shakllantirish talablari qo'yilmoqda; nafaqat buyruqlarni bajaradi, balki yangi g'oyalarni ishlab chiqaradi, nostandart qarorlar qabul qiladi, tanqidiy fikrlashga qodir, muloqot qilish qobiliyatiga ega, o'zini o'zi anglash uchun o'z imkoniyatlaridan foydalanadi, hayotga shunga mos ravishda munosabatda bo'ladi va yangi ming yillikning chaqirig'iga ishonch bilan javob beradi.

Bugungi kunda maktab oldida har qachongidan ham ko'proq ongli, har qanday hayotiy va ijtimoiy rollarni muvaffaqiyatli bajarish, uning hayotining yaratuvchisi bo'lish, zamonaviy jamiyatga faol integratsiyalashish imkonini beradigan yetarli darajada shakllangan vakolatlariga ega shaxsni tarbiyalash muammosi turibdi.

O'quvchilarning kompetensiyalarini shakllantirishda yuqori samaradorlikka ta'lim jarayonini tashkil etishning turli shakl va usullaridan foydalanish orqali erishiladi. Zamonaviy pedagogik texnologiyalarga, o'quvchilar faoliyatining faol shakllarini ta'minlovchi interfaol o'qitish usullariga ustuvor ahamiyat beriladi. Zamonaviy texnologiyalar maktab o'quvchilarini ijodiy bilish, muammolarni o'rganish, o'z fikrlarini shakllantirish, qaror qabul qilish va o'zini o'zi anglash jarayoniga jalb qilish imkonini beradi. Ushbu texnologiyalardan biri tanqidiy fikrlashni rivojlantirish usulidir.

Tanqidiy fikrlashni rivojlantirish metodikasi o'quvchilarning ongida turli nuqtai nazarlarni muvozanatlash imkonini beradi; taklif qilingan g'oyalarga qarshi chiqish; ta'limda faol va interaktiv jarayonni uyg'unlashtirish; turli nuqtai nazarlar asoslanadigan dalillar tizimini modellashtirish; kerakli ma'lumotlarni toping va undan mustaqil qaror qabul qilishda foydalaning.

Tanqidiy fikrlash - ma'lumotni o'zlashtirishdan boshlanib, qaror qabul qilish bilan yakunlanadigan murakkab aqliy jarayon. Tanqidiy fikrlashni rivojlantirish metodologiyasini o'z ichiga olgan darsni ishlab chiqish 3 bosqichni o'z ichiga oladi.

1-bosqich - chaqirish (aktuallashtirish bosqichi, qiyinchilik) Bu bosqichda o'quvchilar mavzu bo'yicha ma'lum bo'lgan hamma narsani faol ravishda eslashadi. Ushbu boshlang'ich o'quvchilarga o'z bilimlari darajasini baholash imkonini beradi. Bu bosqich juda muhim, chunki mustahkam bilimlarni shakllantirish faqat mavjud asosiylar asosida amalga oshiriladi. O'quv jarayoni yangini ma'lum bilan uyg'unlashtirishga qaratilgan bo'lib, bu o'quvchilarning faolligi va tafakkurini faollashtiradi. O'quv jarayonida o'quvchilar materialni ovozli qiladilar, bu zaruriy shart, chunki fikrni, bilimni ifodalash jarayonida o'quvchilar o'z-o'zini anglash darajasiga ko'tariladi; qiziqish va o'z-o'zini yo'naltirish - mavzuni o'rganish bo'yicha, mashg'ulot maqsadi aniqlanganda, bu hal qiluvchi daqiqadir. Uyg'otish bosqichida ishning asosiy shakllari: "aqliy hujum"; juft bo'lib ishlamoq; guruhlarda ishlash.

Fikrlarni, bilimlarni ifodalash jarayonida o'quvchilar o'z-o'zini anglash darajasiga o'tadilar, bunda mavzuni o'rganishga qiziqish va o'z-o'zini yo'naltirishga erishiladi, o'rganish maqsadi aniqlanadi, bu esa hal qiluvchi daqiqadir.



2-bosqich – tushunish (yangi materialni o'rganish bosqichi) Bu yerda o'quvchilar yangi ma'lumotlar, g'oyalar, matn bilan ishlash, turli hujjatlar, videomateriallar bilan tanishadilar. Ish jarayonida "Yordam" yorlig'i tizimi bilan o'qish kabi usullar qo'llaniladi. Shu bilan birga, taklif bilan tanishib chiqqandan so'ng, uning yoniga tegishli belgini qo'yish kerak:

- II - ma'lum ma'lumotlar;
- + - yangi ma'lumotlar;
- ? hayron, qiziq;
- men bilganimga zid.

Yorliqlar tizimi o'quvchilarga aqliy operatsiyalarni faollashtirish, bolaning o'qigan narsalarini o'zlari bilgan narsalar bilan solishtirish imkonini beradi. Shunday qilib, ma'lum va noma'lum o'rtasida bog'liqlik yuzaga keladi, o'quvchilarning axborot kompetensiyalarini shakllantirish uchun shart-sharoitlar yaratiladi.

3-bosqich - aks ettirish. Ushbu bosqichda talabalarning faoliyati ular olgan yangi ma'lumotlar ro'yxatini tuzishdan iborat. Talabalar bir-birlarini takrorlaydilar, o'rganilgan materialni yozadilar, mavzu bo'yicha diagrammalar, jadvallar, chizmalar tuzadilar va yangi materialni sinfga tushuntiradilar. Ushbu bosqichda muhim vazifalar amalga oshiriladi: o'quvchilar nimani tasavvur qilishlari va o'z so'zlari bilan ifodalashlari mumkinligini yaxshiroq tushunadilar, shuningdek, faol fikr va bayonotlar almashinuvi mavjud. Bu so'z boyligini oshirishni ta'minlaydi, mavzu bo'yicha bilimlarni kengaytirish, javobni loyihalashda turli xil yondashuvlarni ko'rish, diagrammalarni tuzish imkonini beradi. Bu shuni anglatadiki, o'quvchilarning o'z-o'zini rivojlantirish va o'z-o'zini tarbiyalashning axborot, kommunikativ kompetensiyalari va kompetensiyalarini shakllantirish jarayoni amalga oshirilmoqda.

Shunday qilib, yuqoridagi metodik tizim o'qituvchiga quyidagilarga imkon beradi:

- o'quvchilarning tafakkurini faollashtirish;
- ularning faoliyatini rag'batlantirish va rag'batlantirish;
- barcha talabalarni ijodiy, samarali, ta'lim faoliyatiga jalb qilish;
- kognitiv jarayonni faollashtirish;
- materialni mantiqiy va oqilona taqdim etish qobiliyatini rivojlantirish;
- jamoaviy muloqot, o'zaro yordam, o'zaro yordam tuyg'usini rivojlantirish;

- talabalarning asosiy kompetensiyalarini shakllantirish. Tanqidiy fikrlashni rag'batlantirish uchun o'qituvchi quyidagilarni bajarishi kerak:

- vaqt ajratish va tanqidiy fikrlashdan foydalanish imkoniyatlarini ta'minlash;
- o'quvchilarga erkin fikr yuritish va o'z fikrlarini bayon etish imkoniyatini berish;
- turli g'oyalar va fikrlarni qabul qilish;
- o'quvchilarning o'quv jarayoniga faol jalb etilishiga ko'maklashish;
- har bir talabaning qobiliyatiga ishonch bildirish;
- tanqidiy mulohaza yuritishni davom ettirish;
- Talabalarning tanqidiy fikrlash qobiliyatini qadrlash. Tanqidiy fikrlashni samarali mashq qilishni boshlash uchun talabalar:
- o'ziga bo'lgan ishonchni rivojlantirish, o'z qarashlari va g'oyalari qadrini tushunish;
- o'quv jarayonida faol ishtirok etish;
- boshqalarning fikrini hurmat qilish;
- mulohazalarni, hukmlarni davom ettirishga yoki rad etishga tayyor bo'ling [1].

Tanqidiy fikrlashni rivojlantirish bo'yicha ishning asosiy shakli ishning guruh shaklidir.

Guruhda ishlash jarayonida birgalikdagi vazifalar bajariladi. Bu ish jarayonida o'quvchilarda kollektivizm, o'zaro yordam, yordam tuyg'ulari shakllanadi, qo'rquv hissi yo'qoladi. Guruhda ishlash jarayonida talabalar so'zlashishni, muammoni muhokama qilishni, suhbatdoshning fikrini tinglashni, qaror qabul qilishni o'rganadilar.

Guruh ishi quyidagi qoidalarga asoslanadi:

- biri gapiradi - hamma tinglaydi;
- har bir muammo bo'yicha guruhning barcha a'zolari so'zga chiqadi;
- o'z fikrlarini aniq va aniq ifodalash;
- guruh o'z a'zolaridan biriga nutq so'zlashni topshiradi;
- vaqtni qadrlang.

Guruhda ishlash, tinglash va hamkorlik qilish uchun mukofot sifatida talabalar boshqalarning umumiy donoligini olishadi. Aynan shu ish shakli maxsus kompetensiyalarni shakllantirish uchun alohida sharoitlar yaratadi. Avvalo, bu kommunikativ kompetensiyalar bo'lib, ular odamlar bilan muloqot qilish usullarini, og'zaki, yozma muloqot qilish qobiliyatini o'z ichiga oladi; muloqotda bag'rikenglik qobiliyati: munozaralar madaniyatini hurmat qilish,



qat'iylikdan qochish, o'z xatolarini tan olish. Shuningdek, bular boshqalarning pozitsiyalarini hisobga olgan holda jamiyatda harakat qilish qobiliyati va qobiliyatini o'z ichiga olgan ijtimoiy kompetensiyalardir [2]. Ijtimoiy kompetensiyalarni shakllantirish talabalarning guruhda ishlash jarayonida yuzaga keladi, bu erda o'quvchilarning hamkorlik qilishi, birgalikdagi harakatlarini tashkil etishi, birgalikda qarorlar qabul qilishlari uchun sharoitlar yaratilgan, bu erda o'zaro yordam, o'zaro tekshirish, o'zaro baholash va faoliyatni o'z-o'zini baholash ishlatilgan.

Tanqidiy fikrlashni rivojlantirishga darsning alohida bosqichlarida qo'llaniladigan, ko'pincha "aqliy hujum", assotsiatsiya, jigso texnikasi (jigso texnikasi), interfaol "Senkan" texnikasi, insho yozish kabi turli xil uslubiy strategiyalardan foydalanish orqali erishiladi. Bu metodlardan foydalanish axborot kompetensiyalarini shakllantirish imkoniyatini yaratadi. Ular turli manbalardan ma'lumotlarni olish, qayta ishlash va ulardan foydalanish qobiliyati bilan bog'liq.

Shunday qilib, tanqidiy fikrlashni rivojlantirish metodologiyasi o'quv jarayonining samaradorligini maksimal darajada oshirishga imkon beradi, barcha o'quvchilar faol, ijodiy o'quv faoliyatiga, o'z-o'zini ta'lim jarayoniga jalb qilinganida shunday sharoitlarni yaratishga imkon beradi. O'z-o'zini anglash, muloqot qilishni, hamkorlik qilishni, tanqidiy fikrlashni, o'z pozitsiyasini himoya qilishni o'rganing. Shuni ta'kidlash kerakki, tanqidiy fikrlash texnikasi katta imkoniyatlarga ega bo'lib, uni amalga oshirish o'quvchilarning asosiy kompetensiyalarini shakllantirish uchun maqbul sharoitlarni yaratadi. Aynan mana shu vazifa har bir o'qituvchi faoliyatidagi eng mas'uliyatli vazifadir, chunki u o'quvchilarning hayotiy ko'nikmalariga, hayotga moslashishiga va nihoyat, taqdiriga taalluqlidir.

Biologiya darslarida bir qator asosiy kompetensiyalarni shakllantirish usullaridan biri yangi axborot texnologiyalaridan foydalanish hisoblanadi. Bularga biologiya bo'yicha o'quv dasturlari, dasturlar - repetitorlar, virtual laboratoriya va amaliy ishlar dasturlari, video fragmentlar kiradi. Amaliy dasturiy ta'minotdan foydalanish zamonaviy biologiya darsini sifat jihatidan yangi bosqichga olib chiqish, yangi materialni o'qitishning an'anaviy tabiati emas, balki yangilik tufayli maktab o'quvchilarini faol kognitiv faoliyatga jalb qilish imkonini beradi [5].

Kompetentsiyaning kommunikativ komponentini shakllantirish o'quvchilarda nutq madaniyatini, savol berish, o'z fikrlarini ifodalash va ularni aql bilan isbotlash, bag'rikenglik bilan muloqot qilish qobiliyatini rivojlantirishni o'z ichiga oladi. Biologiya darslarida monologik nutqni rivojlantirish og'zaki so'rov, talabalar hisobotlari, loyihalarni himoya qilish, referatlar, tajribalarni sharhlash paytida amalga oshiriladi. Dars faoliyatining suhbatlar, bahslar, seminarlar, konferentsiyalar, darslar - musobaqalar, darslar - sayohatlar kabi shakllari o'quvchilarning dialogik nutqini rivojlantirishga yordam beradi. Materialni yozma ravishda taqdim etish ko'nikmalari talabalar xabarlar, tezislari, ilmiy ishlar, loyihalar yozganda shakllanadi.

Salomatlikni saqlash kompetensiyalarini shakllantirish o'simliklar va hayvonlar biologiyasini o'rganishda amalga oshiriladi. O'simliklarning inson hayotidagi ahamiyatini o'rganib, o'quvchilar o'z mintaqasining dorivor o'simliklari bilan tanishadilar. Darslarda ular inson organizmida parazitlik qiluvchi organizmlar – gelmintlar, zamburug'lar, viruslar va bakteriyalar haqida ma'lumotga ega bo'lib, ularning organizmga kirib borish yo'llarini izlaydilar.

Xulosa. Yuqorida aytilganlarning natijasi sifatida shuni ta'kidlash kerakki, ta'limda kompetensiyaga asoslangan yondashuvni amalga oshirishda qo'llaniladigan o'qitish usullarining umumiy xususiyati bilim va ko'nikmalarni qo'llash usullarining ustunligi, amalga oshiriladigan talabalar mustaqilligining yuqori darajasidir. qisman qidiruv va tadqiqot usullarida [4]. Ta'limning amaliy usullariga, ya'ni eksperimentlar o'rnatish, har xil turdagi mustaqil ishlarni bajarish, kuzatish, axborotni mustaqil qabul qilish va qayta ishlash, axborot-kommunikatsiya texnologiyalarini o'zlashtirishga ustuvor ahamiyat beriladi. Shuningdek, interfaol va muammoli usullarning muhim rolini ta'kidlash kerak, ulardan foydalanish talabalar tomonidan birgalikda ishlash va muammolarni hal qilish qobiliyatini egallash bilan bog'liq. Aynan shu o'qitish metodlari asosida biologiya darslarida maxsus kompetensiyalar shakllanadi.

Shuning uchun kompetensiyaga asoslangan yondashuv ta'lim va hayot ehtiyojlari o'rtasidagi tafovutni bartaraf etishga qaratilgan. Kompetensiyaga yo'naltirilgan ta'lim g'oyasi tanlash erkinligi, ijodiy tashabbus, hayotiy tajriba va loyiha faoliyati kabi ijtimoiy ahamiyatga ega qadriyatlarini tasdiqlovchi



pedagogik texnologiyalar bilan uzviy bog'liqdir. Shunday qilib, kompetensiyaga asoslangan ta'lim modeliga o'tish aslida ko'nikma va ko'nikmalarni pedagogik faoliyat amaliyotiga faolroq jalb qilish va olingan bilimlardan foydalanish qobiliyatiga e'tiborni qaratish bilan bog'liq.

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WORKING CAPITAL MANAGEMENT IMPACT ON OPERATING PROFIT OF RICE MILLS IN NIZAMABAD DISTRICT - A STUDY

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ABSTRACT

This study aims to know the relationship and the impact of the working capital management on the operating profit of Rice mills in Nizamabad district of Telangana state. The study has adopted the qualitative research approach for the examination of working capital management Impact on operating profit. The study has considered the secondary data for the duration of 5 years i.e. 2016-17 to 2020-21. The study applied the bivariate analysis and the ordinary least squares through the SPSS and E-views software. The study examined the relationship of working capital management and operating profit by the statistical method bivariate correlation. The study attempted to identify the working capital management that impact operating profit- Ordinary Least squares. This study depicts an effect through the current ratio, liquid ratio, working capital management ratio, inventory turnover ratio and receivables turnover ratio. The study had examined that effect of these by the change in the operating profit year on year. The study is one of the first attempts to know the relationship as well as impact of the working capital management ratios with operating profit. Here, the study found that there is a strong positive relationship of the current ratio and the inventory turnover ratio resembles that operating profit with these ratios have the strong relationship with each other (Kruti A. Patel 2015) and positive impact of the inventory turnover ratio and the working capital management ratio on the operating profit meaning that if the turnover ratios increases there is an increase in the operating profit.

KEY WORDS: Current ratio, liquid ratio, inventory turnover ratio, working capital turnover ratio, receivables turnover ratio and operating profit.

INTRODUCTION

The management of working capital is an important part of corporate finance. It's the result of current assets and current liabilities interacting. For a company's day-to-day operations, working capital management is crucial. Financial management nowadays, particularly the administration and control of working capital, necessitates a great deal of attention and is a tough undertaking due to the high proportion of working capital in a corporation. Working capital management is the management of current assets that have an accounting year to convert into cash and current obligations that are payable within a year, as well as the relationship between the two. (Fekadu Agmas Wassie 2021)

While conducting day-to-day operations, a company must strike a balance between liquidity and profitability. Liquidity is a requirement for ensuring that businesses can satisfy their short-term obligations and that their cash flow can be guaranteed from a profitable enterprise. Given its critical role in the organization, the relevance of cash as a measure of ongoing financial health should come as no surprise. This necessitates a firm that is both efficient and profitable. During this process, an asset- liability

mismatch may arise, increasing the firm's profitability in the short term while putting it at risk of insolvency in the long run. (Kesseven Padachi 2006)

Working capital management ensures that a company's operations function smoothly and that it has sufficient funds to cover both maturing short-term debt and expected operating requirements. It is mostly focused with inventory management, accounts receivables, accounts payables, and cash management. Working capital management's primary notion is to strike a balance between the three proportions of working capital in order to provide suitable support for the smooth and efficient operation of day-to-day business activities. Liquidity, profitability, and risk are the three factors. (Jyoti Mahato 2015)⁴

REVIEW OF LITERATURE

Greg Filbeck and Others (2007): Author has worked on a Working Capital Survey of Selected Firms for Shareholders, utilizing secondary data to ascertain investor views on working capital investments in order to assess the stock market. They investigated numerous companies from 1997 to 2000 and found that market price of shares is influenced by working capital; this



indicates that investors have used WC information to invest in the company.

Harsh Pratap Singh (2014): The goal of this research is to identify gaps in the present body of knowledge on working capital management (WCM) and make recommendations to scholars who want to pursue further research in this area. WCM has received considerable scholarly attention in recent years, particularly in the aftermath of the 2008 financial crisis. One of the significant flaws in previous work is the lack of a survey-based study approach and an overarching theory-building study, which raises new questions for future research.

Chakraborty (2015) analyzed “working capital management and its impact on liquidity and profitability: An empirical study of Britannia industries” using data published in the company's annual report from 2000 to 2013. The paper employs the ratio analysis technique and the Spearman's rank correlation to determine the relationship between liquidity and profitability. The 'T' test is used in this paper. The paper offered a current ratio, a quick ratio, and a net profit margin that were unsatisfactory.

Samit Paul (2017): The purpose of this study is to examine past research on working capital management (WCM) and determine the factors that are more likely to be influenced by poor WCM. Furthermore, it seeks to identify future WCM research subjects in order to increase the body of knowledge. The majority of the highly cited studies investigated the relationship between the WCM and corporate profitability. As a result, the goal of this study is to widen the area of WCM research and to recommend potential research subjects for future researchers. As a result, this study identifies the core problem and suggests a slew of new research topics for further investigation.

Santu Charan Das (2018) “Impact of Profitability on Capital Structure: An Analytical Study” was researched. The researcher also conducted research on Indian steel businesses, which revealed an adverse association between profitability and debt equity ratio. The majority of research papers evaluated in China demonstrated an inverse association between capital structure and profitability of Chinese firms. Researchers have discovered that the similar relationship appears in capital structure and profitability.

Pravin Patel (2018) The current ratio, quick ratio, and debtors ratio were used to analyze the management of working capital of selected cement companies using secondary data from 2008-09 to 2014-15. The ANOVA test was utilized by the researcher as a statistical tool for analysis, and data was reported using tables and charts. The researcher discovered that Ambuja Cement Company and Ultra Tech cement are in strong working capital condition, however Binani Cement Company is not in good working capital situation.

Paroma Mitra (2018): According to the study, in order to maintain a balance between liquidity and profitability, a company must plan the optimal use of its working capital. As a result, the purpose of this paper is to investigate the effects of working capital management on the profitability of Indian steel sector enterprises. The study comprises four independent variables that serve as measures of industrial working capital utilisation: the current ratio, the quick ratio, the debtor turnover ratio, and the completed goods turnover ratio.

Iman soukhakian (2019): The purpose of this research is to look into the impact of working capital management (WCM) on firm performance among publicly traded Iranian manufacturing enterprises, with a particular emphasis on the direct and moderating effects of inflation and GDP factors. The cash conversion cycle (CCC) is found to be inversely related to return on assets and refined economic value added (REVA). Furthermore, macroeconomic factors have little influence on the link between WCM and corporate success.

Abdullah Naqi (2020): The study will look at the firm's value and proactive working capital management, as well as the firm's profitability as a moderator. According to the findings, aggressive working capital financing has a significant negative impact on profitability and firm value, whereas aggressive investment strategy has a significantly positive impact on profitability. As a result, researchers propose that growing profitability necessitates maximizing current asset investment and increasing the quantity of long-term financing in working capital. Finally, the author discussed some of our inadequacies as well as future study possibilities.

OBJECTIVES OF THE STUDY

1. To know the relationship between the working capital management and operating profit.
2. To examine the impact of working capital management on operating profit.

HYPOTHESES OF THE STUDY

H0₁: There is no relationship between the working capital management and operating profit.

H0₂: There is no influence of working capital management on operating profit.

RESEARCH METHODOLOGY

The study has adopted the qualitative research approach to know the impact of working capital management on the operating profitability of Rice millsof Nizamabad district of Telangana state. **Research Scope:** The study has considered the secondary data for the duration of 2016-17 to 2020-21. Here, the working capital management ratios are considered for this study. Operating profit is considered as the dependent variable and the working capital management ratios as the independent variables. They are: Current ratio, Liquid ratio,



Inventory turnover ratio, Working capital turnover ratio, and Receivables turnover ratio.

STATISTICAL METHOD: The study has considered the following statistical methods for the examination of framed objectives.

Panel Data: The study has considered the ten Rice mills working capital related ratios have been framed into panel for the period of 2017 to 2021 year.

Stationary Test: The study has considered the ADF test to know the stationary of the data for the variables, which were considered in the study.

Bivariate Correlation: The study applied the bivariate correlation to know the significant relationship between the working capital management and operating profitability of rice

mills of Nizamabad district of Telangana state.

Panel Ordinary Least Square: The study applied the Panel least square to know the impact of working capital management on the operating profitability of the Granite industries.

TABULATION OF DATA ANALYSIS

Objective 1: To know the relationship between the working capital management and operating profit of select Granite Industries.

Null Hypothesis: There is no relationship between the working capital management and operating profit

Alternative Hypothesis: There is a relationship between the working capital management and operating profit

Table -1: Relationship between operating profit and working capital management

		Correlations					
		Operatingprofit	CurrentRatio	LiquidRatio	Working Capital Turnover Ratio	Inventory Turnover Ratio	Receivables Turnover Ratio
Operating profit	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	5					
Current Ratio	Pearson Correlation	.680	1				
	Sig. (2-tailed)						
	N	5	5				
Liquid Ratio	Pearson Correlation	.247	.851	1			
	Sig. (2-tailed)	.009	.067				
	N	5	5	5			
Working Capital Turnover Ratio	Pearson Correlation	.137	.331	.626	1		
	Sig. (2-tailed)	.027	.017	.028			
	N	5	5	5	5		
Inventory Turnover Ratio	Pearson Correlation	.645	.639	.422	.387	1	
	Sig. (2-tailed)	.040	.026	.049	.520		
	N	5	5	5	5	5	
Receivables Turnover Ratio	Pearson Correlation	.599	.930*	.902*	.571	.502	1
	Sig. (2-tailed)	.026	.022	.036	.015	.039	
	N	5	5	5	5	5	5

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Secondary data



The above table explains regarding the relationship between the operating profit and working capital management. The ratios such as current ratio, liquid ratio, working capital turnover ratio, inventory turnover ratio and receivables turnover ratio were considered in the study. The results implies that current ratio and inventory turnover ratio are tend to be having pearson correlation as 0.680 and 0.645 meaning that it has the strong positive relationship with the operating profit. The other ratio such as liquid ratio, working capital turnover ratio is .247 and 0.137 respectively. Receivables turnover ratio is observed to be 0.026 meaning that these ratios are having the weak relationship with the operating profit. Here, there is rejection of null hypothesis and acceptance of alternative hypothesis. Thus, there is positive relationship of current ratio with operating

profit in working capital management ratios.

Objective 2: To examine the impact of working capital management on operating profit.

The study examining the impact of working capital management ratio's on the operating profit-ability of the selected rice mills of Nizamabad district of Telangana state. The study framed the following hypothesis.

Null Hypothesis: There is no influence of working capital management on operating profit.

Alternative Hypothesis: There is an influence of working capital management on operating profit.

Table – 2: Granger causality tests

Pairwise Granger Causality Tests			
Sample: 2017 2021			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
Current Ratio Does Not Granger Cause Operating Profit	4	0.03789	0.0376
Operating Profit Does Not Granger Cause Current Ratio		2.18691	0.3785
Liquid Ratio Does Not Granger Cause Operating Profit	4	0.00152	0.0152
Operating Profit Does Not Granger Cause Liquid Ratio		0.01334	0.9268
Inventory Turnover Ratio Does Not Granger Cause Operating Profit	4	1727.02	0.0153
Operating Profit Does Not Granger Cause Inventory Turnover Ratio		0.33954	0.0241
Receivables Turnover Ratio Does Not Granger Cause Operating Profit	4	0.09725	0.0076
Operating Profit Does Not Granger Cause Receivables Turnover Ratio		0.02020	0.9101
Working Capital Turnover Ratio Does Not Granger Cause Operating Profit	4	0.78013	0.0394
OPERATING_PROFIT does not Granger Cause Working Capital Turnover Ratio		0.24612	0.7068

Source: Secondary data

The table above describes about the influence of working operating profit on working capital management ratios. The results implies that current ratio, liquid ratio, receivables turnover ratio as well as working capital turnover ratio are tend to be having the unidirectional effect upon the operating profit. The inventory turnover ratio is seemed to be having the

bidirectional effect meaning that there is an effect of inventory turnover ratio upon the operating profit and vice-versa. Hence, there is a rejection of Null hypothesis and acceptance of alternative hypothesis. Therefore, there is an influence of the working capital management upon the operating profit.



Null Hypothesis: There is no impact of working capital management on operating profit.

Alternative Hypothesis: There is an impact of working capital

Table – 3: Impact of Working Capital Management on Operating Profit

Dependent Variable: OPERATING_PROFIT				
Method: Least Squares				
Sample: 2017 2021				
Included observations: 5				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33.5271	17.5861	1.906454	0.1527
Current Ratio	-0.344	0.434753	-1.60751	0.0263
Liquid Ratio	-3.16483	7.178674	-0.44087	0.0191
Working Capital Turnover Ratio	0.982403	4.110641	0.23899	0.0265
Inventory Turnover Ratio	1.417701	0.970137	1.461341	0.0401
Receivables Turnover Ratio	-4.12691	3.18386	-1.2962	0.0256
R-squared	0.76276	Mean dependent var		5.3295
Adjusted R-squared	0.88368	S.D. dependent var		3.320294
S.E. of regression	2.810153	Akaike info criterion		5.19353
Sum squared resid	23.69089	Schwarz criterion		5.037305
Log likelihood	-10.9838	Hannan-Quinn criter.		4.774238
F-statistic	2.584096	Durbin-Watson stat		1.950515
Prob(F-statistic)	0.016304			

Source: Secondary Data

The study indicates the impact of the working capital management ratios upon the operating profit. The independent variable is observed to be working capital management ratios and dependent variable is operating profit. The results signifies the positive impact of the working capital turnover ratio and inventory turnover ratio on the operating profit the coefficient values are observed to be 0.982403 and 1.417701 respectively. This means that there is an increase in the operating profit by the increase in the working capital turnover ratio and inventory turnover ratio. Here, the other ratios are observed to be negatively impacting the operating profit. Hence, there is a rejection of Null Hypothesis and acceptance of alternative hypothesis. Therefore, there is a positive impact of working capital management on operating profit.

FINDINGS OF THE STUDY

1. The study found that there is a strong positive relationship of the current ratio (**0.680**) and the inventory turnover ratio (**0.645**) resembles that operating profit with these ratios have the strong relationship with each other. (**Kruti A. Patel 2015**)⁵
2. The study reveals that the influence of the operating profit on the inventory turnover ratio is to be having the bidirectional effect meaning that there is an effect of inventory turnover ratio upon the operating profit and

vice-versa.

3. Study found that there is a positive impact of the inventory turnover ratio (**1.417701**) and the working capital turnover ratio (**0.982403**) on the operating profit meaning that if the turnover ratio increase stimulates the operating profit of rice mills of Nizamabad district of Telangana state.

CONCLUSION OF THE STUDY

The study has considered the operating profit as the dependent variable and the independent variable as working capital management ratios. The study has considered the secondary data for the period of 2016- 17 to 2020-21. The results have examined that there is a strong positive relationship of the current ratio and the inventory turnover ratio resembles that operating profit with these ratios have the strong relationship with each other. (**Kruti A. Patel 2015**) and also there is a positive impact of the inventory turnover ratio and the working capital turnover ratio on the operating profit meaning that if the turnover ratios increases there is an increase in the operating profit. Hence, it is concluded that inventoryturnover ratio is the one that has been increasing the operating profit of the industry.



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ANATOMY, EPIDEMIOLOGY, DIAGNOSIS, MANAGEMENT AND TREATMENT OF THE METACARPAL FRACTURES

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SUMMARY

Introduction: The fracture of the neck of the fifth metacarpal, also known as "boxer's fracture", is one of the most frequent traumatic pathologies seen in the emergency department and is usually treated with conservative measures. The fifth metacarpal is the most frequently fractured, representing almost 25% of all metacarpal fractures and 10% of all fractures.

Objective: to define and explore the anatomy, epidemiology, approach, diagnosis, management and treatment of metacarpal fractures.

Methodology: a total of 40 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 26 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar, SciElo; the terms used to search for information in Spanish, Portuguese and English were: fractura del boxeador, fratura do metacarpo, fracture of the fifth metacarpal and boxer's fractures.

Results: About 30% of all hand fractures and 18% of all below-elbow fractures are metacarpal fractures. Small-finger neck fractures and ring-finger shaft fractures are among the most frequent metacarpal fractures. To diagnose the boxer's fracture and evaluate the degree of angulation, plain radiographs are the gold standard. Fractures with significant angulation require closed reduction and splinting. Surgical management can result in hardware-related issues such as adhesions, infection, and tendon rupture, whereas a more conservative approach may result in malunion or stiffness due to immobilization.

Conclusions: Uncomplicated fractures of the fifth metacarpal are usually treated with immobilization and splinting or neighboring strapping, with a comparable degree of functional outcome. In Metacarpal head fractures nonoperative treatment options include immobilization in the intrinsic plus position. Small finger metacarpal neck fractures are the most typical and are frequently referred to as "boxer's fractures". Metacarpal fractures that have no associated rotational deformity can typically be managed conservatively with immobilization and serial radiographs. The use of the Jahss maneuver can result in reduction of fractures with rotational deformity or pseudoclawing. The most common types of metacarpal shaft fractures are transverse fractures, oblique fractures, and comminuted fractures. Operative intervention should be taken into consideration if there is pseudoclawing, rotational deformity, significant metacarpal shortening, or a noticeable dorsal deformity. Despite being a rare injury, intra-articular base fractures of the index- through ring-finger metacarpals have been suggested to be an underreported and misdiagnosed condition. Complications related to these injuries are prevalent and may result from surgical or non-surgical treatment of the initial injury.

KEYWORDS: fracture of the fifth metatarsal, Boxer's Fracture, hand injury.



INTRODUCTION

The fracture of the neck of the fifth metacarpal, also known as "boxer's fracture", is one of the most frequent traumatic pathologies seen in the emergency department and is usually treated with conservative measures. The fifth metacarpal is the most frequently fractured, representing almost 25% of all metacarpal fractures and 10% of all fractures.(1–4).

The normal volar angulation of the metacarpal head increases at the time of injury. The fifth metacarpophalangeal joint (MTCF) may lose its normal prominence as a result of this angulation, shortening the metacarpal neck. Fifth metacarpal fractures with a palmar angulation of less than 40 degrees usually do not carry a corresponding rotational deformity and are usually treated conservatively without the need for fracture manipulation(3,5).

Several literatures report that functional results can be obtained with little or no correction of these sagittal plane fractures. However, severe angulation and subsequent poor healing can cause dorsal protrusion as well as loss of metacarpal head prominence when making a fist. Patients who work as manual laborers and need to perform forceful gripping activities may experience complications as a result of metacarpal shortening and angulation greater than 30 degrees(3,6,7).

The standard treatment of this fracture consists of closed reduction and immobilization with external splinting in intrinsic plus position (immobilization of the fourth and fifth radius from the wrist to the proximal interphalangeal joint). Functional treatment is an alternative (which does not restrict range of motion), which can be applied by using compression bandage on the whole hand or syndactyly between the fourth and fifth fingers. The wrist and finger joints can move freely with these procedures. Superior functional performance is theorized to be a benefit of this type of treatment. A third option is to treat patients fully dynamically (i.e., without using any immobilization), encouraging them to use the hand normally. Although insufficient statistical power was found to detect significant differences, further investigation was warranted because the evidence-based systematic review did not find a superior nonoperative treatment regimen for fifth metacarpal neck fracture(3,8).

Functional outcomes were consistent in the most recent randomized controlled trials and meta-analyses. Current data are insufficient to reach a consensus on the best course of action for patients with boxer's fractures because discomfort, hand function, and ability to work may be assessed differently depending on physician-patient interactions(3,9–11).

METHODOLOGY

A total of 40 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 26 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed

and Google Scholar, SciELO; the terms used to search for information in Spanish, Portuguese and English were: fractura del boxeador, fratura do metacarpo, fracture of the fifth metacarpal and boxer's fractures. The choice of the bibliography exposes elements related to the fracture of the fifth metacarpal, anatomy, epidemiology, approach; in addition to these elements, the diagnosis, management and treatment of the disease are investigated.

DEVELOPMENT

In terms of epidemiology, about 30% of all hand fractures and 18% of all below-elbow fractures are metacarpal fractures, making them one of the most common injuries evaluated in emergency rooms. Most of them (70%) happen in the second and third decades of life. Small-finger neck fractures and ring-finger shaft fractures are among the most frequent metacarpal fractures. Most fractures are caused by either accidental falls or direct blows to another object or person. Metacarpal fractures can appear in various situations, but most commonly appear as a result of direct trauma. As metacarpal bones are superficial, these often get fractured when the hand is used for evasive activity. When there are fractures of the metacarpal shaft, direct impacts on the dorsum of the hand form transverse fractures with varying degrees of comminution depending on the speed of the injury. Despite their prevalence, randomized controlled trials are challenging to implement given the wide range of fracture patterns and injury mechanisms, and the evidence for any given treatment strategy is typically limited to single-center studies. However, there is a wealth of information in the literature, including a sizable retrospective series with lengthy follow-up, that sheds light on the most efficient treatments for these frequent injuries(12–16).

Recalling a little of the anatomy of the region, we have that the palmar neurovascular structures and phalanges are supported by the metacarpals, which are the longest bones closest to the hand. The metacarpals form the bony base of the complex lever system of the flexor and extensor tendons of the hand. The metacarpals have flares at the bases and necks, forming a volar concave arc along their length. The distal carpal row and the metacarpal base articulate. A condylar joint, which allows for flexion, extension, radial, and ulnar motion, is formed by the cam-shaped metacarpal head and the base of the proximal phalanx. The metacarpophalangeal (MCP) joint is supported and resistant to hyperextension by the fibrocartilaginous volar plate, which runs along the palmar aspect of the joint. In addition to providing additional stability by preventing shortening from metacarpal shaft fractures, the deep intermetacarpal ligaments join the volar plates between neighboring digits. The proximal phalanx's volar aspect is where the collateral ligaments attach after emerging from the metacarpal head's dorsal side. The proximal phalanx and the volar plate are the sites of attachment for the accessory collateral ligaments, which are positioned volar to the proper collateral ligaments. The collateral ligaments lengthen and tighten when the MCP joint is flexed, stabilizing the joint as a result. The flexor and extensor tendons are less closely

connected to the bony surface than are phalangeal fractures, and as a result, they may heal more successfully after injury. However, since a dorsal approach is typically used to treat these fractures, it is important to comprehend the extensor tendon apparatus. The interossei begin along the metacarpal shaft, insert along the base of the proximal phalanx, the extensor hood, and help to form the lateral bands of the extensor tendon apparatus. The volar plate, collateral ligaments, and deep transverse intermetacarpal ligaments are all joined by the sagittal bands, which also stabilize the extensor tendon over the head of the metacarpal. The metacarpal bases are where the wrist extensors and flexors insert more closely. Extensor carpi ulnaris (ECU) inserts at the base of the small-finger metacarpal, extensor carpi longus

(ECRL) inserts at the base of the index metacarpal, and extensor carpi radialis brevis (ECRB) inserts at the base of the long-finger metacarpal. Similar to how the flexor carpi ulnaris tendon inserts at the base of the small finger, the flexor carpi radialis (FCR) tendon does the same for the index metacarpal(12,14).

In addition to the clinical history and physical examination, to diagnose the boxer's fracture and evaluate the degree of angulation, plain radiographs are the gold standard. It is necessary to obtain anteroposterior, lateral and oblique views, the use of CT scans is not frequent, however they are usually useful in cases of high suspicion of fracture without radiographic evidence(17).

Figure 1. X-ray Boxer's fracture.



Source: The Authors.

In terms of treatment to maintain the reduction of metacarpal neck fractures, numerous immobilization techniques have been described. Early treatments included banjo splinting and immobilization over a roller bandage. Modern therapies typically involve immobilization with a cast or splint after reduction using the Jahss maneuver. The use of fracture braces, adhesive tape, anterior-posterior splinting, ulnar splinting, and anterior-posterior-ulnar splinting are recent examples of immobilization techniques. With the MCP joints in flexion, all commonly immobilize the reduced fracture. Although the Jahss technique is usually effective in reducing these fractures, successful maintenance of the reduction has remained a difficult issue(12).

A different technique for reducing and immobilizing fifth metacarpal neck fractures has been developed over the last ten years and has proven to be very effective. The method is based on reduction by longitudinal traction only, followed by immobilization with a three-point cast that leaves the interphalangeal (IP) joints free. Efficacy, simplicity, freedom of movement of the IP joint and greater patient tolerance to this form of treatment are its advantages. This technique does not require anesthesia(12,18).

Alignment that is acceptable, reduction that is stable, bony union that is strong, and motion that is unrestricted are the main objectives of treatment. A thorough history should be



taken from the patient, paying particular attention to hand dominance, occupation, the way the injury happened, when it happened, and any prior hand trauma or surgeries on the upper extremities. The presence of rotational deformity must be determined through a thorough physical examination because plain radiographs cannot do so. When the patient flexes and extends their fingers, the position of the nail plates is noted. Examining the other hand is frequently helpful because rotational deformity can be subtle. A 1.5 cm digital overlap with both aesthetic and functional deformity will result from even a small degree rotation. The digital cascade can be seen in patients who are unable to perform active flexion by flexing

and extending the wrist in order to feel the tenodesis effect. In addition, it's important to take note of the hand's neurovascular status, active and passive range of motion, bony deformity, digit shortening, loss of knuckle contour, and soft-tissue injury. To evaluate hand fractures, specifically fracture geometry, comminution, angulation, and shortening, standard posterior-anterior, oblique, and lateral radiographs are typically sufficient. Bony apposition should be at least 50%, and bony shortening of about 5 mm is typically acceptable. To determine whether surgical intervention is necessary and whether nonoperative management might be successful, the initial evaluation is concentrated on assessing stability(12,18).

Table1. Characteristics of unstable fractures requiring operative intervention.

CHARACTERISTICS OF UNSTABLE FRACTURES REQUIRING OPERATIVE INTERVENTION	EXAMPLES
Irreducible fractures	>25% Involvement of the articular surface of the metacarpal head or 1-mm step-off
Open fractures	Displaced fractures of oblique shaft with rotational deformity on examination
Fractures with segmental bony loss	Displaced fractures of metacarpal base with dislocation or subluxation of the carpometacarpal joint
Multiple fractures	Displaced fractures of thumb metacarpal base
Fractures associated with significant soft-tissue injury	
Rotational deformity	
Angulation	

Source:Diaz-Garcia R, Waljee JF. Current Management of Metacarpal Fractures(12).

Fractures that involve 25% or more of the joint's articular surface or have a step-off of 1 mm or more are considered to be inherently unstable, as are displaced oblique fractures with rotational deformity, displaced fractures of the metacarpal base with CMC joint subluxation, and displaced Bennett or Rolando fractures. In the hand, a digit's rotational deformity is not acceptable and is cause for reduction and fixation. The efficiency of intrinsic muscle contraction is decreased by metacarpal shortening greater than 5 mm, and extensor lag is linked to a significant loss of power(12).

Metacarpal head fractures

Despite the rarity, hyaline cartilage and the possibility of osteonecrosis make metacarpal head fractures difficult to treat. Since fracture fragments are frequently small and comminuted, careful technique is needed during reduction and fixation to prevent damaging the collateral ligaments and devascularizing the bony fragments. Computed tomography scans, in addition to standard radiographs, may be useful for fractures to more accurately identify the fracture pattern. Nonoperative treatment options include immobilization in the intrinsic plus position for fractures affecting less than 20% of

the joint surface.The aim of treatment for fractures with a more severe disruption of the articular surface is to stabilize and restore the shape of the metacarpal head to permit early range of motion. If at all possible, lag screws that are countersunk into the cartilage are the best way to treat these fractures. However, these fractures typically present with significant joint comminution and disruption. Some researchers have described the use of arthroplasty in the acute setting for the treatment of these complicated injuries, and external fixation that incorporates distraction and early motion may improve long-term function following these injuries. Nevertheless, late arthritis is not unusual despite aggressive treatment (19–21)

Metacarpal neck fractures.

Small finger metacarpal neck fractures are the most typical and are frequently referred to as "boxer's fractures" due to their prevalence in amateur boxers. The volar cortex fractures at the time of injury, leading to an apex-dorsal angulation fracture pattern and flexion of the metacarpal head. A pseudo claw deformity may result from an imbalance of the extrinsic and intrinsic musculature brought on by metacarpal

shortening. The intrinsic muscles of the hand cross the MCP joint and maintain flexion of the metacarpal head. The proximal interphalangeal (PIP) joint flexes and the MCP joint hyperextends when the patient tries to extend their fingers. Metacarpal fractures that have an angulation of less than 10 for the index finger, less than 15 for the long finger, less than 30 for the ring finger, and less than 40 for the small finger and have no associated rotational deformity can typically be managed conservatively with immobilization and serial radiographs. Ring-finger and small-finger neck fractures caused by angulated fractures are lessened by increased mobility in the ulnar CMC joints of the hand. The CMC joints in the index and long fingers, on the other hand, are more fixed and poorly tolerant of greater degrees of angulation. The excellent patient-reported outcomes and function with greater degrees of angulation, particularly for small-finger metacarpal neck fractures, have been documented in numerous studies, proving that these recommendations are relative. For instance, McKerrell and colleagues observed 40 patients with angulated small-finger metacarpal neck fractures treated nonoperatively and with reduction and pinning and found no difference in hand function after treatment. Patients need to be informed about the potential long-term loss of dorsal joint/knuckle prominence with a more pronounced dorsal deformity closer to the palm and a palpable metacarpal head. However, conservative management is appropriate for patients who do not exhibit a rotational deformity or absent pseudoclawing upon examination. A cast or splint may be used to immobilize the wrist, MCP, and PIP joints for three weeks in the intrinsic plus position, followed by early active range of motion.(22).

Use of the Jahss maneuver can result in reduction of fractures with rotational deformity or pseudoclawing. It is possible to

reduce the metacarpal head from a flexed position by fully flexing the MCP and PIP joints, applying dorsal force along the proximal phalanx, and rotating the metacarpal shaft. Additional manipulation along the flexed proximal phalanx can be done to correct rotational deformity and return the joint to its anatomic position. In order to keep the reduction in place and serve as an internal splint, percutaneous Kirschner (K) wires can be positioned in a number of different ways. Pins may be inserted transversely into the unharmed ring-finger metacarpal head next to the injured one or in a crossed pattern down the metacarpal shaft. K-wires are advantageous because they can be positioned quickly and easily percutaneously without requiring a significant amount of dissection. However, they don't offer a rigid fixation, and pin-site infections are common. Poor follow-up is common in this patient population, and external pins may be challenging for patients to manage. Other researchers have suggested using antegrade intramedullary pins that are percutaneously inserted at the base of the metacarpal. Despite reports of joint penetration, loss of reduction, and the need for additional surgeries, intramedullary fixation offers excellent stability with little soft-tissue dissection and protection of the extensor tendon mechanism from adhesions. For neck fractures, plate fixation using a mini-condylar plate is an option. But because this method calls for more dissection and an open approach, there may be a higher chance of adhesions and long-term stiffness(19).

Plate and screw reconstruction has been preferred because of its superior biomechanical stability over other methods. However, one particular trial found no significant difference in peak load or bone stiffness profile between plate and screw fixation and K-wire fixation.(23,24).

Figure 2. Kirschner wires.



Source: The Authors.

Figure 3. Kirschner wires.



Source: The Authors.

Metacarpal shaft fractures

The most common types of metacarpal shaft fractures are transverse fractures, oblique fractures, and comminuted fractures. They can be caused by axial loading, torsion, or a direct blow. Similar to metacarpal neck fractures, injuries with little to no displacement, minimal angulation, rotational deformity, or shortening can be treated conservatively by immobilization. The ulnar digits are more tolerant of angulation than the index or middle finger. However, operative intervention should be taken into consideration if there is pseudoclawing, rotational deformity, significant metacarpal shortening, or a noticeable dorsal deformity. Displaced transverse metacarpal shaft fractures may be treated with closed reduction, but many of these injuries will need surgical fixation. Pins, wiring methods, intramedullary fixation, plate fixation, and interfragmentary compression screws are just a few of the fracture fixation techniques that are available. Even though some fracture patterns are best treated with a particular technique, the choice of fixation is largely determined by the fracture pattern and the surgeon's preferences. Pin fixation is advantageous because pins are easily accessible, require little dissection, and can be used in a variety of configurations, just like with metacarpal neck fractures. Lack of rigid fixation, distraction of the fracture, infection at the pin site, and pin migration are similar drawbacks. To create a more stable construct, composite wiring or cerclage wiring can be used in combination with pins. It can also be used for different types of fracture patterns. When a long oblique fracture has a length that is twice as large as the bone's diameter and can accommodate at least two screws, interfragmentary screws can provide compression. Compression is technically difficult to achieve with little room

for error, necessitating soft-tissue dissection and anatomic fracture reduction. When two or three bicortical screws are inserted on either side of the fracture, dorsal metacarpal plating using stainless steel or titanium plates is easier to perform and might offer a more stable fixation than pin or wire techniques. Despite these benefits, plates are linked to hardware failure, infection, and subpar fracture healing, with complication rates as high as 35% in some series. With only a small amount of dissection, intramedullary fixation is an effective treatment option for multiple transverse shaft fractures. Last but not least, some researchers have supported the use of external fixators for shaft fractures, citing the minimal need for dissection that could potentially devascularize the bone and formation of a stable construct that permits early motion. However, issues could arise from overdistracted, extensor tendon nonunion, and pin-site infection. While bioabsorbable plates have grown in popularity for fracture fixation in craniofacial surgery, they have not yet become widely accepted in hand surgery. Bioabsorbable plates show stability comparable to that attained with titanium constructs, according to studies in cadaveric and animal models. Future research examining the use of these techniques in hand surgery may shed light on when they should be used for metacarpal fractures(12,19,25,26).

Metacarpal Base Fractures

Despite being a rare injury, intra-articular base fractures of the index- through ring-finger metacarpals have been suggested to be an underreported and misdiagnosed condition. These fractures are frequently caused by falling on a flexed wrist with the arm extended and loading the metacarpal axially.



Their presence in the literature is restricted to a few case series due to their low incidence. Their leadership is debatable in some ways. While some have advocated for conservative management, there is a growing movement toward operative intervention. The argument for nonsurgical treatment is based on the second and third CMC joints' restricted range of motion, which downplays the significance of articular congruity. The argument in opposition is that failure to achieve anatomic reduction is thought to affect the dorsal insertions of the wrist extensors and may result in osteoarthritis, which can lead to decreased range of motion and diminished wrist extension, ultimately leading to weakness of grip. The most frequent of these injuries are fractures at the base of the small finger metacarpal, which have names like "reverse Bennett" and "baby Bennett" because they are mechanically comparable to fractures of the thumb. The deforming force that pulls the metacarpal dorsally, ulnarly, and proximally is the ECU. Due to the strong attachment to the intermetacarpal ligament and reinforcing insertion of the volar flexor carpi ulnaris, the volar-radial segment of the base articular surface is still present. There is no agreement as to the most appropriate method of management of Bennett's reverse fractures. Non-displaced fractures usually undergo non-interventional treatment. Conservative treatment with reduction and immobilization of slightly displaced fractures is also possible, with a 100% healing rate and return of grip strength, although 41% of cases show radiographic signs of osteoarthritis. The tendency of most researchers is to advocate surgical treatment of displaced reverse Bennett fractures, but the clinical data are contradictory and do not necessarily support such an indication. Regardless of the surgical or non-surgical approach, the results are similar in terms of recovery of functional capacity, occurrence of post-traumatic arthritis and long-term pain(12,19).

COMPLICATIONS OF METACARPAL FRACTURES

While most patients with metacarpal fractures recover well, complications related to these injuries are prevalent and may result from surgical or non-surgical treatment of the initial injury. Surgical management can result in hardware-related issues such as adhesions, infection, and tendon rupture, whereas a more conservative approach may result in malunion or stiffness due to immobilization. The frequency of complications is closely linked to the severity of the original injury, as open fractures and crush injuries diminish the prospects for uncomplicated healing(12,19).

Malunion

Malunion is the main complication in the management of metacarpal fractures, especially after the non-interventional approach to unstable fractures. The actual incidence of malunion is complicated to determine, due to the high percentage of closed metacarpal fractures that do not receive medical attention. The final outcome of the malunion can be predicted from the first radiograph, since certain fractures result in particular deformities. Spiral and oblique fractures

may result in shortening due to the intrinsic musculature. Shortening of the finger may not only be unsightly because of dulling of the dorsal eminence of the metacarpal head, but may also change the existing balance between intrinsic and extrinsic muscle loads. Strauch et al. found that every 2 mm of metacarpal shortening resulted in 7 mm of secondary extensor lag. The MCP joint can be hyperextended to counteract this deformity, but it is usually limited to about 20. Consequently, more than 6 mm of metacarpal shortening requires a control ORIF to reduce the deformity. Angular malunion in the metacarpal usually occurs in the sagittal plane with an apex-dorsal deformity. This malunion usually occurs in transverse fractures of the shaft, as the conjunction of the long flexors and intrinsic flexors are stronger than the extrinsic extensors. Some sagittal angulation is permissible, although the angles vary from 10 to 30 as one moves from the metacarpal of the index finger to the metacarpal of the little finger, due to the increased mobility of the ulnar CMC joints. If a significant angular malunion occurs, it can be addressed with an opening or closing wedge osteotomy. A closing wedge osteotomy is a technically simpler procedure and does not involve significant shortening, as the effective length is achieved with angulation rectification. Rotational malunion is the most likely to result in impaired function, as the deformity is magnified distally, and is usually the product of an unstable spiral or oblique fracture. Five degrees of malrotation in the metacarpal shaft can result in a 1.5 cm digital overlap, with an unacceptable result. The examination requires attention to the alignment of the nail plates, as well as to detect "scissoring" or overlapping when the patient slowly clenches his or her fist. Correction of a rotational deformity can be performed through an osteotomy in the anterior region of the fracture or in the metaphysis. In the 1960s, Weckesser first described a corrective osteotomy proximal to the base of the metacarpal to address rotational malunion. Gross and Gelberman later outlined the limits of these osteotomies in cadavers, noting that the transverse metacarpal ligament was the major factor restraining rotation, and that 20 to 30 was the upper limit.(12,16,19).

In summary, malunion is the most common complication and can manifest as dorsal angulation or rotatory malunion. Dorsal angulation is primarily a cosmetic problem and may rarely appear as chronic pain due to tenosynovitis or sometimes as a manifestation of saddle syndrome. It can be corrected by open or closed wedge osteotomy. Rotational malunions are more bothersome and are expressed as a scissoring of the fingers that makes it difficult to hold objects. They are usually corrected with an osteotomy at the base of the metacarpal.(13).

Nonunion

Nonunion is the absence of bone healing four months after injury. Nonunion is rare after a closed metacarpal fracture, and is more common in the setting of a complex open injury with bone loss. Various authors define delayed union or nonunion as fractures without clinical or radiographic signs of healing at 4 months. The frequency of delayed union or nonunion can reach 6% after ORIF. Bony pseudarthrosis can be divided into

hypertrophic or atrophic, and their management is somewhat variable. Hypertrophic pseudarthrosis is usually the result of improper stabilization, either due to fixation failure or noncompliance with immobilization. Treatment requires firm fixation, usually with ORIF. Atrophic pseudarthrosis are more common in open fractures and are associated with bone infection. Fibrous tissues or infected bone require intensive debridement, and bone grafting should be used to fill bone defects.(12,16,19).

Decreased Range of Motion

After conservative or surgical treatment, limitations of range of motion may be observed. While ORIF predisposes the patient to tendinous adhesions, prolonged immobilization leads to tightening of the joint capsules and collateral ligaments, emphasizing the importance of splinting in a functional or safe position. Factors favoring post-injury stiffness include crush injuries, open fractures, multi-finger involvement, segmental injuries and immobilization for more than 4 weeks.(12,19).

Infection

Acute infections, including osteomyelitis, are much more prevalent in open fractures of the hand. Even if metacarpal osteomyelitis is infrequent, it requires the removal of all metalwork, taking cultures from tissues, and rigorous debridement. The infection rate of open injuries is higher than closed fractures undergoing surgical treatment at 11% versus less than 0.5%. The infection rate is related to contamination and soft tissue injury, in addition to periosteal excision and devascularization. When osteomyelitis has set in, the risk of final amputation is greater than 50%. Traditional inflammatory markers such as erythrocyte sedimentation rate and C-reactive protein are of little value in the hand, and the diagnosis must be made by surgical bone biopsy and

pathological examination. Treatment requires external fixation, aggressive debridement, systemic intravenous antibiotics and secondary reconstruction with bone grafting and internal fixation.(12,16,19).

Post-injury rehabilitation following a metacarpal fracture is based on numerous characteristics, including patient reliability, fracture location, fracture pattern stability, and fixation stability. Early displacement is commonly considered appropriate when intrinsically stable fracture patterns or rigid fixation are present, with the assumption that early displacement has the potential to improve outcomes. It remains unclear whether early mobilization with conservative treatment provides clinically relevant functional benefit, as most of the literature is based on limited retrospective case series.(12).

Protocols for postoperative rehabilitation of the hand are based in large part on surgical technique and on the safety of the stability of the structure. After CRPP, gentle active range-of-motion exercises without resistance usually begin 2 to 3 weeks postoperatively in adjacent or unaffected joints, and this activity is advanced with K-wire removal at 4 to 6 weeks. ORIF provides a more stable structure, so it is usually prudent to initiate active range of motion in the early postoperative period. The additional stability comes at a price, as it increases the frequency of tendon adhesions, so early initiation of treatment is not only feasible, but imperative.(12,19)

Most metacarpal fractures can be treated conservatively and only a few require surgical intervention. K-wires are most commonly used for fixation of metacarpal fractures. Lag screws and plates are of particular value in unstable fractures. Intramedullary screws have also opened a new window(13).

Figure 4. AP X-ray - metacarpal neck fractures.



Source: The Authors.

Figure 5. Oblique radiography - metacarpal neck fractures.



Source: The Authors.

CONCLUSION

The metacarpophalangeal (MCP) joint is supported and resistant to hyperextension by the volar fibrocartilaginous plate, which extends along the palmar aspect of the joint. The volar aspect of the proximal phalanx is where the collateral ligaments attach after emerging from the dorsal aspect of the metacarpal head. About 30% of all hand fractures and 18% of all below-elbow fractures are metacarpal fractures. Small-finger neck fractures and ring-finger shaft fractures are among the most frequent metacarpal fractures. To diagnose the boxer's fracture and evaluate the degree of angulation, plain radiographs are the gold standard. Uncomplicated fractures of the fifth metacarpal are usually treated with immobilization and splinting or neighboring strapping, with a comparable degree of functional outcome. Fractures with significant angulation require closed reduction and splinting. There are very specific situations in which surgical treatment is considered preferable to conservative treatment. In Metacarpal head fractures nonoperative treatment options include immobilization in the intrinsic plus position. Small finger metacarpal neck fractures are the most typical and are frequently referred to as "boxer's fractures". Metacarpal fractures that have an angulation of less than 10 for the index finger, less than 15 for the long finger, less than 30 for the ring finger, and less than 40 for the small finger and have no associated rotational deformity can typically be managed conservatively with immobilization and serial radiographs. The use of the Jahss maneuver can result in reduction of fractures with rotational deformity or pseudoclawing. Plate and screw reconstruction has been preferred because of its superior biomechanical stability over other methods. The most common types of metacarpal shaft fractures are transverse fractures, oblique fractures, and comminuted fractures. They

can be caused by axial loading, torsion, or a direct blow. Operative intervention should be taken into consideration if there is pseudoclawing, rotational deformity, significant metacarpal shortening, or a noticeable dorsal deformity. Despite being a rare injury, intra-articular base fractures of the index- through ring-finger metacarpals have been suggested to be an underreported and misdiagnosed condition. While most patients with metacarpal fractures recover well, complications related to these injuries are prevalent and may result from surgical or non-surgical treatment of the initial injury. Surgical management can result in hardware-related issues such as adhesions, infection, and tendon rupture, whereas a more conservative approach may result in malunion or stiffness due to immobilization.

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A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING PERINATAL DIET AMONG ANTENATAL MOTHERS AT TELUNGUPALAYAM PHC, COIMBATORE

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ABSTRACT

STATEMENT OF THE PROBLEM: A study to assess the effectiveness of structured teaching programme on knowledge regarding perinatal diet among antenatal mothers at Telungupalayam PHC, Coimbatore.

AIMS OF THE STUDY: To find the level of knowledge on perinatal diet among antenatal mothers and to study the effectiveness of structured teaching programme in improving the level of knowledge and practices.

OBJECTIVES:

- ❖ To assess the pre-test knowledge score regarding perinatal diet among antenatal mothers.
- ❖ To assess the post-test knowledge score regarding perinatal diet among antenatal mothers after structured teaching programme.
- ❖ To assess the effectiveness of structured teaching programme regarding perinatal diet among antenatal mothers.
- ❖ To associate post-test knowledge score regarding perinatal diet among antenatal mothers with their selected demographic variables.

RESEARCH METHODOLOGY: The investigator has selected one group pre test and one group post test design. A total number of 60 antenatal mothers were selected by purposive sampling technique. The pre test and post test collected with structure questionnaires before and after structured teaching programme. After pre test and post test the data collected from subject were analysed by using descriptive and inferential statistics and association was analysed with computing frequency, percentage, standard deviation.

In pre test and post test there was a significant association between level of knowledge and demographic variables such as age, education, religion, income, occupation, eating pattern, number of pregnancy, number of abortions, number of delivery, complication in pregnancy and source of information.

CONCLUSION: Antenatal mothers who had an inadequate knowledge or poor knowledge regarding perinatal diet, before the structured teaching programme the knowledge was around 30% (9 samples) and moderate knowledge around 70% (51 samples). After the structure teaching programme the antenatal mothers gained knowledge regarding perinatal diet, around 56.6% had adequate knowledge and 41.6% had moderate knowledge.

KEY WORDS: assess, effectiveness, structured teaching programme, perinatal diet, antenatal mothers.

INTRODUCTION

Diet and lifestyle are important determinants of health of both mother and offspring, starting from the perconceptional period. In particular, current research underscores that the first 1000 days of life from conception up to two years of life are crucial for the prevention of adulthood diseases and specific maternal condition during the perconceptional period and associated with high birth weight, obesity and alterations in glucose metabolism in children and later in adults. Healthy diet promotes health in lactating mothers, protects menopausal woman from bone fractures, reduces cardio vascular risk and

also protects against some type of cancers. Therefore perinatal diet that is after 5th month of conception to till 4th week of postnatal period, it protects and supports female population and in specific population groups.

Health later in life is also affected by the growth rate in the first month of life, when breast milk represents the golden standard for the infant feeding as recognized by WHO. WHO defined, it is a part of the reproductive process with important implications also for the health of lactating mothers, ranging from reduction of cardiovascular risk and hip fractures in post menopause, also protection against breast cancer and ovarian



cancer. Mother should be advised to have a healthy diet throughout the pregnancy to till the lactation period in order to minimize foetal anomalies, still birth, preterm baby, anemia and miscarriage.

Aim of perinatal diet is to produce healthy and normal weight infants in minimizing health risk to mother, to determine appropriate weight gain during pregnancy for normal, under and over weight women, to recognize the additional energy, vitamins and minerals requirement for women during pregnancy, to understand change in nutritional need during pregnancy, labour, postnatal and lactation (Dr. M.Swaminathan, the book of Food and Nutrition).

There are six main classification of food, they are Carbohydrate (energy giving food) Protein (body building food) Fat (energy provider) Vitamins (protective food) Minerals and Water. Carbohydrates are the cheapest and main source of energy, it supplies 4kcal/g. Carbohydrates are essential for the oxidation of fats and in the synthesis of certain amino acids. If they are taken in excess they are converted into fat. In the body they are absorbed immediately and stored in the form of glycogen. Daily requirement of carbohydrate for the expectant and nursing mother 40-60%. Protein sparing action of carbohydrates help in tissue growth & maintenance. Food sources are cereals, pulses, millets, nuts and oil, roots and tubers.

Proteins are essential for growth and development, they are the chief substance in the cells of the body. Essential in the synthesis of antibodies, enzymes and hormones, important in the coagulation factor. Plays a vital role in bodybuilding especially in infants and children. Daily requirement of protein for the pregnant mother is 78g/day, for the lactating mother is 74g/day. Deficiency in pregnancy causes premature birth, still birth and low birth weight babies. Food sources are animal product like meat, fish, milk and milk products, plant sources like millet, pulses like bengal gram, green gram, red gram and black gram.

Vitamins are an organic compound occurring in small quantities in different natural food and necessary for protection against diseases. There are two types of vitamins –water soluble (vit. B1, B2, B3, B5, B6, B7, B9, B12 and C) and fat soluble vitamins (vit. A, D, E and K). Vitamin B1 (Thiamine) helps to assist an effective heart function, muscle development and maintains healthy nerve cell, deficiency leads to Beriberi. Vitamin B2 (Riboflavin) helps in activating iron, folic acid, B1 and B3. Also prevents and treat migraine head ache and rheumatoid arthritis, deficiency causes ariboflavinosis characterised by oral, facial, ocular and vulvar lesions.

Vitamin B3 (Niacin) it is also called nicotinic acid. It helps to reduce cholesterol level in the blood, lower the risk of heart disease and also prevents hardening of arteries (atherosclerosis), deficiency causes pellagra. Vitamin B5 (Pantothenic acid) it is available in all kind of food, deficiency causes burning foot syndrome. Vitamin B6 (Pyridoxine) it helps in maintaining healthy nerve cell and red blood cell, prevents peripheral neuropathy. Daily requirement of pyridoxine for the pregnant and lactating mother is 2.5 mg/day, deficiency causes microcytic anaemia and neuritis.

Vitamin B7 (Biotin) prevents alopecia and mild depression, daily requirement of biotin for the pregnant and lactating mothers 250nanogram/day. Vitamin B9 (Folic acid) it is essential for the maturation of red blood cells and prevents neural tube malformation (Spina bifida). Daily requirement of folic acid for the pregnant mother is 0.4 g/day, deficiency causes megaloblastic anaemia, recurrent infection and malabsorption syndrome. Vitamin B12 (Cyanocobalamin) it prevents pernicious anaemia, daily requirement for the pregnant and lactating mother is 2ng/day.

Vitamin C (Ascorbic acid) it is essential for the absorption of iron, formation of bone daily requirement is 80mg/day, deficiency causes scurvy. Vitamin A prevents night blindness, Vitamin D stimulates calcium uptake, Vitamin E strengthen the muscular skeletal system, and Vitamin K is responsible for blood coagulation. (Dr. Prashad R. Manjeshwar, the book of Food and Nutrition).

Minerals also play a vital role especially iron, iodine and calcium. Iron deficiency causes severe anaemia in pregnancy, Iodine deficiency causes simple endemic goitre, Calcium deficiency causes osteoporosis to mother. Water helps in cleansing the internal organs, hydrating the tissues and keeping the pregnant mother in stable. Daily requirement of water for the pregnant mother is 5 to 6 L/day.

Maternal disorders are common in pregnant mothers, life threatening disorder is gestational hypertension, it is said to be blood pressure is above 140/90mmhg for the first time in pregnancy after 20 weeks without proteinuria. If the pregnant mother left untreated the complications are eclampsia, intrauterine death, growth retardation, asphyxia and prematurity. Gestational diabetes mellitus is a carbohydrate intolerance of variable severity with onset or first recognition during present pregnancy, control of high blood glucose is done by restriction of diet, exercise and with or without insulin.

GDM complications are intra uterine foetal death, macrosomia, shoulder dystocia, pre-eclampsia and cesaerean delivery. Thyroid dysfunction in pregnancy is caused by physiological changes during pregnancy like increased cardiac output, oxygen consumption, and heat production may cause mild thyrotoxicosis. The complications are placental abruption, congestive cardiac failure, thyroid storm, perinatal mortality and morbidity.

Intranatal diet is essential for the labour mother she needs to be hydrated with intravenous fluids than the oral feeds. Carbohydrate drink reduces ketosis and more oral fluids leads to hypo natremia to mother and foetus. The postnatal mother needs to be hydrated with oral fluids, protein and calcium rich foods are important for the wound healing and good lactation. Therefore the perinatal diet plays an important role during antenatal period for the purpose of safe delivery, protective motherhood, prevention of diseases and obtaining optimum level of health.



STATEMENT OF THE PROBLEM

A study to assess the effectiveness of structured teaching programme on knowledge regarding perinatal diet among antenatal mothers at Telungupalayam PHC, Coimbatore.

AIMS OF THE STUDY

To find the level of knowledge on perinatal diet among antenatal mothers and to study the effectiveness of structured teaching programme in improving the level of knowledge and practices.

OBJECTIVES

- ❖ To assess the pre-test knowledge score regarding perinatal diet among antenatal mothers.
- ❖ To assess the post-test knowledge score regarding perinatal diet among antenatal mothers after structured teaching programme.
- ❖ To assess the effectiveness of structured teaching programme regarding perinatal diet among antenatal mothers.
- ❖ To associate post-test knowledge score regarding perinatal diet among antenatal mothers with their selected demographic variables.

HYPOTHESES

Null hypotheses

H01: There is no significant difference between level of knowledge regarding perinatal diet among antenatal mothers before and after structured teaching programme.

H02: There is no significant association between post test knowledge score with their selected demographics variables.

VARIABLES IN THE STUDY

Dependent variables:- In this study dependent variable is knowledge of the antenatal mothers regarding perinatal diet.

Independent variables:- In this study the independent variable is structured teaching programme.

ASSUMPTIONS

There will be an enhancement of knowledge among antenatal mothers regarding perinatal diet.

LIMITATIONS

Inclusion:- The study is limited to

- Antenatal mothers, after 5th month of conception
- Antenatal mothers who are willing to participate in the study.
- Antenatal mothers who are able to speak Tamil & English and who are available at that time.

Exclusion:

- Antenatal mothers who are below 5th month of conceptions
- Who are not willing to participate in the study

- Postnatal mothers
- Lactating mothers
- Labour mothers

OPERATION DEFINITION

Effectiveness: The degree to which something is successful in producing a desired result.

Structured teaching: It is a means of data collection in which the interviewer has an interview schedule in which the questions are listed in the order in which they are to be answered.

Knowledge: Awareness or familiarity gained by experience of a fact or situation.

Perinatal Diet: The diet which is started after 5th month of conception till 4th week of postnatal period.

Antenatal: Before birth, during or relating to pregnancy.

SCOPE OF THE STUDY

To assess the level and associated factors of nutritional knowledge during pregnancy, delivery and postnatal period among antenatal mothers to prevent maternal and child mortality and morbidity rate and to reduce later adulthood complication in children.

RESEARCH METHODOLOGY

Research methodology is a systematic way to solve the problem. It is a science of studying how research is to be carried out. Essentially and predicting phenomena are called research go about their work of describing, explaining and predicting phenomena are called research methodology. It is aim to give the work plan o research (SURESH K.SHARMA).

The chapter deals with the research design, sampling, inclusion and exclusion criteria , data collecting and analysis, score interpretation, content validity, reliability and pilot study.

RESEARCH DESIGN

A research design is the “BLUE PRINT” of the study. The design of a study defines the study type (descriptive, correlational, semi-experimental, review, meta-analytic) and subtype (descriptive-longitudinal case study) questions, hypothesis, independent and dependent variables, experimental design and it applicable data collection methods and a statistical analysis plan. Research design to frame work and has been created to seek answers to research questions (SURESH K.SHARMA).

The objective of this study is to assess the knowledge of perinatal diet among antenatal mothers.

SETTING OF THE STUDY

The study was conducted at Telungupalayam PHC. Coimbatore. The nursing home works 24 hours. It is purely obstetrics and gynecology related problems with infertility high risk pregnancy care, also being undertaken.



This setting was chosen on the basis of the feasibility of the study in terms of adequate of the sample.

POPULATION

The entire set of individual or objects having some common characteristic, selected for a research study (SURESH K.SHARMA-2014).

The population of this study included Antenatal mothers.

SAMPLE SIZE

The sample size for the study consist of 60 antenatal mothers, who fulfilled the inclusion criteria are included as sample for the study.

SAMPLE TECHNIQUE

Purposive sampling technique was used and the antenatal mothers who fulfilled the inclusion criteria.

SAMPLING CRITERIA

INCLUSION CRITERIA

The study is limited to

- ❖ Antenatal mothers, after 5th month of conception.
- ❖ Antenatal mothers who are willing to participate in the study.
- ❖ Who are able to speak Tamil and English and who are available at that time of study.

KNOWLEDGE SCORE

SCORE	PERCENTAGE	LEVEL OF KNOWLEDGE
0-10	0-33%	In adequate knowledge
11-20	34-66%	Moderate knowledge
21-30	67-100%	Adequate knowledge

CONTENT VALIDITY OF THE TOOL

Content validity was obtained from the facilities of OBG department o JCON.

DATA COLLECTION PROCEDURE

The data collection period was 4 weeks permission was a study were selected.

All ethical principles were followed in the first day of data collection all the antenatal mothers were comfortably seated and the pre-test was administered. After few minutes the structured teaching programme on perinatal diet among antenatal mothers was given by using A.V aids to same antenatal mothers who had undergone pre-test. During the teaching programme the antenatal mothers were asked many doubts and it was clarified. Once again post-test was administered with the same self-structured questionnaires after 14 days.

EXCLUSION CRITERIA

- ❖ Antenatal mothers who are below 5th month of conception.
- ❖ Who are not willing to participate in the study.
- ❖ Postnatal mothers.
- ❖ Lactating mothers.
- ❖ Labour mothers.

DEVELOPMENT OF THE TOOL

The instrument was developed by the investigators which considered of questionnaires with 2 parts.

Part A – Deals with demographic data.

Part B – Deals with multiple choice question related to perinatal diet among antenatal mothers.

DESCRIPTION OF TOOL

Part A – It consists of age, education, religion, income, occupation, food habits, family type, gestational week, gravida, abortion and number of pregnancy.

Part B – This section consists of the 30 items to assess the knowledge regarding perinatal diet among antenatal mother each items had 4 response with one correct answer and the correct answer is given a score of 1 mark. The total number of items are 30 and the total score is 30.

SCORE INTERPRETATION

The correct response was given a score of one and the obtained score were converted into percentage.

The result were interpreted as,

The investigators thanked the head of the institution for facilitating to conduct the study. The data were filled for data analysis.

DATA ANALYSIS

Data analysis is the systematic organization of research data and finding of the result using these data. Data analyzed by using descriptive and inferential statistics on the basis of objectives and hypothesis of the study.

ANALYSIS AND INTERPRETATION OF DATA

This study deals with the study subjects, statistical analysis on interpretation of the data collected to evaluate the objectives & test the hypothesis.

Analysis is defined as categorizing, ordering, manipulating & summarizing of the data to reduce intelligible & interpretable form, so that the research problem can be studied



& tested with relationship between the variables. (SURESH K. SHARMA-2014)

The purpose of analysis is to reduce data to intelligible to each problem can be studied & tested. The data obtained from a sample 60 antenatal mothers were analyzed and presented in this chapter under the following heading.

SECTION-I: Demographic variables of the antenatal mothers.

SECTION-II: Analysis of the pre-test level of knowledge about perinatal diet among antenatal mothers.

SECTION-III: Analysis of the post-test level of knowledge on perinatal diet among antenatal mothers.

SECTION-IV: Analysis of effectiveness of structure teaching programme on perinatal diet among antenatal mothers between the pre-test and post-test.

SECTION-V: Association of level of knowledge on perinatal diet among antenatal mothers with the demographic variables in the pre-test.

SECTION-VI: Association of level of knowledge on perinatal diet among antenatal mothers with the demographic variables in the post-test.

FREQUENCY AND DISTRIBUTION OF SAMPLE ACCORDING TO THE DEMOGRAPHIC VARIABLES

(N=60)

S.NO	DEMOGRAPHIC VARIABLES	FREQUENCY (N)	PERCENTAGE (%)
1.	AGE		
	a)below 20 years	0	0
	b)21-25 years	1	3.3%
	c)26-30 years	54	76.7%
2.	EDUCATION		
	a)illiterate	0	0
	b)12 th standard	8	26.7%
	c)bachelor degree	40	33.3%
3.	RELIGION		
	a)Christian	9	30%
	b)hindu	36	53.3%
	c)muslim	15	16.7%
4.	FAMILY INCOME		
	a)below 10,000 rupees	4	13.3%
	b)11,000-20,000 rupees	9	30%
	c)21,000-30,000 rupees	7	23.3%
5.	OCCUPATION		
	a)house wife	40	33.3%
	b)daily wages	13	43.3%
	c)government employee	2	6.7%
6.	EATING PATTERN		
	a)private employee	4	13.3%
	b)non-vegetarian	41	36.7%
	c)vegetarian	12	40%
7.	TYPE OF FAMILY		
	a)nuclear family	57	90%
8.	GESTATIONAL AGE		
	b)joint family	03	10%
	a)below 20 weeks	0	0
	b)20-28 weeks	23	43.3%
9.	NUMBER OF PREGNANCY		
	c)28-36 weeks	37	56.7%
	d)36-42 weeks	0	0
	a)first time	39	63.3%



10.	b)second time	21	36.7%
	c)third time	0	0
	d)more than 3	0	0
	NUMBER OF ABORTION		
11.	a)once	9	30%
	b)twice	4	13.35
	c)more than 2	1	3.3%
	d)never	46	53.3%
12.	NUMBER OF DELIVERY		
	a)once	47	56.7%
	b)twice	03	10%
	c)more than twice	02	6.7%
13.	d)none	08	26.7%
	COMPLICATION IN THE PREGNANCY		
	a)medical	07	23.3%
	b)surgical	0	0
13.	c)obstetrical	04	13.3%
	d)none	49	63.3%
	FROM WHERE DO YOU GET INFORMATION ABOUT PREGNANCY?		
	a)family	48	60%
	b)friends	07	23.3%
	c)mass media	05	16.7%

THIS SECTION PRESENTS THE ANALYSIS OF THE LEVEL OF KNOWLEDGE ON PERINATAL DIET AMONG ANTENATAL MOTHERS

DISTRIBUTION OF SAMPLE ACCORDING TO THE LEVEL OF KNOWLEDGE ON PERINATAL DIET AMONG ANTENATAL MOTHERS IN PRE-TEST.

(N=60)

S.NO	LEVEL OF KNOWLEDGE	FREQUENCY	PERCENTAGE
1.	Inadequate knowledge	9	30%
2.	Moderate knowledge	51	70%
3.	Adequate knowledge	0	0

Table-shows the distribution of sample according to the level of knowledge on perinatal diet among antenatal mothers in the pre-test.it reveals that 51(70%) of the samples had moderate knowledge and 9(30%) of them had inadequate knowledge.

It concludes that more than half 51(70%) the antenatal mothers had only moderate knowledge. Hence they need to have an education regarding knowledge on perinatal diet among antenatal mothers.

DISTRIBUTION OF THE SAMPLES ACCORDING TO THE LEVEL OF KNOWLEDGE ON PERINATAL DIET AMONG ANTENATAL MOTHERS IN POST-TEST.

S.NO	LEVEL OF KNOWLEDGE	FREQUENCY	PERCENTAGE
1.	Inadequate knowledge	0	0
2.	Moderate knowledge	37	56.7%
3.	Adequate knowledge	23	43.4%

Table-shows that distribution of samples according to the level of knowledge on perinatal diet among antenatal mothers in the post-test. It reveals that 37(56.7%) of the sample had moderate knowledge and 23(43.3%) of the sample had adequate knowledge.

It concludes that nearly half 23(43.3%) of the samples had adequate knowledge, which shows that the teaching on knowledge regarding perinatal diet were effective.



ANALYSIS OF EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE AMONG ANTENATAL MOTHERS BETWEEN PRE AND POST TEST.

(N=60)

LEVEL OF KNOWLEDGE	MEAN	STANDARD DEVIATION	'T' VALUE	'P' VALUE
Pre-test	12.33	4.33	23.93	2.05
Post-test	25	2.74		

*Significant $p < 0.05$

Table-shows that mean value and standard deviation in pre-test and post-test of knowledge and its significance.

This table reveals that in the pre-test mean value is 12.33 with the standard deviation 4.33 where as in the post test the mean value is 25 with the standard deviation 2.74. There is significance difference between the mean value of the pre-test and post-test level of knowledge. The 't' value is 23.93 and 'p' value is 2.05 and it is significant or < 0.05 level.

It concludes that the structured teaching programme is effective to increase the level of knowledge of perinatal diet among antenatal mothers.

DISCUSSION

A total number of 60 antenatal mothers were selected according to the inclusive criteria of the study. The investigator selected the demographic Variables (age, income, type of family occupation, family income, source of information), of the samples Pretest was conducted with structured knowledge and questionnaire to the Antenatal mothers who come under the inclusion criteria. They are instructed to answer the questionnaire afterwards the structure teaching programme about perinatal diet was explained to the Antenatal mothers.

SUMMARY, CONCLUSION AND RECOMMENDATION

SUMMARY

The aim of the study was to find out the level of knowledge on perinatal diet among antenatal mothers and to study the effectiveness of structure teaching programme in improving the level of knowledge and practices.

THE OBJECTIVE OF STUDY WERE

- ❖ To assess the pre test knowledge score regarding perinatal diet among antenatal mothers.
- ❖ To assess the post test knowledge score regarding perinatal diet among antenatal mothers after structured teaching programme.
- ❖ To assess the effectiveness of structured teaching programme regarding perinatal diet among antenatal mothers.
- ❖ To associate post test knowledge score regarding perinatal diet among antenatal mothers with thier selected demographic variables.

The investigator has selected one group pre test and one group post test design. A total number of 60 antenatal mothers were selected by purposive sampling technique. The pre test and post test collected with structure questionnaires before and after structured teaching programme.

After pre test and post test the datd collected from subject were analysed by using descriptive and inferential statistics and association was analysed with computing frequency, percentage, standard deviation.

RESEARCH FINDING

In pre test and post test there was a significant association between level of knowledge and demographic variables such as age, education, religion, income, occupation, eating pattern, number of pregnancy, number of abortions, number of delivery, complication in pregnancy and source of information.

CONCLUSION

Antenatal mothers who had an inadequate knowledge or poor knowledge regarding perinatal diet, before the structured teaching programme the knowledge was around 30% (9 samples) and moderate knowledge around 70% (51 samples).

After the structure teaching programme the antenatal mothers gained knowledge regarding perinatal diet, around 56.6% had adequate knowledge and 41.6% had moderate knowledge.

NURSING IMPLICATION

Present study has an implications in the field of nursing practice, nursing education , nursing administration and nursing research.

NURSING PRACTICE

This study helps the nurses to understand the importance of perinatal diet among antenatal mothers. Nurses need to understand about the food constituents, dietary requirements, available food sources and treatment for the minor disorders through proper consumption of food. The nurses can give proper counselling and education regarding perinatal diet among antenatal mothers.

NURSING EDUCATION

The study helps the nurse educator to train the nursing students to gain knowledge regarding perinatal diet among



antenatal mothers and motivates the students to improve further research. The nurse educator should train the student to educate the people regarding the importance of perinatal diet.

NURSING ADMINISTRATION

Nursing service in administration is most desperate need of research. Health care provider should actively involved in both health policy and clinical management.

NURSING RESEARCH

Nurses must take initiative to conduct research on perinatal diet among antenatal mothers. Steps should be taken to develop and implement research utilization by preparing nurses to involve in research activities.

RECOMMENDATION OF FURTHER RESEARCH

After the finding of present study, the following recommendations are made for further research.

- The study can be done in large group.
- The study can be done with large sample in community settings.
- The study can be done among post natal mothers.
- Comparative study can be done on level of knowledge among urban and rural mothers.

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EMERGENCE OF Dr.B.R.AMBEDKAR IN POLITICS - A STUDY

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ABSTRACT

Caste in India means an artificial chopping off the population into fixed and definite units, each one prevented from fusing into another through the custom of endogamy. Thus the conclusion is in evitable that Endogamy is the only characteristics that are peculiar to caste, and if we succeed in showing how endogamy is maintained, we shall practically have proved the genesis and also the mechanism of Caste According to Ambedkar: It is a pity that Caste even to-day has its defenders. The defences are many it is defended on the ground that the Caste System is but another name for division of Labour and if division of labour is a necessary feature of every civilized society then it is. Argued that there is nothing wrong in the Caste System. Now the first thing to be urged against this view is that Caste System is not merely division of labour. It is also a division of labourers. Civilized society undoubtedly, needs division of labour. But in no civilized society is division of labour accompanied by this unnatural division of labourers into water-tight compartments.

KEYWORDS: Panchamas,Bainiyas,non-Brahminism,Aryasamaj,Bahujan-samaj

INTRODUCTION

The emergence of the national social as described it urges us to reconsider our reading of the mass efforts of social reform trained on the Depressed Classes that emerged from all political quarters at this time, usually understood as the rise of nationalist and reformist consciousness, as well as a moment of competition among state officials and the various nationalist and loyalist Madras political parties to win the Depressed Classes electorate's loyalty. Rather than displaying sympathy or even paternal indulgence toward the oppressed, however, political leaders of India's nationalist and sub-nationalist parties in Madras instead expressed their wariness toward the political interests of Dalits.

One prominent Congress site newspaper, New India, described their situation vis-à-vis Panchamas thus. We have 50 millions of untouchables, think of them all becoming our enemies. If 50 millions of people become our enemies, what will be our position? When you find that his education and welfare are being taken care of by foreign agencies, he takes full advantage of the powers of mischief that he possesses. What is the use of local self-government if in our own house there is perpetual war in effecting reconciliation? (MLCP, inNew India, October 24, 1916.)

The loyalist non-Brahmins' periodical Justice, in a similar vein, admonished its readers, avowing that there was "to both the Brahmins and the other high caste Hindus [i.e., themselves]...a danger behind them. If they do not treat the Panchamas as human beings...they [the Panchamas] will assert their rights."(Justice, March 7, 1918, cited in GOR 748 Confidential, March 29, 1919, p. 17 ;) If Madras's elite politicians thus sought to tame a stirring giant, the government, for its part, worried that "if they did not deal

adequately with the position of the depressed classes... [Their discontent] will unquestionably be utilized for political and anti-Government purposes."(GOR 748 Confidential, March 29, 1919.) The invention of the national social was not, therefore, a matter of competing to win Dalits over by offering them genuine gains in rights; if gestures of reconciliation were made, they were only intended to stave off the threat that unleashed Dalit animosity would result in "perpetual war." The national social represents a consolidation of otherwise opposed forces—diverging political interests and the imperatives of the colonial state—that came together to decisively arrest any talk of rights by Depressed Classes leaders.

The promise of the social continues to be held out to Dalits to this day. Consider as a typical example of enlightened public opinion in India PrafulBidwai, activist, journalist, and long-time editor of The Times of India, who recently made an impassioned plea for a return to nationalist-era social reform without any awareness of how particular problems came to be understood as social in the first place. Above and beyond the necessary legal measures that might be taken to stem the rising tide of violence against Dalits, he argued, "India has had a great social reform movement...[that] was an integral part of the freedom struggle...[and it] must be revived and re-energised...to combat...[the] evils [that keep Dalits]...in a state of permanent subjugation."("Redif News, October 22, 2002). Yet the permanent subjugation of which India's public citizens ruefully speak is inseparable from the historical conditions under which that subjugation was consigned to the distinct realm of the social, which acquired in those struggles the definition and intelligibility that in large measure it still possesses today.



In fact, British rule produced a remarkable amount of statistical and analytical documents in which references to caste appeared prominently, but did not form an all-powerful 'colonial' consensus about this or any other aspect of society. Anyone moving from revenue records to judicial codes, local censuses, and descriptive writings of soldiers, missionaries and other semi-official observers can meet the same people who are being represented and 'compulsory' in all kinds of guise. ', depending on what commentators have done in a given region, are understood by terms such as caste, tribe, race, sect, nationality, religious community and occupation, or as their coarse equivalents is understood by the many local terms used.

This diversity remained in evidence even after the mid-century when the comparatively disorganized efforts of earlier regional data-gatherers began to be replaced by the launch of a whole host of vast pan-India data surveys. These included the Indian District Gazetteer (1869), the decadal All-India Census (since 1871), provincial statistical reports (such as the Twenty-volume Statistical Account of Bengal, 1875-7), the encyclopaedic Tribe and Caste Survey (since 1891), and centralized enumeration and reportage in all other practices that became a hallmark of the Victorian Raj. For all their flaws and 'orientalist' prejudice, these works deserve to be taken seriously, not least because so many Indians found it useful to adapt their terms and concepts to their own purposes. This was especially from the later nineteenth century, when complex changes in the so-called public culture of the Raj prompted many politically active men to attempt to increase their regional prestige and influence by establishing 'modernized' voluntary organizations which came to be known as caste unions and caste reform movements (ibid)

By the mid-seventeenth century, Dutch and English writings on India had adopted these usages from the Portuguese, employing them with similar ambiguity and in conjunction with other precise terms, including race, class, nation, sect and tribe. In maritime trading ports, early travellers and officials met forms of social organization that were apparently heavily influenced by Brahmanical conventions. This probably reflects the fact that the artisans and mobile commercial people who joined with the East India Companies in this period were gaining ritual and practical advantages in adopting these 'traditional' caste forms. Describing life in the commercial port of Surat in 1689, the English traveller Ovington reports: 'Among the Baniyas [Baniya: commercial caste group] 24 castes [sic], or sects, are counted, both of which constitute one marriage. Avoid indiscriminate mixing, , and eating together (ovington-1929:168)

This account is actually written in the same language that was used 200 years later to 'essential' colonial proclamations about the 'dominant' and 'inhuman' qualities of India's so-called 'non-martial race' (Nandi.1983) Was also that in a caste society people are politically free, that caste is an 'autocrat' and a weak institution and a tool of 'tyrants'. Thus the 'innocent and consequential' bunnies have a 'fear of blood', Ovington says; they have an 'autocratic government [which] breaks their spirits; this combined with the hot climate undermines and sanctifies their constitutions'. His account

also emphasizes the conventions of strict ritual avoidance, which he claims are observed among SuratBania groups, especially pollution-removers ('halaltheives'), as 'separate from all the rest of the caste', as a thing. Unclean' (ovington.1929, opcit)

OBJECTIVES OF THE STUDY

1. To study the non-Brahmin movement
2. To understand the Aryasamaj as reform society
3. To identify Maratha non-Brahmin movement
4. To find out the non-Brahmin movement in madras presidency

Modernity of Non-Brahmin 'Caste Sentiment'

This was the context in which so-called non-Brahminism emerged as a political force uniting activists of mixed service, commercial groups and superior 'clean'-caste/sat-shudra 'peasant' groups in the Madras and Bombay Presidencies. These were the areas where the provincial administration was most feared by the alleged Brahmin conspiracies. This made his officials particularly eager to promote anti-Brahmin sentiment as retaliation for the voice of 'Brahmin rebels' in the newly enlarged municipal and provincial councils. This strategy in Madras resulted in the creation of the Justice Party, whose leaders formed the first Indian ministry of this presidency under the diocesan constitution of 1919(Baker.1976). This Madras-based organization was established in 1916 in close collaboration with the colonial scholar-officials. The organization had no real party structure at the time when elections were held to elect new voters who were suffrage under the Montagu-Chelmsford 'Diarchy' constitution in 1920. Some of the candidates who won seats in this election were allies of justice;

The Madras authorities nevertheless considered almost every victorious non-Congress candidate to be a winner on behalf of the non-Brahmin 'party'. There are close parallels here with the origins of the non-Brahmin confederacy of the Bombay Presidency, which was founded in 1920 under the sponsorship of ShahuChhatrapati, the Maratha ruler of Kolhapur State. This Kolhapur dynasty, which claimed direct succession from the original Maratha statebuilderShivaji, was the leader of the 'depressed class'; B.R. Ambedkar was closely associated with. He was also a follower of AryaSamaj, a prominent supporter of Maharashtrian social 'uplift', and an early proponent of the move to create separate electoral constituencies for non-Brahmins (omvat.1976:184-85).

Thus the term non-Brahminism was an invention of the colonial political sphere. In both Bombay and the South, those who called themselves non-Brahmins were generally allies in a short-lived political alliance rather than members of an authentic ritual or moral community. Shahi 'non-Brahmins' such as ShahuChhatrapati inserted a strong element of sovereign varna-consciousness into the activities of these organisations, particularly through the sponsorship of thread-investment ceremonies for Marathas and other 'non-Brahmins' which seek formal recognition. joined their campaigns for As well as 'dvijas' of the Kshatriya varna (ibid), these groups used slogans and symbols depicting satirical or hostile views of



Brahmins that were common in many regional folk cultures as well as in 'modern' Hindu revivalist teachings. Were furthermore, those who claimed leadership of the two non-Brahmin organizations continued to make these views more widely known when their parties took power at the provincial level in the 1920s and 1930s.

In South India, in particular, increasing literacy in local languages helped spread awareness of regional identities, which were often perceived as resistance to Brahmins. Through school textbooks as well as temple worship, Tamil-speakers became acquainted with the stories of pious kings and warrior heroes who exemplified Tamil 'peasant' solidarity in the face of foreign invasion. Even as the widely circulated Rama epic gained a distinctly South Indian twist, Ravana, the heroking's monstrous foe, became the heroic centre of the story in the popular Tamil version of the story. In these regions, a mixture of devout devotional beliefs and appropriated Western ethnographic principles was typical in the proclamations of the Disputists, who represented the Brahmins as the descendants of foreign Aryan conquerors. Such writings further declared that the Brahmins of South India were still plotting to oppress the primitive 'sons of the soil' of the region, citing these groups for their Dravidian linguistic heritage and their perceived traditions of worthy 'peasant' qualities was being defined as a race on the basis of 1873) Maharashtra, too, gave rise to the Maratha-led Bahujan-samaj ('majority community') campaign, which appears to have authentic popular roots. Its followers fought with Tilak and other Brahmin nationalists for the right to include Shivaji as their heroic example. The politics of the Pune municipal council in the mid-1920s was dominated by fighting over the staging of rival Brahmin and non-Brahmin Shivaji fairs (festivals), as well as conflicts arising from proposals to install a municipal statue of an anti-Brahmin moralist. Jyotirao Govindrao Phule (1827-90) (Omv. 1976) Encouraging the growth of 'non-Brahmin' political organisations, the Madras and Bombay authorities claimed that they were recognizing a force that had long been active among the 'progressive' elements in these societies. In support of this, he pointed to initiatives being taken by Hindu princes and other notables in these regions, which are more 'nourishing' caste groups, representing such figures as brave modernists, who were 'Brahmin tyranny' 'by challenging the Hindu mind to 'unshake'.(gallanter.1984:36)

More importantly, the heirs of important Maratha-ruled princely states identified themselves as the cause of the Maratha Bahujan-samaj, citing both officials and Indian commentators in their long-running efforts to withdraw revenue from spiritual Brahmin feudal dynasties. Persuaded to see as efforts Social emancipation on the part of all Marathas and/or even all 'non-Brahmins' The most successful of these campaigns was carried out by Shahu Chhatrapati, the ruler of Kolhapur. As seen above, Shahu Chhatrapati was an early sponsor of the Bombay Non-Brahmin Association. Within its home state, this Maratha dynasty established a pattern that persisted into the 1990s when it launched a campaign to address the so-called backwardness of its region's 'non-Brahmin' subjects. This was again taken mainly for the 'peasant' birth of the better clean caste, i.e. Marathas

HINDUISM AS COUNTER – REVOLUTION

B.R. Ambedkar

It must be recognized that there never has been a common Indian culture, that historically there have been three Indias, Brahmanic India, Buddhist India and Hindu India, each with its own culture.... It must be recognized that the history of India before the Muslim invasions is the history of a mortal conflict between Brahmanism and Buddhism. (Ambedkar 1987,275). Dr. Bhimrao Ramji Ambedkar (1891-1956; known as 'Babasaheb' in the movement) came into politics claiming the heritage of the non-Brahman movement, between 1917 – 20 he returned to India after getting his degree in law in the US. He gave up service in Baroda after insults were heaped upon him as an untouchable. Settling in Bombay as a professor at Sydenham College, he associated with Shahu Maharaj of Kolhapur (notorious to nationalists as anti-Brahman and pro-British) in his initial political organizing. The autonomy of the Dalit movement was his concern, but it was to be autonomy in alliance with non-Brahmans. At the first Depressed Classes conference in Nagpur in 1920, which he attended in the company of Shahu Maharaj, he attacked not only nationalist spokesmen, but also Vitthal Ramji Shinde, the most prominent non-Dalit social reformer claiming to lead the "uplift of untouchables".

Ambedkar's emergence into politics was cautious, very gradually he gathered a team around him, of educated and semi-educated Mahar boys, as well as a few upper-caste sympathizers, forming the Bahishkrut Hitakarni Sabha, which began to hold conferences around the province. In 1926, an explosive movement resulted when a conference at Mahad in the Konkan ended with a struggle to drink water from the town tank. The Mahad Satyagraha, the first 'untouchable liberation movement', did not succeed in getting water but did end with the public burning of the Manusmriti. The campaign was partly spontaneous and partly planned; Mahad had been chosen as a place where Ambedkar had significant caste Hindu support, where a tenant movement uniting Mahar and Kunbi peasants was beginning (which developed into the biggest anti-landlord movement in Maharashtra in the 1930s), and where the municipality had already passed a resolution to open public places to untouchables.

By the time of the Simon Commission Ambedkar had clearly emerged as the most articulate Dalit leader in the country with a significant mass base, and it was natural that he should be invited to the Round Table Conference. This led to the clash with Gandhi over the issue of an award of separate electorates to untouchables. For Gandhi, the integrity of Hindu society with the untouchables as its indissoluble part was a central and emotional question. The confrontation over Gandhi's fast and the Poona Pact (1932) disillusioned Ambedkar once and for all about Hindu reformism (when Gandhi undertook a fast in 1932 in protest against giving separate electorates to untouchables, Ambedkar finally gave into him, the result was the Poona Pact); it inaugurated his radical period which led to an announcement in 1935 that he was "born a Hindu but would not die a Hindu" and the founding of the Independent Labour Party (ILP), a worker-peasant party with a red flag in 1936. The 'conversion' announcement set off ferment throughout the country, while



the ILP went on to become the biggest opposition party in the Bombay legislative council. With growing nationalist agitations and workers' and peasants' struggles, the 1930s was a decade of ferment. The ILP grew and became the only party in India which led struggles against capitalists and landlords along with agitations against caste oppression, calling for a radical opposition to the 'Brahman-bourgeois Congress' and seeking to pull in non-Brahmans as well as Dalits. While Ambedkar himself did not support a non-Aryan theory of Dalit-shudra identity, poems and songs published in his weekly *Janata* show how pervasive these ideas were, and how they lined anti-caste radicalism with calls for class struggle: Bhils, Gonds, Dravids, their Bharat was beautiful, They were the people, the culture was theirs, and the rule was theirs; The Aryas infiltrated all this; they brought their power to BartendDravidans were suppressed...Brahmans, Kshatriyas, Vasihyas, all became owners Drinking the blood of slaves, making the Shudras into machines.

The Brahmins, Kshatriyas and Banias got all the ownership rights, all these three call themselves brothers; they come together in times of crisis and work to split the Shudras who have become workers "Congress", "Hindu Mahasabha", "Muslim League" are all agents of the rich, The "Independent Labour Party" is our true house...Take up the weapon of *Janata* Throw off the bloody magic of the owners' atrocities, Rise workers! Rise peasants! Hindustan is ours, Humanity will be built on labour, and this is our birth right! (Ramteke 1941)

The ILP led some major combined struggles in this period. The most notable of these was the anti-landlord agitation in the Konkan region of Maharashtra which brought together Kunbi and Mahar tenants against mainly Brahman (but also some upper-caste Maratha) landlords, climaxing in a march of some 25,000 peasants to Bombay in 1938. This was followed by a massive one-day united textile workers' strike against the black bill of the Congress government which outlawed strikes. Communists were involved in both of these, and at the massive peasant rally Ambedkar proclaimed, though very ambiguously, an admiration for Marxism:

The 1930s was thus the period in which Ambedkar expressed most strongly his major themes of unity and militancy, unity of workers and peasants, of dalits and non-brahmins (shudras), and unity with opposition parties against the Congress. It is striking that throughout this period (as later) it was the dominant caste peasants who were the main perpetrators of atrocities against Dalits in villages, and the latter under Ambedkar fought this vigorously. Nevertheless at a broader level he called for and tried to build 2 unities of Dalits with the Kunbi-Marathas, associated with the non-Brahman party and praised ShahuMaharaj as well as Phule. Ambedkar's position here was that at the caste level, Brahmanism was the main enemy, just as capitalism and landlordism were the main enemies in class terms. He consistently argued for the left and non-Brahman/Dalit forces to come together to form a political alternative that would fight both the Indian ruling classes and imperialism. Thus, for example, following the 1938 peasant and workers' struggles, he met with Periyar and Swami Sahajanand, the peasant leader of Bihar, in an attempt to form a broad front. Similarly, he tried to dissuade the non-Brahman leaders of Maharashtra

from merging their movement with the Congress, arguing that it would only make them the 'hamals' or coolies of a Brahman leadership.

As a matter of fact the caste system came into being long after the different races of India had commingled in blood and culture. To hold that distinctions of caste are really distinctions of race and to treat different castes as though they were so many different races is a gross perversion of the facts. What affinity is there between the Brahman of the Punjab and the Brahman of Madras? What affinity is there between the Untouchable of Bengal and the Untouchable of Madras? The Brahman of the Punjab is racially the same stock as the Chamar of the Punjab and the Brahman of Madras is the same race as the Pariah of Madras. Caste system does not demarcate racial division. (Ambedkar 1979, 49).

It was not that Ambedkar denied 'racial elements' completely; for example, he referred to the early Magadha-Mauryan empires as being the work of 'Nagas'. He simply argued they should not be given causal priority in explaining caste. In his view, all the varnas included some kind of racial mixture; for instance the original shudras were a tribe of kshatriya Aryans who had been degraded due to conflicts with Brahmins, only later being assimilated with the conquered darker-skinned nonAryans. Similarly he rejected an analysis in terms of economic factors. In his famous phrase, somewhat similar to the way he discussed race, "caste is not a division of labour; it is a division of labourers. "Caste was thus neither racial nor economic. What then were the main explanatory factors, the motive of historical change that produced the caste system, this 'social division of the people'? With class and race rejected, and violence ignored, the emphasis is on ideological and religious factors. In Ambedkar's analysis these are interwoven as civilizational forces that produced the conflicts and changes in Indian society. Without a knowledge of the Indus valley civilization, he differentiated three major phases, as noted above, with the central element in them being the conflict between Hinduism as representing in equalitarian and oppressive elements, and Buddhism as the advanced, egalitarian and rational mode: (1) Brahmanism (the Vedic period, basically tribal in nature and characterized by varna among the Vedic Aryans, though this was not based on birth); (2) the 'revolutionary' period of Buddhism, marked by the rise of the Magadha and Mauryan states and bringing about a great advance in the status of women and shudras whose position had become degraded in the last stages of the Vedic period; and (3) the counter-revolutionary' period of Hinduism marked by the Manusmriti, the transformation of varna into caste, and the complete downgrading of shudras and (Ambedkar 1987, 316-17).

The triumphant Brahmanism began an onslaught on both the Shudras and the women in pursuit of the old idea, namely servility, and Brahmanism did succeed in making the Shudras and the women the servile classes: Shudras the serfs to the three higher classes and the women de serfs to their husbands. Of the black deeds committed by Brahmanism after its triumph over Buddhism this one is the blackest.

There is no parallel in history for so foul deeds of degradation committed by a class of usurpers in the name of class domination (Ibid., 336). It has to be noted here that in



using the term 'shudra' Ambedkar was clearly not referring to the untouchables, whom he saw as broken men' settled outside the villages; he was referring to the non-Brahman masses whom he saw, along with untouchables and tribals, as victims of the caste system.

CONCLUSION

By the 1940s, however, his hope that there would be a unified struggle was at a low ebb, and he was in his political writings treating "Hindus" as a "majority" that included non-Brahmans and was posed against such minorities as Muslims and Dalits. Nevertheless, Ambedkar's longer-term strategy was to break up that majority, to dissolve Hinduism itself, and do so by building a unity of Dalits and middle castes (non-Brahmans) which would be both a caste and a class unity of peasants and workers, against the Brahman-bourgeois Congress. The last years of his life saw a return to this kind of united front, expressed in the change of his Scheduled Caste Federation into the (hopefully non-caste) Republican Party. It participated in the Samyukta Maharashtra Samiti, organized to fight for a Marathi-speaking state and which was actually the first full left-democratic front of opposition parties. Ambedkar, in fact, had argued that the united front should continue even after the winning of a Marathi-speaking state, and fight for the interests of the rural poor; and a massive land Satyagraha led by his lieutenant Dadasaheb Gaikwad and communist peasant leaders followed in both 1956 and 1965.

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CHILDREN ADVERTISING LITERACY AND DIFFERENT VIEWPOINTS

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ABSTRACT

Advertisements in the modern age of internet media are increasingly interspersed with both educational and entertaining material (e.g., on a website, in an online game, etc.). In light of this, it is more difficult to notice and interpret these commercials, especially for younger and less skilled customers. Children, in contrast to adults, are more susceptible to advertising because they are less likely to recognize the commercial’s motivation behind such communications. Since children have a far less informed understanding of the real objective of advertising (like: persuading and selling), it has been argued that children are more susceptible to "unfair" influence from it than adults. In recent decades, this area (children susceptibility towards advertising) has prompted increased public and governmental concerns and heated discussions. Brian Young (1990), in his seminal review, proposed a research agenda pertaining to some important issues on children and advertising, such as whether or not children can comprehend advertising, how and when they acquire advertising-related knowledge, and how educational programmed can improve children's understanding of advertising. Consequently, he laid the ground for research into what has been termed "advertising literacy." This article will focus on the different viewpoints of researchers about advertising literacy and traditional vs. non-traditional form of advertising. At the very end new challenges in the field of advertisements and potential next steps were discussed.

KEYWORDS: *Children advertising literacy, Traditional advertising, non-traditional advertising, laws for children advertising*

CHILDREN AS A TARGET GROUP IN INDIA

Marketers worldwide as well as in India are now targeting children as their products’ target market. Change in the target demographic has risen since TV has taken over prime room the households. The ultimate aim of a company is to build a consumer, and in simplest form it can say - a Consumer is someone whom the entire business activities revolve. These new consumers are innocent and sophisticated too, but they are alert, tech savvy and aware about their options available to

them. They are fully aware of what their parents should buy for them and what they would purchase for themselves. Their parents saw them as the representatives of the modern paradigm and technology. This is due to TV exposure of children, according to BARC statistics, children (2-14 years old) as an audience account for 20 per cent of total TV viewership. As shown by the below table (% Share of impression);

Table 1.2: Different Age Groups Audience

	Age Group	Share of Universe
Kids	2-14 years	20%
Youth /millennials	15-21 years	17%
	22-30 years	16%
Adults	31-40 years	17%
	41-50 years	15%
Mature	51-60 years	9%
Seniors	61+ years	7%

Source: BARC India, BMW data; Period- Wk08-Wk52, 2017, TG: 15-30 years, Market: All India, Channels considered: ALL

And such active viewership is not only restricted to kids’ channel. Children also share screen on non-kids’ channels with their family members.

TV ads effect on children purchase behaviour which impinged upon their consumer related behaviour in the form of pestering

their parents. However, Cantor et Al (2001) found that there were wide range of commercials that targeted a specific child audience and taught them to become less dependent on their parents to learn consumer values.

Children constitute a major audience for advertisers because today, they have their own purchasing power and affect the



buying decision of their parents (Ward et al. 1972). Also, they're the adult consumers of the future. When a child "caught into their nest," marketers realize that the sooner they may begin to build their future loyal client and brand loyalty at a young age, the greater their chances of making relentless sales later on. (Šramová B. 2015). This is an economically cheaper way to create an early childhood customer base rather than to make strategies and plans for adults and seniors' customers.

CHILDREN ADVERTISING LITERACY AND DIFFERENT VIEWPOINTS

The growing reach of advertisers and absence of some statutory bodies to regulate the advertising and its adverse effects, it becomes necessary to make children advertising literate. Children advertising research heavily depends on the frameworks established by developmental psychologists. It would be advantageous if there were a single, widely accepted developmental psychology paradigm that could offer a straightforward answer to concerns about children's advertising abilities. As of now, there is no such framework. Almost all the researches in the field of children advertising and its effect, have been influenced by "Piaget's theory of cognitive development (1932), theory of information processing (Rodder, 1981), theory of mind or "belief-desire psychology" (Wellman, 1990), and the most current is the theory of mind paradigm (Moses & Baldwin, 2005)". These theories identify three developmental stages of child: early childhood (from birth to five years), middle childhood (from six to nine years), and late childhood (10 to 12 years old). Each stage enhanced the child's social-cognitive and information-processing skills, which aided in the development of advertising literacy components (Buijzen, 2010).

Advertising literacy was defined by various research practitioners as: consumers' awareness of the range of different types of advertisements, their ability to articulate various production methods, sensitivity to the advertising message, and familiarity with the jargon of the industry (O'Donohoe, 1995). Further Ritson and Elliott (1995) An advertising literate customer is described as someone who can understand the advertising material, co-create, and consider the numerous potential interpretations of a particular commercial. Advertising literacy, on the other hand, is usually described as the conceptual understanding of advertising in the context of children. After went through the child literature seven advertising literacy components identified; 1). Ad recognition- able to make a fair difference between advertising and other programs; (2) Advertising source awareness- a fundamental knowledge of who finances for advertising; (3) comprehension of intended audience- comprehension of focused and segmented audience; (4) understanding selling intent of advertiser-that advertiser try to sell out their product; (5) comprehending persuasive intent- comprehending the advertiser's effort to manipulate the customer by altering their state of mind, attitude, and understanding about the commercial and goods; (6) knowledge of the marketer's persuasive tactics- knowing that the advertiser utilized specific methods to increase their desire for the specific goods; (7)

Recognizing advertising bias—being aware of the discrepancy between advertised and real goods (Rozendaal, 2011). The further perspective is offered by Rozendaal et al (2011), by adding two more dimensions in their study, as named of, *attitudinal advertising literacy* and *advertising literacy performance*. Bartholomew and Donohue (2003) proposed three roles for children's advertising literacy: ad master (when they understand the intent and meaning of an advertisement), ad controller (when they demonstrate control over an advertisement by beginning to avoid certain advertisements), and ad critics (When critically evaluate the advertisements).

Wright, Friestad, and Boush (2005) highlighted the need of focusing on how these aspects of children's advertising literacy differ from adult-like advertising knowledge, and the importance of utilizing the latter as a benchmark for comparison. This is not to say that adults are never affected by advertising. Adult consumers too are influenced by advertising otherwise, marketers would not devote large portions of their media expenditures to advertising. However, at the very least, they can understand advertisers' true underlying objectives (as compared to children, who are not). So, Gunter, Oates, & Blades (2005) concluded that If adults are convinced to purchase advertised goods, their advertising literacy generally protects them from being used unjustly.

Wright et al. (2005) asked what children haven't yet learned, or what they don't accomplish as fast and effectively as adults when it comes to coping with advertising targeted at them. In order to address this challenge, several researches used "cognitive development and socialization theories" to determine when children learn or acquire the essential skills and beliefs to recognize and understand advertising. It is assumed that as children's socialization and cognitive development improve their advertising literacy that will increase until it reaches adult-like levels (Brahim Zarouali et al 2019).

ADVERTISING LITERACY AND AGE OF CHILDREN: A BATTLE OF PERSPECTIVES

The major issue struck with advertising literacy is about the consensus, as there's no concord existed in literature with regards to its definition and age at which a child become fully advertising literate. There are ample of empirical studies regarding the age and various components of advertising literacy. A consumer socialization hypothesis was developed based on Piaget's theory of "cognitive development", and it identified different phases in children's capacity to understand advertising. It is believed that children cannot fully absorb information until they reach the age of seven. A child's reasoning abilities may be developed between the ages of seven and eleven (the concrete operational stage of cognitive development). They can distinguish between advertisements and other material, but they typically require specific cue to do so. As a result, youngsters at this stage are referred as "cued processors."

Young (1990) discovered that children as young as eight years old are advertising literate because they are able to reason about the advertising message. Whereas, Buckingham (1993)



identified the seven to twelve years old as advertising literate as they understanding ad intent and target audience, along with this they developed a critical thinking about nature and content of advertisement. Rozendaal (2011) in her study make a comparison between eight to twelve years old children with adults (18-30 years old) and found that 10-12 years Old's Ad recognition level is comparable to adult level but their level of understanding selling and persuasive intent is not reached up to adult level even at the age of 12 years. Rozendaal et. al (2011) in another study found that the ability to comprehend ad biasness rose from 8 to 12 years of age, but peaked at 10 years of age.

FACTORS THAT DRIVE THE DEVELOPMENT OF ADVERTISING LITERACY

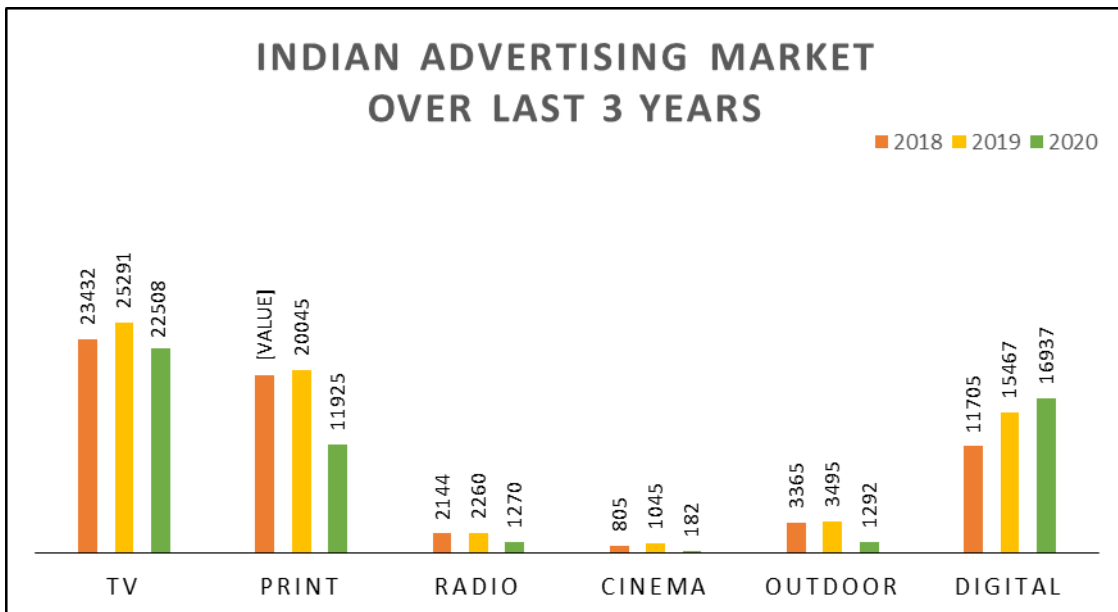
There are a number of variables that influence the development of a child's advertising literacy including his or her socio-economic background. In this respect, two major effects should be identified: parents and peers. Parents are the first teacher of a child. They are the one who plays a major part in a children's socialization as a consumer. A child's advertising literacy depends on their parents' ability to educate and teach them about how advertising works.

Second, personal contacts with peers can also affect children's advertising literacy development. Children may converse with their classmates about consumer issues, which can be seen as an essential source in their advertising learning process (Brahim Zarouali et. al 2019). Peers offer information about ads, testify as to their experiences with specific goods, provide recommendations on which things to purchase, and so on. As a result, they are regarded as a significant source of information that contributes to the development of advertising literacy.

CHILDREN ADVERTISING LITERACY WITH TRADITIONAL AND NON-TRADITIONAL FORM OF ADVERTISING

After discussing how children are target group for the advertisers, we'll shift gears to examine how well-versed they are in various types of advertising. And this new type of media is also growing at very fast pace. The below graph 1.1, shows the annual Pitch Madison Advertising Report 2020, which revealed that traditional media (Radio, print, TV, cinema and outdoor) shows a declining trend as compared with 2019. Digital is the exception with the positive trend of 9.7% in 2020

Figure 1.1: Growth of various Advertising Medium



GROWTH % IN 2020/2019 (figure in Rs Crore)

Concerns about the development of ad literacy have arisen as a result of the increasing prevalence of advertising inside engaging digital contexts. Due to the prevalence of children's usage of digital media, they are routinely exposed to subliminal advertising in the form of product placement, advergimes and the recent one is volgging. Young consumers have increased hurdles in detecting and comprehending the nature of these ad formats due to the subtle integration of commercial messaging into engaging media settings. Recent research (Owen, Lewis, Auty, & Buijzen, 2013) shows that

kids have a far harder time spotting interactive and atypical types of advertising than they do with more conventional kinds of marketing seen in mainstream media. To demonstrate this, a quick summary of how well children understand both conventional (television commercials) and non-traditional (advergimes, product placement, banners, volgging etc.) forms of advertising will be provided.



TV ADVERTISING

Advertisers have long chosen TV as predominant medium because of its sheer reach but it all started in 1959 when TV was launched in India with a motive for education and awareness of people, not for entertainment purpose. But shift has moved from awareness to entertainment and target the tiniest section of society. Since 1970s, researchers, academics and policy makers raise concern about whether children are capable of recognising and understanding television advertising. Since then, various studies have been conducted on children's knowledge and abilities about television advertising. Children are capable of recognizing ads at an early age, but it takes them longer to comprehend their selling purpose. At the age of eight, children begin to comprehend the selling aim of advertising, but a complete comprehension of the persuasive intent of television ads does not emerge until the age of twelve. Overall, young children do pretty well in identifying and comprehending ads. This conclusion applies exclusively to conventional TV advertising. Children struggle far more with hybrid kinds of internet advertising. The next paragraphs will discuss these advertising forms.

ADVERGAMES

Advergaming are video games designed to advertise a certain company's services or goods. It's a framework that lets brands take use of the latest advancements in interactive gaming to spread their own messages. Advertisements in video games often include high-sugar, low-nutrient food goods. These advergaming have been linked to kids adopting bad habits that might lead to weight gain. Therefore, there has been a lot of research focus on advergaming and the development of children's advertising literacy. When the persuasive material of an advergame is not properly differentiated from the game itself, research shows that youngsters have a hard time detecting the commercial goal of the advergame (Vanwesenbeeck et al., 2016). Because of this, encouraging young people to become advertising literate is challenging. Consequently, it has been proposed that children are very sensitive to the (poor) advertising impacts of advergaming.

ONLINE BANNER

Banners are ubiquitous on the Internet and remain one of the most popular forms of internet advertising. It appears as advertisements on almost all websites, often as little buttons, rectangles (rectangular pictures on the page), or skyscrapers (thin and tall banners). Despite the fact that one may expect online banners to be a clearly recognisable ad style due to their unique appearance on websites, the literature strangely suggests in the other way. However, it's important to keep in mind that very few research have focused on advertising literacy in the context of online banners. Thus, researchers should use caution when drawing robust conclusions, since such ground often lacks sufficient empirical support. However, it is clear that even by age 12, children have difficulty processing information presented in internet advertisements.

SOCIAL MEDIA ADVERTISING

Vulnerability to social media advertising is a concern that is especially pertinent among older children, since several significant current social network sites (SNSs) do not permit membership until the age of 13. (e.g., Facebook and Instagram). The majority of these SNSs are free since their primary source of income is advertising. Social networking sites have a significant advantage in presenting online advertisements: they have amassed an unparalleled amount of personal information on their members. Companies may then use this information to send advertisements to particular individuals. Advertisers may choose their desired demographic based on a wide range of characteristics, including age, gender, occupation, interests, hobbies, and even marital status. In addition to targeted adverts, businesses may establish a presence on social networking sites by setting up a free brand profile. The "like" or "follow" button allows users to subscribe to this brand page. There are signs that youngsters on social media may not be completely aware of the persuasive information that circulates among their peers, despite the fact that this is a relatively new field of study (Lawlor, Dunne, & Rowley, 2016). Branded sites and targeted advertising aren't making sense to them from a business perspective. For this reason, it is reasonable to assume that young people's understanding of how to critically evaluate commercial content on social media is limited.

EXISTING LAWS AND POLICIES IN INDIA: REGARDING ADVERSE EFFECTS OF ADVERTISING ON CHILDREN

Some countries are taking actions to protect children from advertisement's adverse effects. Many European governments have put restrictions on tv advertisements aimed at children. However, in India, we do not appear to comprehend the problem. Nowadays, every second advertisement on TV is using kids' innocence to increase their sale. The Advertising Standards Council of India (ASCI), which was formed in 1985, has issued a code for self-regulation in advertising, but regrettably, it does not include any provisions for protecting children from being targeted by advertisements.

The ASCI's primary goal is to improve public confidence in ads and to oversee all aspects of the advertising industry, including marketers, advertising agencies and media etc. There is another regulatory body, which named 'Telecom regulatory authority of India' (TRAI), this authority is handling or issuing the standard of quality of services, regulation 2012. It governs the time of an advertisement's transmission as well as the length of the advertising. Along with this, there are several acts in India that uphold a consumer's rights, such as nutritional claims, privacy rights, regional public and community standards, and so on. There are various regulatory bodies that handle customer complaints about advertisements, advertising quality, and duration, such as; the Indian Broadcasting Foundation (IBF), the Broadcasting Content Complaints Council (BCCC), the Electronic Media Monitoring Centre (EMMC), and the Telecom Regulatory Authority of India (TRAI), among others. There is no separate statutory body in charge of coping with child-related advertising and materials. However, in European



countries, separate regulatory bodies for child safety of advertisements' consequences exist, such as the Federal Communications Commission (FCC), which controls marketing duration and character endorsement. And the Child Advertising Evaluation Unit (CARU), which plays an important role in promoting ethical advertising to children under the age of twelve.

Finally, after analysing the entire scenario of Indian broadcasting statutory bodies, it can be inferred that the child protection law for advertisement's effects should be updated. Also, there should be some statutory bodies like the FCC and CARU, that focus solely on child safety of advertisements' consequences.

CONCLUSION

As we have discussed earlier that how today's youth are confronted with a media landscape rife with many forms of advertising (some of which have been discussed here, but many more remain unaddressed). Their advertising literacy is low, with the exception of their ability to recognise and comprehend classic TV commercials, and does not extend to the recognition and comprehension of (more recent) embedded advertising forms. To conclude, children are not (yet) mature customers who can evaluate the merits of stealth advertising on their own. Therefore, there has been a call for adults to assist children in developing adequate advertising literacy. As a result, many programmes in developed countries have been proposed to educate children about advertising like: FCC and CARU etc.

NEW CHALLENGES AND FUTURE DIRECTIONS

In the end few suggestions for where the field may go from here are offered. In the first place, although it is generally accepted that teaching children how to recognize and evaluate advertisements might help them protect their minds from its influence, yet the findings of scientific studies are mixed. Previous study on the correlation between children's advertising literacy and ad impacts has shown conflicting findings; future studies may be able to tease out these connections to provide a better picture. Considering a child's special attributes and their social environment might be helpful in this respect. Furthermore, there should be greater investigation into how successful disclosures and advertising literacy programs are. These efforts, by giving strong factual evidence, may be highly useful instruments for enhancing children's advertising literacy. Finally, there are always new forms of advertising appearing in what is a very dynamic industry. Researchers in the field of advertising must, therefore, keep up with the ever-changing landscape of digital marketing. The impact of new, hybrid kinds of advertising on young consumers must be studied. Finally, investigators may consider include many generations in their study. Growing up with a variety of new kinds of advertising may have affected digital natives differently than previous generations.

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UNDERSTANDING THE DOMAIN OF CULTURALLY-INFLUENCED COUNTERPRODUCTIVE ORGANIZATIONAL BEHAVIOURS AND THEIR EFFECTS ON ORGANIZATIONAL PERFORMANCE

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ABSTRACT

This study aimed to ascertain how cultural factors influence counterproductive organizational behavior and how they affect organizational performance. Today's businesses are plagued by so many CWBs that it is challenging to maintain low overhead costs and maximum output. It has progressed to a point where it poses a persistent threat and threatens the foundations of numerous modern businesses worldwide. Businesses lose money each year due to employees' actions that are detrimental to the company's goals. According to the hypotheses, the study's goal was to assess how gender discrimination, workplace bullying, and work-life imbalance affect the performance of employees in the Nigerian banking industry. The study utilized both descriptive and causal comparison techniques. Hence, Taro Yamane's formula produced a sample of 266 from a total population of 798 for the entire examination. However, of the 266 people who received the structured questionnaire, only 264 responded. Multiple regression testing was used to evaluate the hypotheses, and with a significance threshold of 0.05, the Cronbach alpha method produced an instrument reliability value of 0.821. According to the analysis, significant correlations were discovered between workplace bullying, work-life imbalance, gender discrimination, and organizational performance. It was also discovered that bullying is widespread because it is ingrained in the organization's culture. The study, therefore, recommends that managers prioritize putting various work-life balance incentives into place to improve employee performance. Managers are advised to make it a top priority to guarantee that all workers, regardless of gender, receive equal pay, opportunities for advancement, and other professional opportunities. Additionally, businesses should implement anti-bullying policies and counseling programs; bullied victims should be given therapy to help them recover from their ordeal, and management should prevent such occurrences.

KEYWORDS: Gender discrimination, workplace bullying, work-life imbalance, organizational performance.

1. INTRODUCTION

In the workplace, "counterproductive behaviors" refers to "any intentional activity by an employee that is considered contradictory to the organization's essential interests" (Gruys & Sackett, 2003). Examples of negative workplace behaviors include absenteeism, violence, substance abuse, sabotage, discrimination, an unbalanced work-life, victimization, etc. Negative results, such as lower output or quality, team strife, or hostility between workers and management, can all stem from unproductive behavior (Nemteanu & Dabija, 2021). Simple breaches like being late to work or taking office supplies for personal use to more serious transgressions like sexual harassment or forging medical records are all conducts of CWB

(Pati & Manoranjan, 2021). Rajput (2022) maintains that CWBs make it difficult for organizations to keep their operational costs low and their output high, as it cuts deep into every fragment of an organization. Reasonably, it has become an ongoing issue that has weakened the foundations of several businesses around the world. Accordingly, studies have shown that employees who intentionally engage in CWB signal a lack of commitment to company regulations (Bennett & Robinson, 2000). On the other hand, culture has been proven to promote workplace behaviors, as the underlying issues of CWBs may vary from country to country and even from company to company within a country. It is therefore essential to remember, however, that not every action constitutes CWB; employees may not intend to cause



harm even when they knowingly participate in unproductive actions (Marcus & Schuler, 2004); for instance, if an employee needs to take care of something unrelated to work, they may miss a day without intending to affect the company's output negatively.

Multiple studies have shown that CWBs harm organizational performance because chronic misconduct is bad for business. One definition of organizational performance holds that success occurs when actual results match or exceed expectations (Upadhyaya et al., 2014). Accordingly, employees' dedication to the organization's success depends on how they view its people, material, and financial resources (Petrova et al., 2020). Organizational performance indicators include output, results, earnings, internal system efficiency, staff morale, and responsiveness to external situations (William, 2002). In contrast, good or unsuccessful performance might be understood differently depending on the perspectives of various stakeholders and organizations (Barney, 2002). In addition to accounting rates of return, equity markets, and growth metrics, non-financial factors like employee satisfaction and recognition can be used to assess a business's effectiveness. According to Holloway (2012), "organizational climate" refers to "a collection of observable characteristics of the workplace that employees perceive to an effect on their efficiency performance, and motivation." Griffin & O'Leary-Kelly (2004) claim various company's culture substantially affects its employees' actions. For instance, if the culture makes it clear that deviant behavior is not tolerated and its practitioners will face severe consequences if they continue to engage in it, the culture will be more effective at discouraging such actions. It is, therefore, crucial to note that an undesirable work environment can lead to unproductive conduct since employees' moods and levels of commitment to the company's stated aims and objectives are directly impacted by the ambiance at work. Multiple studies have demonstrated that CWB negatively affects employee happiness, self-perception, teamwork, sales, efficiency, and the overall bottom line (Dyson, 2019). As a result, businesses lose millions of dollars annually due to employee theft and absenteeism, which some management has encouraged because of a callous disregard for CWB issues (Martocchio, 1992). Workplaces that are more welcoming and supportive are less likely to see this counterproductive behavior among their employees.

Consequently, workers who fear violent harassment at work have been proven to be less dedicated to their jobs, have lower interpersonal skills, and have a heightened awareness of workplace injustice, which results in anxiety (Ervasti et al., 2023). Anxiety like this makes workers irritable and less productive and makes them think about quitting their job as they find it hard to cope in the long run (Schat & Kelloway, 2000). Employees bullied or harassed by their superiors or coworkers

may also have physical and mental health issues, such as headaches, stomachaches, and inability to sleep (Leblanc & Kelloway, 2002). However, dysfunctional workplace practices have received more scholarly attention in recent decades as this issue has grown in importance. For instance, employees that engage in CWB go beyond the call of duty and take actions that harm the company and its workers, endangering the organization and sometimes causing the organization's death. Therefore, to optimize and improve personnel management, management must get insight into the causes of this detrimental phenomenon and devise strategies to eradicate it entirely or significantly and gradually reduce its prevalence in the workforce (Szostek, 2019). Therefore, several scholars have looked into CWB's background, causes, and effects to understand them more deeply. The huge mismanagement and low productivity in Nigeria's financial sector have been partly linked to this wasteful work style. Therefore, this study aims to identify the type of unproductive behavior occurring in Nigerian banks, classify it, and show how it lowers productivity. As a result, actions like bullying, discrimination, and a lack of work-life balance will be explored.

Goals for the Study

This study's main goals are to comprehend how counterproductive organizational behavior affects organizational performance and to identify corporate culture as a potential factor in employees' engaging in such activities, particularly in the Nigerian banking sector. The following constitute the particular goals of the study:

1. To examine whether there is a connection between workplace bullying and organizational performance in Nigerian financial institutions.
2. To investigate the effects that gender discrimination has on the overall performance of organizations in Nigerian financial institutions.
3. To examine the effect of work work-life imbalance on the organizational performance level in Nigerian financial institutions.

Study's Significance

HR managers and consultants can use this study to their advantage when looking for eligible candidates to fill open positions and in developing policies to lessen unproductive behavior in the workplace. The study is essential for improving employee productivity and well-being, lowering operational costs, and boosting an organization's profitability. The primary concern for management should be figuring out how to identify CWBs, how they stem, and what remedial and preventative actions to take, given the costs and impacts of participating in unproductive conduct at work. Consequently, the study's conclusions thus set the foundation for understanding inappropriate office behavior and formulating plans to lessen its incidence. This study is also crucial because it contributes to the



growing body of research on this topic and closes a knowledge gap regarding the connection between counterproductive workplace behavior and organizational performance. It also contributes to formulating recommendations for enhancing organizational efficiency, productivity, and competitiveness. Financial policy analysts can learn more about increasing turnover and decreasing waste using the study's findings due to curbing CWBs. The study has broader implications for the nation as a whole, boosting consumer and investor confidence in the organization; as a result, increasing living standards, generating more tax revenue for the government, and increasing GDP and national income.

2. LITERATURE REVIEW

2.1 Dimensions of Counterproductive organizational Behavior

Gruys and Sackett (2003) divided CWB into two main categories: task relevance and interpersonal-organizational dimensions. Production deviation, political deviation, property deviation, and personal aggression were the four main categories of CWB identified by Robinson & Bennett (1995). These factors were further divided into four categories: harassment, resource waste, bribery, and favoritism. On the other hand, Spector et al. (2006) looked at five aspects: victimization, sabotage, withdrawal, production deviation, and theft. According to Evans et al. (2022), abuse as a form of CWB is defined as any aggressive act committed to cause harm to a coworker. Distasteful remarks, verbal aggression, and workplace bullying are just a few examples of workplace abuse that can occur. An organization will pay for this type of CWB in the form of lower performance and staff absenteeism, affecting overall organizational health in the long run if no corrective actions are taken (Altman & Akdere, 2008).

Another factor that has garnered considerable attention from researchers is manufacturing deviation. It occurs when employees willfully fail to carry out a job that he is qualified to do (Spector et al., 2006). In this case, the employee intentionally sabotages the organization's productivity by lowering output standards (Hollinger & Clark, 1982). Another significant manifestation of CWB is when an employee whose job is to assist the company in achieving success works to undermine its efforts. CWB also includes sabotage, which is intrinsically related to production deviation. Sabotage can take many forms, ranging from public defamation to malicious use of communication technologies within an organization (Tucker, 1993).

Theft is also a form of CWB in which harm is intentionally caused by employees (Niehoff & Paul, 2000). It can manifest as forgery, alterations to records, payroll fraud, or even the physical theft of money. Employee dissatisfaction (Kulas et al., 2007; Bolin & Heatherly, 2001) and the false sense of security

resulting from a weak control system all contribute to a workplace culture of theft (Vuggumudi, 2022). Corruption is also a crucial component of CWB (Mithulan & Opatha, 2023). Even though other aspects of the CWB are significant, corruption is a significant issue in many organizations in Nigeria today. The loss of opportunities, depletion, and the impeding of economic growth are all direct results of corruption.

According to Bonnie (2009), sexual harassment includes requests for sexual favors, unwelcome sexual attention, and other inappropriate sexual displays classified as CWBs. It encompasses all forms of bias against a person based on gender identity or the fact that they are transgender and discrimination based on pregnancy, leading to stereotyping and discrimination. Gruber (1992) classified SH into three categories: sexual remarks, body language displays, and verbal requests. Sexual harassment, according to Gupta (2014), occurs when one party uses its superior power to obtain sexual favors from another coercively. Akinfala & Komolafe (2017) assert that sexual harassment diminishes the victim's dignity by creating an unjustified barrier to sexual equality and encouraging an unpleasant or hostile work environment. As a result of the trauma endured, victims may find it difficult to focus on their jobs, become pregnant against their will, struggle to function normally, or withdraw from social functions. The victim may face a gloomy, perilous, and dark fate as a result of this immoral act.

Sexual harassment creates an uncomfortable working environment for everyone, especially the harassed. In Nigeria, the majority of sexually harassed victims experience mild irritation, frustration, severe anxiety, low mood, alcohol abuse, eating disorders, increased stress, job loss, doubt in one's abilities, irritability, impulsivity, emotional flooding, mood swings, guilt, anxiety, shame, rage episodes, loss of control, crying spells, obsessional fears compulsive thoughts, anger, and low self-esteem. The victim's future may be destroyed, and their experience may range from mild irritation to severe psychological damage. Sexual harassment can take many forms, including the destruction or damage of a victim's work area, tools, or equipment; the sabotage of that victim's work; the use of hostile verbal tactics such as name-calling, yelling, and bullying; and so on. Often, when an employee declines a sexual relationship, the employee's job security, schedule, and promotion prospects are all jeopardized (Muchiri, 2022). SH can also stigmatize women, cause them to lose their jobs, earn less, and harm their careers (Taiwo et al., 2014). Hence, absenteeism, turnover, dissatisfaction with working conditions, decreased productivity, and a decline in the proportion of women working have been identified as some of the negative economic effects of workplace harassment.



Bell et al. (2002) assert that SH is a disordered, ineffective behavior in organizations that, like a chronic health issue, must be mitigated through preventive management; hence, it weakens the organizational environment, preventing victims in reaching their potential (Fapohunda, 2014). As one example, employees who rise through the ranks with the aid of sexual favors or perks do not deserve their new position. This will manifest itself in the work of those illegally promoted to positions requiring specific education and experience. These situations might make it challenging to carry out administrative duties successfully, which can impede a company's capacity to accomplish its stated goals and objectives. SH is detrimental to economic growth, and national output as harassed persons who suffer from psychological disorders continue to pose issues for the country. Research has shown that individuals who face harassment have a lower tolerance for future harassment than those who have never been harassed (Fitzgerald et al., 1997).

In summary, the following are examples of counterproductive workplace behavior in Nigeria: threats, work avoidance, theft, abusive supervision, work sabotage, work tension, abusive management, abusive behavior, physical and verbal aggression, intentional improper work, lateness to work, sexual harassment, absenteeism, misuse of information, failing to notify superiors about mistakes and work problems, delays, unsafe behavior, poor attendance, poor quality work, deviance, abuse of organizational property, withdrawal (e.g., calling in sick when not ill), violence and aggression, retaliation, revenge, incivility, etc.

Culture as it affects CWBs

Cultural contexts significantly influence the acceptability of workplace bullying from country to country. Culture influences whether driven employees seek assistance, make their situation public, or keep it to themselves. Also of great concern are the implications of cultural differences in victim behavior for potential interventions. Countries whose cultural values make bullying socially unacceptable and sanctioned require different organizational interventions than countries whose cultural values make bullying socially acceptable, like in some Nigerian organizations (Power et al., 2011). The notion that cultural values are the source of both behavior and response is central to the cultural orientation approach to resolving contemporary social problems.

Hofstede (1980) determined, based on a survey of IBM employees in 40 countries, that people from various regions exhibited distinctive behavioral and valuation patterns that influenced their outlook on life and issues. He accomplished this by utilizing what he termed "anthropological problem areas" derived from the diverse cultural practices of various nations. Among these are: (1) The Power Gap, which measures how much a society's citizens accept or reject the existence of power equality or inequalities among the populace. (2) Individualism and collectivism measure how much community or organization

members depend on one another or act independently. (3) Avert being unpredictable by letting things develop naturally or trying to influence them. (4) Maleness versus Feminism (a community based on competition, success, and achievement, or one where people look out for one another and prioritize values over achievements); (5) Confucianism versus Long/Short Orientation (a culture that prioritizes the future, is patient, and saves; or one that values the past and exists in the present).

Hofstede (1980) used these constructs as an index to rank the orientations of nations on a scale from one (the lowest) to one hundred and twenty (the highest); his ratings for Nigeria are as follows, in his own words:

Relative Prowess: A score of 80 indicates that Nigerians have little difficulty accepting a predetermined social hierarchy in which everyone has their place. Employees expect to be directed on what to do, centralization is common, and the boss is an autocrat who is also kind because the scale reflects innate inequalities.

Individualism/Collectivism: Nigeria scored 30 as a collectivistic society. Whether a nuclear family, a prominent family, or a group of friends, the members share a profound and enduring commitment. In a collectivist society, loyalty trumps all other values and conventional norms. People care deeply for one another and collaborate to solve problems in this society.

Masculinity/Femininity Index: With 60, Nigeria is very masculine. Manly societies prize equality, competition, and performance and resolve disputes through open conflict. In these societies, managers are decisive and confident.

Uncertainty Avoidance" dimension: Nigeria prefers to avoid uncertainty, scoring 55 in this dimension. They tend to adhere to rigid norms of behavior and belief and look down on those who deviate. Time is money, efficiency and punctuality are expected, and innovation and security are crucial elements of personal motivation in these cultures.

A Long-Term and Short-Term Perspective: With a score of 16, Nigeria tends to place a high value on tradition, has a low propensity to save, feel intense pressure to keep up, is impatient to see results, and is overly concerned with establishing the truth or what is regarded as normative.

In summary, the ratings derived from Hofstede's cultural dimensions for Nigeria in this study have implications for our comprehension of the composition and orientation of typical Nigerians and their values and top life priorities. While Hofstede has successfully captured a representative profile of Nigerians in these analyses, a few claims need to be more in line with the data, particularly in uncertainty avoidance and femininity/masculinity. In contrast, the group cohesions of



Nigerian managers foster loyalties that exclude non-members. Due to the imbalance of power and potentially negative consequences for the weaker party, direct conflict resolution is not viable. Additionally, Nigerians must enhance their reputation for promptness. Nigerians are notoriously tardy to social and official events, with dignitaries and guests arriving hours after the scheduled time. In Nigeria, delays are the norm, not the exceptions.

2.2 Workplace bullying and Organizational Performance

In the workplace, bullying is any repeated, hostile, or degrading treatment of a worker or group of workers against another coworker (Aryne, 2009). According to Heather (2004), workplace bullying is primarily an act of hostility, typically involving verbal abuse but occasionally minor physical aggression, which can have fatal outcomes. Numerous researchers have identified various subtypes of bullying; Verbal abuse, taunting, making up stories, and pranks are forms of workplace bullying that can affect an employee's self-esteem and can be categorized as person-on-person bullying (Einarsen & Hoel, 2001). According to Beswick et al. (2006), workplace bullying includes assigning tasks that cannot be completed by the deadline, creating a hefty workload, assigning tasks with no real value, providing incomplete or confusing information, threatening the safety of employees, etc. *Bullying* has also been defined as a pattern of hostile behavior perceived to be maliciously repeated over time toward one or more individuals. As per the American Mental Affiliation (2005), a bully is someone who engages in "aggressive behavior" in power- or strength-imbalanced relationship intending to cause harm or distress to another individual. Hence, bullying in the workplace is detrimental to an organization because it inhibits creativity and innovation. Therefore, organizations must foster an environment that encourages inventiveness and calculated risk-taking to flourish. Such innovation is essential in today's increasingly competitive global economy (Hamel, 2000).

The Workplace Bullying and Trauma Institute (2000) defined *workplace bullying* as "the repeated cruelty on personnel with a pernicious mix of provocation, harassment, and execution impedance." Workplace bullies' resort to hostile or irrational behavior to achieve their goals. Bullying can occur at any level of an organization, including between managers and coworkers (Davenport et al., 1999). However, workplace bullies frequently find ways to get their way by bending or breaking the company's rules rather than resorting to violence. Hence, a workplace bully may spread false information about a coworker in order to cause that person trouble. Someone with a personal grudge against a coworker may find any reason to criticize that individual. Although such conduct may not be illegal or contrary to many companies' policies, they are incredibly detrimental to the morale of the targeted employee and the workplace as a whole. Einarsen et al. (2003) state that all associations should safeguard

their representatives from the mental provocation of a working environment menace and that instances of work environment harassment require punishment and precise examination. In addition, workplace bullying can harm a company's bottom line, making it crucial for managers to find permanent solutions to the issue so that their businesses can succeed.

Workplace Bullying in Nigeria

Workplace bullying has been the order of the day in some Nigerian organizations. Possible causes include more severe workplace issues, such as high unemployment, favoritism, fraud, or corruption. A nation's economic growth depends on the productivity of its workforce; therefore, it is imperative that any issues that could reduce workplace efficiency be brought to light immediately. A study of 300 Nigerian workers revealed that bullying was low but increasing, with managers and directors being the most common bullies, followed by coworkers and customers (Hassan & Rashwan, 2021).

Oghojafor et al. (2012), in their study of 313 Nigerian HR professionals, discovered that gender is a precursor to bullying. Female employees in Nigeria were more likely to experience verbal abuse, managerial bullying, and social exclusion on the job than their male counterparts. Workplace bullying, alongside other organizational behaviors in Nigeria, is an untreated social issue in the Nigerian workplace, exemplifying the widespread misunderstanding of the problem that persists to this day. Leymann (1996) used clinical studies to demonstrate that when workplace bullying is misdiagnosed, targets are unfairly labeled as complex and expelled from the organization. These findings cannot be overstated in a nation like Nigeria, where the regulatory labor office is reactive, not proactive. As promising careers are at risk of being cut short, employees' brainpower is constantly lost, and there is a general lack of interest in coming to work, worker morale decline. As a result, there is a real possibility that those who have been wronged and cannot seek justice or support themselves legally will commit hate crimes. Nigeria already has a very high unemployment rate; the country's economy cannot afford to have skilled workers who have been unjustly fired (Ajiya, 2022). Since workplace bullying is a problem, bringing attention to it, diagnosing it correctly, and treating it can level the playing field for hiring, evaluating, and promoting staff members, improving morale and productivity. Nigeria must demonstrate that it can be relied upon to protect the fundamental human rights of its citizens, particularly in the workplace.

Judith (2008) conducted a study titled "Aggressive conduct and its impact on employee satisfaction and efficiency." Findings indicate that the targets of bullies are subjected to discrimination and hostility, and that bullying victims experience mental and physical strain. The study found a correlation between bullying and its impact on satisfaction and efficiency; it also discovered



that 27% of participants had experienced bullying within the previous year, 47% had experienced bullying at some point, and 75% of participants reported witnessing coworker abuse. The people who bullied and harassed others were also examined. It was discovered that roughly 72% of bullies are more socially advanced than their victims.

Research shows that bullying in the workplace has both immediate and long-term consequences. The direct costs include a higher attrition rate, additional costs on the organization to recruit and train new employees, higher legal and settlement fees, and additional time spent training replacement employees. Although difficult to quantify, indirect costs include decreased productivity, low morale, high absenteeism, and a stressful work environment (Needham, 2003). The majority of research shows that bullying at work can result in problems with mental health, which can lower productivity and negatively impact organizational performance. Consequently, the first hypothesis is formed;

H₀: There is no link between workplace bullying and organizational performance.

2.3 Gender discrimination and Organizational Performance

With regards to the work environment, discrimination can be characterized as the arrangement of an uncalled-for benefit (or drawback) to individuals from one gathering compared with individuals from another gathering (Wayne, 1995); gender discrimination occurs when a worker is treated differently due to the individual's gender (Carr, 2003). These actions and attitudes can make the workplace unpleasant, affecting productivity. As a result, discrimination is frightening and can hinder an employee's professional development.

Trentham & Larwoodn (1998) emphasized the theory of rational discrimination against women in the workplace. According to this theory, people who make decisions may stereotype if they think their superiors or other powerful people prefer it or anticipate it. The study demonstrated that women were mistreated and that upper-level employees were more likely to be sexist than lower-level employees. In addition, the research confirmed that management tolerates discrimination, albeit to a lesser extent than in previous studies, which they interpret as an indication of progress toward greater equality. Due to gender discrimination, employees whose demeanor was previously calm become skeptical, unhappy, and fearful. A gender-neutral workplace substantially positively affects employee satisfaction, self-assurance, commitment, zeal, and stress. When employees are subjected to discrimination, an organization's ability to foster growth in employees' abilities and relationships with coworkers is hindered. The stress brought on by gender discrimination at work negatively impacts a worker's mental health because it affects their ability, self-confidence, and ability to produce quality work. Several studies have demonstrated that men have a

workplace advantage over women (Pang & Huang, 2010). According to Konrad & Kathy (1997), a significant change has occurred due to more women joining the workforce. Women face more discrimination in the workplace, including lower pay promotions, lack of advancement opportunities, restricted access to certain services, leadership, and fewer employment opportunities. People typically believe that female employees are less dedicated to their employment than male employees (Welle & Heilman, 2005); as a result, such stereotypical attitudes can impede the growth of women's professional advancement.

Adhikari (2014) studied gender discrimination at five IT companies in Lucknow. It was discovered that there were no differences in performance between women and men. Consequently, such conduct and actions diminish employees' motivation and morale, which impacts their performance. According to an analysis by Swimmer (1990), male clerical workers were likelier to be promoted than women. The results indicate that the promotion criteria for female employees were stricter and more defined than those for male coworkers. Female employees were also less likely to be promoted to higher positions. Even though Bible & Hills (2007) claimed that gender equality in management positions is improving, the glass ceiling persists in today's workplaces. Despite the passage and enforcement of Equal Opportunity at Work laws over several decades, workplace sexism persists.

Uzma (2004) researched how individuals perceive themselves. The study found that a person's environment and upbringing impact their perception. The significance of employees' self-perception and how others perceive them cannot be overstated. The perspective of a child's parents influences his or her sense of self. Parents often view their daughters as fragile, submissive, and overly dependent on men for protection. This restricts women's ability to offer suggestions or protest. This is the beginning of subjugation and control. Even women with advanced degrees maintain separate public and private lives. The second major conclusion of the study was that women's earnings are secondary to men. In addition, these findings do not apply to affluent, progressive households in which women have complete autonomy.

H₀: There is no link between gender discrimination and organizational performance.

2.4 Work life imbalance and Organizational Performance

The term "work-life balance" was coined in the late 1970s and referred to the harmony between one's professional and private lives (Rathore & Tomer, 2019). During the 1970s and 1980s, its prevalence skyrocketed; it was primarily due to the increased number of women in the workforce, which prompted many businesses to take notice and provide women with exceptional opportunities. Hence, research shows that several factors in an



employee's life may contribute to discord and imbalance. Depending on the individual and the circumstances, the reasons can range from wanting to advance in their chosen field to feeling overwhelmed by home and work demands. A "Performance-driven" culture has emerged due to the rapid development of the business world and the intensifying competition in the market, which has increased performance expectations. In addition, many individuals find it difficult to say "NO," particularly to superiors, leading them to become overburdened with responsibilities (Billings et al., 2021). Hence, unbalanced workloads result in decreased productivity, increased employee turnover, absenteeism, missed deadlines, a lack of time for personal pursuits, stress, and a general feeling of being overwhelmed.

Several studies have found that family, a welcoming workplace, and other factors significantly affect absenteeism, turnover, job satisfaction, and organizational commitment. Warren & Johnson (1995) asserted that effective managers encourage their employees as they attempt to balance work and personal obligations. Employees in such an environment reported feeling valued and appreciated and were less likely to quit or take time off. They affirmed that the connections between these factors, occupational fulfillment, and authoritative responsibility are intervened by trust in the association, which is impacted by factors about the work-life imbalance.

Purohit (2013) defined *Work-life balance* as the process of balancing one's "work" (career and ambition) with their "lifestyle" (Health, family, pleasure, leisure, and spiritual development). It refers to strategies that help employees balance their personal and professional responsibilities. Many modern businesses recognize that work-life balance programs are not merely a perk but a requirement for their employees. In today's competitive market, businesses must implement human resource strategies and policies that consider the needs of their employees. Purohit (2013) presented the results of a survey conducted among a representative sample of Pune's leading companies regarding their policies and practices regarding their employees' ability to achieve a healthy work-life balance. The results highlighted the similarities and differences between the policies promoting work-life balance in the four fields studied; the manufacturing, IT, education, and financial services industries. The study concludes with recommendations that organizations should equip their human resources departments to meet the challenges of providing work-life initiatives during a global economic downturn. It also suggested that employers could make it easier for employees to switch shifts if they believe it will help them achieve a better work-life balance. Employees should also intentionally prioritize work-life balance.

Mwangi et al. (2017) examined the link between work-life balance and academic performance at Kabarak University.

Participants were required to complete surveys regarding their work-life balance and productivity. The objectives were twofold: first, to determine if employee assistance programs mitigate the adverse effects of work-family priority conflicts, and second, to determine if such programs mitigate such adverse effects. The study employed case studies as a descriptive method. In order to gather data and undertake primary research, questionnaires were used. A sample size of 70 was based on an estimated population of 244. The study revealed that employees' productivity decreased when they were anxious about juggling work and family obligations. The study's authors suggest valuing work and family life to increase productivity. Researchers concluded that employee productivity would increase if companies did more to help employees achieve a better WLB. Carnicer et al. (2014) examined work-life conflict in a country in Southern Europe using a quantitative questionnaire study. In order to identify the major causes of work-life conflict, bivariate analysis was used to examine correlations between them, and multivariate regression analysis was employed to dissect the factors in greater depth. They found no correlation between social benefits, job status, and work-life conflict. Work-family conflict was experienced differently by men and women, but gender did not appear to play a role in its occurrence.

Wilson (2015) examined the likelihood that women at two British universities are subjected to unequal treatment in performance reviews. Ten women from each university's female academic interrelated community and ten women selected randomly were interviewed for this study. The analysis began with compiling analytical tables containing the most pertinent data. Participants listened to recorded interviews for similarities and differences-related comments in the second step. Men viewed women as possessing unique and inferior characteristics, even though women themselves did not believe they were unique. If women are evaluated based on the standards and expectations established by men, they are deemed deficient and inferior.

H₀: There is no link between work-life imbalance and organizational performance.

Gap in Literature

Exploring CWBs and how they affect organizational performance is the main objective of the study. Certainly, theoretical and empirical research is available in various areas (psychology, sociology, organizational behavior, etc). However, most of the field's earliest researchers argued that the importance of conceptual differentiation between the different terms used to describe CWB dimensions is yet to be fully realized. Thus, there should be more exploration of the materialness of deeply grounded and tried hypotheses on counterproductive work ways of behaving across social settings and their impact on organizational performance. Accordingly, no known studies

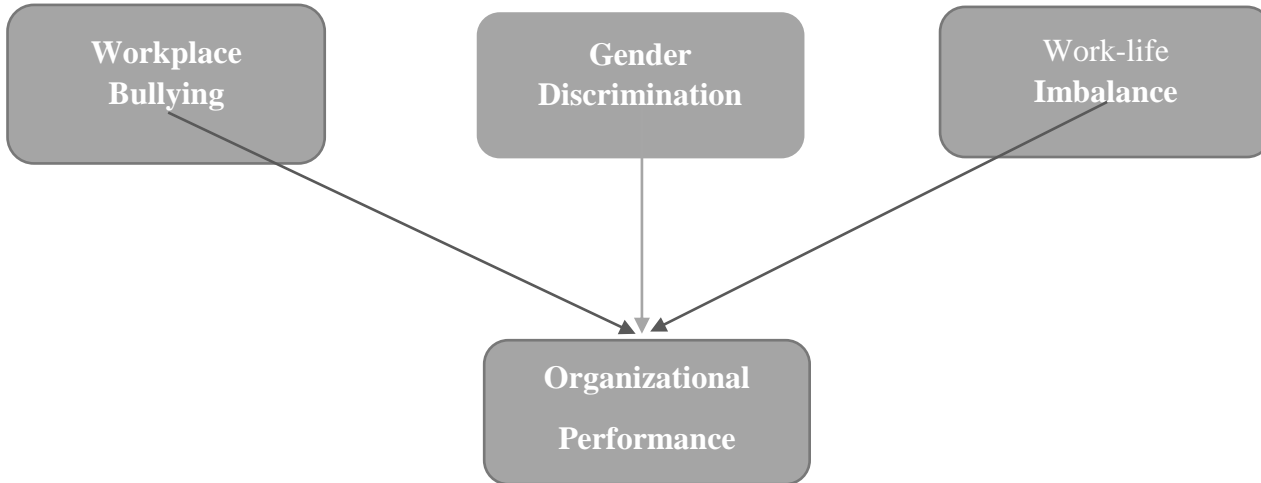


have examined the link between counterproductive working practices and corporate culture and how it affects organizational performance. Therefore, the study tends to fill that gap in the literature and introduce new concepts such as workplace bullying, gender discrimination, and work-life imbalance.

2.5 Conceptual Model

Considering the many characteristics of Counterproductive organization behaviors and corporate performance measurement as given by numerous authors, the researcher constructed a research model that comprised both independent variables and dependent variable, which is presented below;

Counterproductive organization behaviors and Organizational Performance



Source: Agulefo & Agulefo (2023)

The components supporting the research were included in the study's research model; each arrow shows an assumed relationship between the opposite variable. It illustrates the link between the dependent and independent variables. The following criteria are considered: workplace bullying, gender discrimination, and work-life imbalance. Hence, DV is organizational performance, while the IV is counterproductive organizational behaviors. The relationship between these various factors is stated, verified, and analyzed in part devoted to testing hypotheses.

3. RESEACRH METHODOLOGY

This study employs a descriptive and causal-comparative research design to explore the influence of unproductive organizational behaviors on the efficiency of microfinance banks in Lagos, Nigeria. The causal-comparative design investigated the relationships between the variables by comparing outcomes of multiple groups (Jason & Rumrill, 2004). The study relied on primary data, and the necessary information was gathered by administering self-administered surveys. In order to achieve this, a questionnaire was created. The use of predetermined questions presented in the same format to all respondents is a common aspect of questionnaires. The descriptive methodology explained the factors and characteristics that impact organizational performance. Each

variable's descriptions aid comprehension of the concepts involved.

The participants in this study were staff of selected microfinance banks in Nigeria. Using a convenience sample, Kudimoney Microfinance Bank and Renmoney Microfinance Bank were chosen from Lagos, Nigeria. As of June 2022, there were 129 microfinance institutions registered with the Nigeria Deposit Insurance Corporation (NDIC) in Lagos alone. According to the human resources divisions of the respective banks, Kudimoney Microfinance Bank and Renmoney Microfinance Bank have 500 and 298 workers, respectively. As a result, the complete population was represented by the 266 sample participants. Yamane (1967)'s formula was used to calculate this minimal

$$\text{sample size: } n = \frac{N}{(1 + N(e)^2)}$$

n (Sample)

N (population), e (significance, 0.005 or 5%)

Applying the formula;

$$n = \frac{798}{1 + 798 \times 0.05^2}$$

$$n = \frac{798}{1 + 798(0.0025)}$$

$$n = \frac{798}{1 + 1.995}$$



$$n = \frac{798}{2.995}$$

$$n = 266$$

The questions were organized according to variables and contained questions designed to elicit responses to the three hypothesized research questions. These responses were graded on a Likert scale with five possible outcomes: strongly disagree (5 points), disagree (4 points), undecided (3 points), agree (2), and strongly agree (1). Statistical Package for the Social Sciences was used to perform the coding of the collected data (SPSS version 26). SPSS tables, frequency distributions, and percentages were used for data interpretation, while hypotheses were tested using regression analysis. SPSS was used because of its ease and versatility in data analysis.

Ten employees each from the two studied organizations were chosen at random to participate in a preliminary study using the drafted questionnaire; this was done to ensure that the data reflected all examined parameters. The data's validity and reliability of the survey items' internal consistency were evaluated using Cronbach. This is because Cronbach is most appropriate for testing reliability and validity using the Likert scale (Huck, 2013).

Reliability Stats	
Cronbach Alpha	Item
.821	4

Source: SPSS Computation

Item-Total Statistics				
	Scale (Mean if Item Deleted)	Scale Var. (if Item Deleted)	Corrected Item Total Corr.	Cronbach Alpha (if Item Deleted)
Workplace Bullying	12.82	1.778	.506	.836
Gender Discrimination	12.81	1.577	.759	.724
Work life Imbalance	12.88	1.588	.646	.774
Organizational Performance	12.84	1.553	.680	.758

Based on the reliability test, Cronbach's alpha reliability coefficients were calculated for each study variable. The alpha value for Cronbach was 0.821, as shown in the tables above. Generally, alpha values greater than 0.7 are deemed acceptable (Lin, 2010). Due to the obtained value of 0.821, which is adequate for this research and can be generally accepted as suggested by some authors such as Lavrakas (2008), the survey questionnaire was utilized effectively to obtain respondents' perspectives on the impact of culturally-influenced counterproductive organizational behavior on organizational performance.

Data Analysis

To test the hypotheses, SPSS was utilized to analyze data gathered from 264 of the anticipated 266 participants who passed the screening process. Multiple linear regression was utilized for analysis to illustrate the link of the dependent and independent variables. The decision criteria is that if $p < \alpha$, we will accept the argument that a correlation exists between the variables. At a 5% level of significance, the chosen alpha (α) is 0.05.

4. RESULTS

Whether or not there is a statistically significant relationship between the independent and dependent variables will be revealed by the results of the correlation and regression analyses. Assuming $p < \alpha$, we agree that the proposed relationship between the variables is statistically significant. Five percent has been selected as the level of significance ($\alpha, 0.05$). R is a statistical measure of how closely two variables are linked. The R² value, on the other hand, shows how much of the observed variation in the dependent variable can be attributed to the independent variable. ANOVA statistics show how well the regression model fits the data (i.e., how well it predicts the response) (Osborne, 2017).

Hypothesis Testing

Ho: There is no link between Work life Imbalance, Workplace Bullying, Gender Discrimination, and Organizational Performance



Regression Analysis

MODEL SUMMARY					
Models	R	R ² Square	Adjust. R Square.	Standard Error of the Estimate	Durbin-Wat.
1	.646 ^a	.418	.411	.533	2.213

- a. Predictors: (Constant), Work life Imbalance, Workplace Bullying, Gender Discrimination
 b. Dependent Variable: Organizational Performance

The coefficient of determination, R squared, indicates how changes in the independent variable cause changes in the dependent variable. According to the results, the value of R squared was 0.418 is a sign that there was some variety in 41.8% variation in Organizational Performance is due to changes in the explanatory variables (Work life Imbalance, Workplace Bullying, and Gender Discrimination). Consequently, this suggests that other variables were not considered in this study

explain 58.2% pertaining to variations in Organizational Performance. R is the correlation coefficient, which indicates the link between the research variables, as shown by the result, there was a high positive correlation between the variables in the table above. Explanatory factors (Work life Imbalance, Workplace Bullying, and Gender Discrimination) and in model summary as shown by 0.646.

ANOVA						
Model)		Squares	Df.	Mean Squares	F	Sig..
1.	Regression	53.053	3	17..684	62.144	.000 ^b
	Residual	73.987	260	.285		
	Total	127.040	263			

- a. Dependent Var.: Organizational Performance.
 b. Predictors: (Cons.), Work life Imbalance, Workplace Bullying, Gender Discrimination.

As per the ANOVA table, the handled information, which addresses the populace boundaries, was measurably critical at a degree of 0%, showing that the information is reasonable for reaching inferences about the populace's boundary since the importance level (p-value) is under 5%. At a 5% level of

significance, the F critical value was 64.144, this demonstrates that the model as a whole was important and (Work life Imbalance, Workplace Bullying, and Gender Discrimination) significantly influence Organizational Performance.

COEFFICIENTS						
Model.		Unstandardized Coeff.		Standardized Coeff.	t	Sig.
		B.	Std. Error.	Beta.		
1	Constant	1.255	.220		5.706	.000
	Workplace Bullying	.159	.077	.164	2.057	.041
	Gender Discrimination	.236	.082	.245	2.897	.004
	Work life Imbalance	.294	.072	.300	4.101	.000

- a. Dependent Variable: Organizational Performance

Taking into consideration all variables, the regression equation was created. When Work life imbalance, workplace bullying, and gender discrimination are constant at 0.000, organizational performance will be 1.255. The result also shows that a unit change in Workplace Bullying will result in a 0.159 influence in Organizational Performance, change in the unit in Gender Discrimination will influence Organizational Performance by 0.236, and a unit change in Work life Imbalance will result to 0.294 impact on Organizational Performance.

Discussion

The findings indicate that Work life imbalance, workplace bullying, and gender discrimination are all significantly and positively associated with organizational performance. The study's findings validate the links between CWB and organizational success. Thus, according to Einarsen et al. (2003), all companies must take measures to prevent the psychological harassment of employees. Bullying in the workplace, work-life imbalance, and gender discrimination all



impede a company's ability to expand and grow, so managers must find long-term solutions to the problem.

5. CONCLUSION AND RECOMMENDATIONS

Considering the correlation between ineffective workplace practices and inefficiency in the Nigerian banking sector. Here are some recommendations:

- The Nigerian financial sector would greatly benefit from increased efforts to cultivate a positive organizational culture, as this would significantly impact employee behavior and help direct it toward its objectives. Employees should be enlightened about the risks and adverse effects of CWB on the company's success and interests through the development of programmes and awareness.
- Findings indicate that bullying is widespread because it is institutionalized within the company's culture. Therefore, organization should curb this and set up counseling programmes, and victims should receive counseling which would be beneficial in overcoming the trauma of the experience and preventing similar incidents in the future.
- To prevent workplace bullying, upper management should establish strict guidelines. A clearly defined anti-bullying policy will aid in identifying perpetrators and preventing additional harm to victims. Management must send the appropriate signals throughout the organization so that employees understand their roles in resolving the problem. Workers must feel at ease approaching management with any issues they are experiencing on the job.
- For discrimination to be eradicated in the banking industry and elsewhere, managers must provide channels for employees to report bias incidents, which must be investigated and resolved expeditiously and strictly. Regular reviews of workplace policies are necessary to ensure their continued viability. Managers must ensure that all employees, regardless of gender, have equal pay, promotion, and advancement opportunities.
- Employers must be able to evaluate the needs of their female employees and provide for them accordingly. Workplace amenities such as daycare centers, crèches, maternity and paternity leaves, and flexible schedules are essential for retaining and motivating employees.
- Companies should consider how a better work-life balance could encourage their workers to do more. Managers should plan events to improve employees' free time, host get-togethers, and invite employees' families during formal competitions.

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ISOTONIC STRENGTH TRAINING FOR BASKETBALL PLAYERS: A Short View

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ABSTRACT

Isotonic strength training is a form of exercise that involves using resistance to increase muscular strength and endurance. Isotonic strength training is an important part of any basketball player's training regimen. This type of training uses resistance bands, weights, or the body's own weight to strengthen muscles, increase power, and improve agility. Isotonic strength training can be used in conjunction with other basketball-specific exercises, such as plyometrics, agility drills and jump training. One of the main benefits of isotonic strength training for basketball players is the ability to improve their performance on the court. During isotonic strength training, athletes are using their own body weight to perform exercises. Finally, isotonic strength training can help basketball players reduce the risk of injury. By focusing on strengthening the muscles and tendons that are responsible for their movements, they are reducing the likelihood of injuring themselves when performing on the court. Therefore, all basketball players should consider incorporating isotonic strength training into their training routine.

INTRODUCTION

Isotonic strength training is a form of exercise that involves using resistance to increase muscular strength and endurance. It is based on the principle of using a weight or resistance that is the same throughout the entire range of motion of the exercise. This type of training is often used by athletes, bodybuilders and fitness enthusiasts to increase muscular strength and power, as well as to improve overall athleticism. The main objective of isotonic strength training is to gradually increase the intensity of the exercise over time. This is done by progressively increasing the weight or resistance used, while still maintaining the same range of motion throughout the exercise. This type of training is particularly beneficial for athletes, as it allows them to increase their strength and power without risking injury. Additionally, it can help to improve coordination, balance and agility.

Isotonic strength training can be performed using various forms of resistance, such as free weights, machines, body weight, bands, and more. Depending on the individual's goals, the type of resistance used can vary. For example, if someone is looking to increase their overall strength and power, they may opt for heavier weights and machines. On the other hand, if someone is looking to improve coordination and agility, they may opt for lighter weights and body weight exercises.

When performing isotonic strength training, it is important to properly warm up and cool down before and after each exercise session. This will help to prevent injury and ensure that the muscles are properly warmed up before the exercise begins. Additionally, it is important to use good form

and to avoid overtraining, as this can lead to injury and decreased performance.

Overall, isotonic strength training is an effective and safe way to increase muscular strength and endurance. It can be used for a variety of fitness goals, from increasing overall strength and power to improving coordination and agility. By gradually increasing the intensity of the exercise over time, athletes and fitness enthusiasts can safely and effectively increase their strength and power while avoiding injury.

TYPES OF ISOTONIC STRENGTH TRAINING

Isotonic strength training is an important part of any basketball player's training regimen. This type of training uses resistance bands, weights, or the body's own weight to strengthen muscles, increase power, and improve agility. It can be used to target specific muscle groups, improve overall strength and power, and even to prevent injury. One of the most popular forms of isotonic strength training for basketball players is band work. Resistance bands can be used to target specific muscle groups as well as to improve overall strength and power. Band exercises are known to help improve explosiveness, power, and agility. They can also help with balance, coordination, and flexibility.

Another type of isotonic strength training for basketball players is weight training. This form of training involves using free weights such as dumbbells or barbells to target specific muscle groups. It can help to improve overall strength and power, as well as help with balance, coordination, and flexibility. Weight training can also help to improve the player's ability to jump higher, run faster, and be more explosive.



Finally, calisthenics are another type of isotonic strength training for basketball players. Calisthenics involve using the body's own weight to perform exercises such as push-ups, pull-ups, and squats. These exercises can help to improve overall strength and power, as well as help with balance, coordination, and flexibility. By incorporating isotonic strength training into a basketball player's training regimen, they can become stronger and more explosive, as well as reduce the risk of injury. Different forms of isotonic strength training can be used to target specific muscle groups, improve overall strength and power, and improve agility. With proper training, basketball players can become stronger, faster, and more explosive.

TECHNIQUES OF ISOTONIC STRENGTH TRAINING

Isotonic strength training is a popular technique used by basketball players to improve their physical strength, endurance and power. It involves performing exercises that involve the coordination of muscles and joints, as well as the use of resistance such as weights or bands. This type of training helps to increase muscle strength, improve power and explosiveness, and increase muscular endurance.

Isotonic strength training can be used to target specific muscle groups or involve a full-body workout. A common technique for basketball players is to perform compound exercises, such as squats and deadlifts, which involve multiple muscle groups working together. Isolation exercises, such as bicep curls and triceps extensions, can also be used to target specific muscle groups. To ensure that the muscles are being worked to their maximum capacity, it is important to use the proper form and technique. This includes using the correct range of motion, proper breathing, and controlling the speed of the exercise. It is also important to use the correct weight for each exercise and to perform the exercises in a slow and controlled manner.

Isotonic strength training can be used in conjunction with other basketball-specific exercises, such as plyometrics, agility drills and jump training. This type of training is an effective way to increase overall strength, power and endurance, which can help basketball players to become more explosive and powerful on the court.

BENEFITS OF ISOTONIC STRENGTH TRAINING

Isotonic strength training is a type of strength training that involves working the muscles' ability to contract and relax during movements. It is a type of exercise that is beneficial for basketball players because it helps them to improve their performance, increase power and speed, and reduce the risk of injury. One of the main benefits of isotonic strength training for basketball players is the ability to improve their performance on the court. During isotonic strength training, athletes are using their own body weight to perform exercises. This means that they are strengthening the muscles and tendons that are responsible for their movements. By strengthening these muscles, basketball players are able to move faster, jump higher, and be more explosive on the court.

Additionally, isotonic strength training can help basketball players improve their coordination, balance, and agility, which can help them perform more efficiently.

Furthermore, isotonic strength training can help basketball players increase their power and speed. During isotonic strength training, athletes are focusing on explosive movements and pushing their bodies to the limit. By doing this, they are developing their muscles' ability to contract and relax quickly, which can help them become faster and more powerful on the court.

Finally, isotonic strength training can help basketball players reduce the risk of injury. By focusing on strengthening the muscles and tendons that are responsible for their movements, they are reducing the likelihood of injuring themselves when performing on the court. Additionally, by strengthening their muscles, basketball players are also increasing their stability and balance, which can help them avoid unnecessary falls and collisions.

EFFECTS OF ISOTONIC STRENGTH TRAINING FOR BASKETBALL PLAYERS

Isotonic strength training can have a number of positive effects for basketball players. The most obvious benefit of isotonic strength training is improved muscle strength and power. Increasing muscle strength can help a basketball player become more explosive on the court and help them jump higher and move faster. Additionally, isotonic strength training can help reduce the risk of injury, as increased strength can help basketball players absorb and dissipate force more effectively.

Isotonic strength training can also help improve coordination and balance. Improved coordination can help basketball players maximize their performance on the court by allowing them to react quickly to the game and make more accurate and effective movements. Improved balance can help a basketball player stay in control while dribbling, shooting, or defending.

Finally, isotonic strength training can help basketball players improve their endurance and stamina. Improved endurance can help a basketball player maintain their performance level throughout a game, allowing them to stay in the game for longer and make an impact for their team.

CONCLUSION

In conclusion, isotonic strength training can have a number of positive effects for basketball players. Improved muscle strength, coordination, balance, and endurance can all help a basketball player become more effective on the court and reduce the risk of injury. It is an effective way for athletes to develop their strength, coordination, balance, and agility, and can help them become more efficient on the court. Therefore, all basketball players should consider incorporating isotonic strength training into their training routine.

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IMPACT ON WEBSITE TRAFFIC DUE TO GOOGLE ALGORITHM UPDATE

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ABSTRACT

Search engine optimization is a digital marketing technique that helps you gain website traffic and website rankings. Over the years, SEO has evolved with future needs. However, webmasters have also found various loopholes that help them gain rankings on search engines. Google is well aware of that, which is why it constantly updates its algorithm to filter out the websites that use SEO tactics that are not in compliance with search engine best practices. For this purpose, it is important to understand Google's Algorithm and what it values, so that we can tailor our marketing strategy, and provide value to the users. For this purpose, in this research paper, we understand the factors that the algorithm considers before ranking websites or web pages in the top results. We also take a look at the important algorithm updates that have been rolled out in the past, and how they have impacted website traffic, and rankings.

I. INTRODUCTION

Search engine optimization (SEO) is a process that aims to improve the visibility of a website or a web page in search engine's organic or un-paid search results. In general, the higher a page ranks on the search results page, and more frequently a site appears in the search results list, the more visitors it will receive from the search engine's users (Sonawane, 2015). According to IAMA report titled 'Internet in India', It is stated that there are a total 692 million active internet users in India, with predictions that India will have 900 million internet users by the year 2025. In the light of this research one can foresee the importance that digital marketing will gain, especially SEO in the future- as there are 145 million searches happening per hour on Google itself (Internet Live Stats, 2022).

According to research conducted in the past, Sitefy states that the number of websites online changes every second. However, during the survey conducted by Netcraft's in July 2022, there are over a billion websites (1,139,467,659 exact number) present over the internet. However, a significant number (over 70% websites) are said to be inactive or spam.

This is why, Google uses a specific algorithm to filter and penalize spam websites from getting indexed. The assign high ranks to websites that provide value to users, and low ranks to websites that do not follow SEO best practices. In case a website is spam, or inactive, then Google removes the website's web page or particular web page from the index (Saber, 2013). SEO is completely based on search

engine algorithms that crawl, index, and ranks websites on search engine result page. However, Google announces regular updates and modifications in its algorithm, which are sometimes official, whereas sometimes kept hidden. They provide great challenges for digital marketing or SEO specialists. But learning and adapting according to them is equally vital (Joshi, 2018). Hence, it is important to examine and learn about search algorithms in search engine optimization (Saber, 2013). As there are always some concepts which are hidden and implemented in algorithms, it is important to comprehend what is known, to improve website performance (website traffic), and rankings in a positive manner (Joshi, 2018). By learning about Google Algorithm, our website can gain website traffic, which can help to spread awareness about product or service, or showcase content to those interested in the brands offerings (M. Megala, 2014).

This research aims to observe the impact of Google Algorithm Update on website performance by monitoring overall, organic, referral, and direct traffic through Google Analytics. Here, it is argued that by understanding these updates and tracking website metrics we can create a better SEO strategy and improve SEO results. Further, the research paper also talks about how using search engines' best practices can help us reduce deviation after an update is completely rolled out. For the purpose of this study, improvements were also made, to see if the website traffic increases after following Google Algorithms' best practices.



II. OBJECTIVES

- To understand the significance of understanding major algorithm updates to digital marketers and SEO experts in suggesting better strategies and improving organic traffic.

III. SCOPE & RESEARCH METHODOLOGY

The website traffic of a test website was monitored through Google Analytics. Improvements were conducted on this website, and observations were made in overall and referral traffic during and after the Google Algorithm update. The scope of this research extends to a few important algorithm updates rolled out by Google.

For this research paper, various secondary sources like the previous research papers were studied to make necessary observations and conclusions. To show the impact on website traffic and rankings, it was important to study the important timelines in algorithm update history and highlight the necessary observations (about the impact) made in other research papers in the past. However, for recent algorithm updates, such as the Page Experience Update rolled out in 2022, and the Broad Core Update rolled out in May 2022, the traffic of a test website was monitored through Google Analytics.

A. SEO AND WEBSITE TRAFFIC

Research conducted by Buildd.co in the article titled “Myntra’s SEO Strategy”, shows the revenue generated by Myntra through SEO. By using a popular tool called SEMrush which is used by most SEO experts, Buildd.co saw that Myntra alone steals 43.8M organic website traffic each month. Another source called Similar web showcases the traffic analytics and market share of Nike. Nike gets over 140.6M organic traffic on their website with 45.51% searches made by women, and the remaining 54.49% made by Men on search engines. Analysing Myntra and Nike website showcases the need for SEO, done according to search engine, by considering algorithm factor, and giving heavy importance to user friendliness.

Search engine optimization (SEO) is an activity that deals with optimizing web pages, or website to make them search engine friendly, with an aim to get better website traffic. Here, changes on websites are made (on-page and off-page) to improve quality of rankings and traffic. Getting traffic from users who use search engines to find certain information, product, or a service is important to a website (Ankalkoti, 2017). The importance of search engine optimization in marketing of a company stems from the fact that the upcoming generation is becoming internet savvy, and it relies on search engines like Google for accurate information, online shopping, or hiring services.

ON-PAGE: On-page SEO includes writing valuable content, using relevant keywords, proper keyword placement, and writing an accurate title to each web page.(Ankalkoti, 2017)

OFF-PAGE: Off-page SEO includes improving the referral base of a website by generating backlinks. It may include link building on relevant sites with high DA through guest posting, directory submissions, and more.(Ankalkoti, 2017)

According to Shravan Kumar Upadhayay, 2015, the prime objectives behind using SEO tactics for a business, includes improving rankings of website or web page, increasing website traffic (specifically organic traffic), or generating conversions for a business(Shravan Kumar Upadhayay, 2015) (Conversions may include leads, or achieving any other goals tracked via Google Analytics).

Dr. S. Bhavani in her study and analysis of search engine optimization states that website traffic is the number of visits a particular website gets through their desktop, tablet, or mobile (Dr. S. Bhavani, 2020). Website traffic can be organic, paid, direct, or referral. Organic traffic is when a user searches for a particular keyword and clicks on your website. Direct traffic is received when someone searches for a particular brand through a search engine (branded keyword). When an advertiser pays certain fees for his website to be clicked, that traffic is called paid traffic.

B. ALGORITHM IN THE PAST AND REASON BEHIND ITS UPDATES

According to research carried out in December 2013, some of the traditional SEO practices are still prevalent including inorganic link building (paid links), keyword sculpting, competitor audits, and site architecture. However, effective SEO today must focus on meta tags, page speed load, user experience, and keyword portfolio. This research also emphasized the needs of the digital world such as use of mobile, desktop, as well as tables to access internet, which has given a new era to SEO, whose core attention now is user experience, and less on search engine. (Manish Maheshwari, 2013).

While optimizing search engine, digital marketers found deceptive ways to improve the rankings. These deceptive methods gave pathway for spam websites to gain traffic and hamper the surfers experience on Google. Ankalkoti 2017 noted the black hat SEO tactics (deceptive practices), and Grey Hat SEO Tactics followed by SEO experts to gain traffic and rankings. He noted the following tactics which are considered bad SEO practices that were used to boost website performance in the past.

- Attempting to improve website traffic by using deceptive tactics disapproved by Google.
- Redirecting users to a different page, than the one ranked by search engines.
- Showing a particular version of a page to crawlers, and another version to human visitors (Cloaking SEO Tactic)
- Hiding text with a background colour or within an HTML code or by using a tiny font size
- keyword stuffing (in meta tags) or using keywords unrelated to the website content.
- Keyword stuffing (in page) to raise the keyword count, variety, and density of the page.
- Creating a copy of a popular website with similar content, which redirects surfers to unrelated or malicious websites.
- Buying backlinks of domain DA website, or buying paid guest posts from high DA websites



- Exchanging links with websites to improve the backlink count and rankings (Ankalkoti, 2017).

These black hat or grey hat SEO tactics started succeeding in improving rankings and website traffic. Along with it, user experience was affected, the result of which was Google announcing a war against artificial link building, and PageRank (Manish Maheshwari, 2013). This is when major changes in algorithm were made, whose updates later became a headache to SEO experts.

Initially, in the year 2000, the very first algorithm update considered counting link votes and then deciding the most relevant pages. This determined the search results for a search query. However, in the later updates- anchor text, backlinks analysis, content duplicity, inbound links, and more were given importance. A few recent updates have an emphasis on user experience on mobile and desktop versions, product reviews, and content on the website.

C. HUMMINGBIRD ALGORITHM UPDATE

Shravan Kumar Upadhyay 2015 conducted in-depth research on Hummingbird Update rolled out in 2013. According to him and most other researchers, Google often informs marketers about specific updates. However, the rest is kept confidential. These updates are only available to explain the functioning of search engines, the rest is what Shravan calls a "black box". This fact is true, and it goes to say how important algorithm is in matching users with websites. Google Algorithm is often updated every day, However the Hummingbird update in 2013 was significant, as it caused a stir among digital marketers and the rest of the industry.

The hummingbird algorithm update rolled out by Google helps the search engine to understand phrases precisely, and match results to complex search queries (Shravan Kumar Upadhyay, 2015). This update emphasized understanding the user's intention behind searching a query, to match them only with relevant results (Shravan Kumar Upadhyay, 2015). Here, a search query could be a question or exploration of a product or service. Before this, Google would match web pages according to keywords. However, this update gave core to semantic words, which enable websites not targeting specific keywords to show up in ranking, if they are relevant to that search query. According to Muhammad Ismail 2014, because of inactive semantic ordering, co-occurring terms, and equivalent words, the Hummingbird algorithm allows a webpage to rank well for a search query regardless of whether the correct keyword phrase is entered by the searcher or not (Muhammad Ismail, 2014).

Impact: This update focused on some 200+ factors that can affect a websites' ranking and traffic. After rolling out of Hummingbird update, the impact on website performance was huge, as almost 90% searches had been affected. It caused major fluctuations and volatility on search engine, which gave search engine experts a challenge to improve their website rankings and traffic back up. However, SEO experts were able to understand this change, and they updated their strategies to include more informative content on their websites (Shravan Kumar Upadhyay, 2015). This enabled them to incorporate semantic keywords on the web page, which is a tactic that has worked for marketers still to this date. This is just an example

of how digital marketers, after studying algorithm updates, can make necessary changes to boost website traffic and rankings.

D. PANDA ALGORITHM UPDATE

Google, to not rank websites that use black hat SEO tactics launched panda algorithm update on 24 February 2011. Vishal in his blog post titled "Panda 3.9 Strikes: How to Spot Black-Hat SEO Techniques" speaks about the repercussions of following deceptive practices due to the Panda update. In the blog post, he quotes- "Prior to the Panda 3.9 update, Google issued a warning for site owners who break search engine guidelines to take action sooner rather than later, yet another reminder of how we are all at the mercy of this web giant."

According to Wikipedia, Google Panda Algorithm Update aimed to lower the rank of "low-quality sites" or "thin sites", in particular, "content farms", and return higher-quality sites near the top of the search results." Here, the interpretation of content farm according to Wikipedia's definition means that it is a type of content used by certain websites, generated by freelancers, or similar sources written for search engines, and does not provide value to users.

According to Roohi Ali in a research paper states that the first-ever initiative taken to target content deemed "thin" or "not good enough" was by releasing the panda update by Google. As per the aim, panda algorithm update filters out the rank sites containing thin content, generated through content farms, sites having high ads-to-content ratio, affiliate websites, doorway websites, and other similar quality issues (Ashish Chandra, 2015).

Google went further and beyond by providing a list of 23 bullet points, that answers the question "What counts as a high-quality site?". This blog post helps webmasters "step into Google's mindset", as per Wikipedia. Finally, due to the impact of the Panda update in filtering out spam low-quality sites, it has been incorporated into Google's core algorithm since the year 2015. The last slow roll-out of Panda 4.2 update was in July 18, 2015.

Impact: Panda algorithm update benefited the news websites, and social networking sites, as a surge in the ranking of websites in this industry was reported by CNET. The pure reason behind it was the importance given to helpful content due to this update. On the other hand, many websites containing a large number of advertisements (higher ads-to-content ratio) saw a major drop in traffic and rankings. The impact was reported to be almost 12 percent of all search engine results. (Wikipedia). Furthermore, complaints were filed against scrapers/copyright infringers on Google's webmaster forum, as these infringers were getting better rankings rather than the sites publishing original content. Following this, Google publicly requested data points to aid in the detection of scrapers. (Wikipedia).

According to Roohi Ali in her research on Investing the effect of Panda algorithm into SEO states that SEO is becoming more difficult to plan. High-quality businesses and blogs are gaining better rankings, whereas spammers are falling behind. This trend should continue as Google appears to be winning the war on spam, with regular updates to the



Panda and Penguin algorithms filtering out more and lower quality sites.(Manish Maheshwari, 2013).

The only way SEO experts can update and gain better rankings and traffic is by using high-quality content, and high-quality backlinks (link-building activities) for better survival amidst the regular algorithm updates on Google.

E. BROAD CORE UPDATE IN MAY 2022

Search Engine Journal, a credible website that offers insight into all changes concerning search engines, says that Google announces core updates a few times a year, designed to assess content better, and provide better results. According to Google Search Central Blog, "Core updates are designed to increase the overall relevancy of our search results and make them more helpful and useful for everyone". It was further stated on the blog that broad core updates may bring a drop or gain in traffic to websites. However, specifics about this core update were not announced by Google, which leaves the nature of this update unknown to webmasters.

Impact: Search Engine Journal used SEMrush Sensor data and the Sistrix visibility index to determine which industries were positively and negatively affected by the broad core update in May. Retail brands such as Amazon, eBay, and Etsy benefited from the May Broad Core Update, as did video brands such as YouTube, TikTok (overall gain of 133%), Disney Plus, Hulu, and Twitch. However, Sistrix discovered a general loss for most news and media publishers after analysing 30 news websites. It also had a significant impact on generalists who write about celebrity news, sports results, weather, the economy, and career advice. (Search Engine Journal, 2022).

IV. CONCLUSION

The focus of marketing for a brand is to always stay at the forefront of customers' minds whenever the need for our product generates. The same is true for search engine optimization, where the only difference is that we try to achieve this by staying on the first page of search results.

From the data presented in this research paper, we can see that Google Algorithm helps us to stay on that first page, only if we follow search engine best practices. There are webmasters who use loopholes to gain rankings and traffic, but the chances of gaining results this way have reduced, thanks to Google's Algorithm that keeps updating every day.

Similar to traditional marketing, where we try to keep up with changes in external factors, the same is true in digital marketing. The only difference is that we must keep up with current trends, customer preferences, and algorithm updates. Because the algorithm is frequently tweaked to provide users with relevant results based on their queries, our SEO tactics should be updated to reflect these changes. To prove this, we can see from this study that a change in algorithm can have an effect on our marketing strategy. And we can also see how making improvements following search engine best practices can help us improve it.

Thus, to conclude, we can say that it is quintessential to learn about Google Algorithm, follow its best practices, and stay updated with its current changes. As that is the only way for us to gain an advantage in the industry, and it also helps

our brand keep standing, despite the external factors of digital marketing.

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THE HISTORY AND EVOLUTION OF IRRIGATION SYSTEM IN INDIA, (WITH SPECIAL REFERENCE TO KARNATAKA)

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ABSTRACT

Irrigation was the livelihood from the earlier times in Karnataka and Indian states, because of the availability of fertile soil and resourceful rivers like Cauvery, Tungabhadra etc, and the earliest mentions of irrigation are found in "Rig-Veda" chapters 1.55, 1.85, 1.105, 7.9, 8.69 and 10.101. The Veda mentions only well-style irrigation, where kupa and avata wells once dug are stated to be always full of water, from which varatra (rope strap) and cakra (wheel) pull kosa (pails) of water. This water was, state the Vedas, led into surmi susira (broad channels) and from there into khanitrima (diverting channels) into fields. Later, the 4th-century BCE Indian scholar Pāṇini, mentions tapping several rivers for irrigation. The mentioned rivers include Sindhu, Suvastu, Sarayu, Vipasa and Chandrabhaga. Buddhist texts from the 3rd century BCE also mention irrigation of crops. Texts from the Maurya Empire era (3rd century BCE) mention that the state raised revenue from charging farmers for irrigation services from rivers. Patanjali, in Yogasutra of about the 4th century CE, explains a technique of yoga by comparing it to "the way a farmer diverts a stream from an irrigation canal for irrigation" In Tamil Nadu and Karnataka, the Grand Anicut (canal) across the Kaveri river was implemented in the 3rd century CE, and the basic design is still used today.

But the modern evidences explain the changes in the irrigation patterns in Karnataka and the southern Indian states during the Vijayanagara Empire and some development during British period. This research paper is an attempt for putting together the ancient wisdom in establishing irrigation systems, particularly in Karnataka the Vijayanagara period from 1335 A.D. - 1565 A.D and contributions during British era in Karnataka, India.

KEY WORDS: Irrigation system in Karnataka, Vijayanagara kingdom irrigation patterns/system, Irrigation in Karnataka during British period

DEFINITIONS / LITERATURE REVIEW

➤ Merriam-Webster

According to Merriam Webster "ir·ri·ga·tion" is the watering of land by artificial means to foster plant growth and the therapeutic flushing of a body part with a stream of liquid

INTRODUCTION

Irrigation is defined as the process of artificial application of water to the soil in order to reach these following objectives: ensure enough moisture for agricultural crop growth, provide crop insurance against short duration drought, reduce hazards of soil piping, soften the tillage pan (a dense compact layer), cool the soil and atmosphere to provide a good atmosphere for plant growth, and wash out or dilute harmful salts in the soil (Mazumder, 1983; Basak, 1999; and Misra, 1981).

IRRIGATION EVOLUTION IN KARNATAKA

In Karnataka, the Vijayanagara period from - "1335 A.D. - 1565 A.D". i.e. for a term of 230 years and more the amount of efforts of the people involved during those times, the forethought of the kings and the people was the reason in having an flexible and well planned irrigation and agriculture economy, The stable food production with good yield and

irrigation facility and overall prosperity of the people of Vijayanagara times. The Vijayanagara Empire was spread from the areas like present - Bellary district and Raichur district, and most parts of South India with the capital at Hampi near present day Hosapet in the Bellary district. It had many irrigation systems constructed utilizing the waters of "Tungabhadra river" by way of a number of anicuts across the river, thereby channelizing the flows from the impounded small reservoirs to the banks of the river to irrigate the fields. Innumerable tanks and ponds were constructed in the region, lift works on a small scale on the banks of river and wells tapping the groundwater were constructed for irrigation purposes. The best practices in management and maintenance of the water resources so that the irrigation systems were kept in good condition to continue to serve the farmers for generations to come are commendable.

- The various type of irrigation systems built during the Vijayanagara Empire are mainly classified as **River anicuts, Tanks, Wells & Lifts**

a. Anicuts irrigation system



A dam made in a stream for maintaining and regulating irrigation. Anicuts are used to maintain required water level in the upstream by releasing only the excess water to

downstream. In the lifting gate, water is allowed to flow from the bottom and this causes high erosion in the canal.

b. Tank Irrigation System



Southern India as well as the arid areas of Central, Western India have seasonal rivers which limit the scope for canal irrigation while the scope for wells is limited due to the presence of hard granite and gneisses. As a result of these, tank irrigation is prominent in these areas. This tank irrigation

evolution evidences is primarily concerned with small reservoirs. Karnataka, Andhra Pradesh and Tamil Nadu have thousands of old tanks in various stages of maintenance. However, the decay of the management and reward mechanisms in place earlier has led to a corresponding decay



in these tanks. While the old social systems that maintained these tanks are no longer in existence, they have not been replaced by satisfactory institutional arrangements. This book

aims to learn from the history of tanks and examine their relevance to the present.

c. Well Irrigation system



d. Lift Irrigation



Lift irrigation schemes must accomplish two main tasks: first, to carry water by means of pumps or other way, from the water source to the main delivery chamber, which is situated at the top most point in the command area. Second, they must distribute this water to the field of the beneficiary farmers by means of a suitable and proper distribution. So that in Lift Irrigation system, the gravity flow of water by canals or river is not available or used.

IRRIGATION DEVELOPMENT IN KARNATAKA DURING BRITISH PERIOD

The Karnataka Irrigation Act (1965) seeks to consolidate the provisions of the Mysore irrigation (levy of betterment contribution and water rate) act, which was passed by the Legislature in the year 1957 and other allied Acts in force in the different areas in so far as they related to the levy of betterment contribution and water rate. There were different enactments in force in 1965 in the different areas of the State in regard to the construction, maintenance and regulation of



irrigation works and other matters pertaining to irrigation. Some important points in the act are -

- It provides among other things for the regulation of water from irrigation works, and gives certain powers to irrigation officers in regard to the survey, investigation, execution and maintenance of irrigation works.
- It provides as before for the performance of customary obligations in regard to maintenance of irrigation works by the beneficiaries.
- There is provision for taking over certain notified irrigation works all over the State for maintenance by Government if it is found necessary to do so in the interest of their proper preservation and of the economic utilization of and regulation of water from such works.
- This is subject to the payment by the beneficiaries of a cess, the proceeds of which will be put into a fund. A contribution up to 50 per cent of such proceeds is to be made by Government to the fund out of the general revenues. This fund is to be utilised not merely for

maintenance but also for providing facilities for proper use of water from the irrigation work and for constructing and maintaining ayacut roads, culverts, etc.,

- It is proposed to take over all but very small irrigation works for maintenance over a period of years, so that at the end of that period, the State will have complete control and responsibility for maintenance of all such works, while the responsibility for the others will continue to vest in the beneficiaries or other appropriate agencies.
- There is also provision to enable Government to construct field channels in the event of failure on the part of the ryots to construct them, subject to recovery of the cost of such construction from the holders of lands benefited from such field channels.
- The Bill also provides for certain safeguards for irrigation works and for certain safeguards for irrigation works and for penalties for the contravention of the mandatory provisions of the Bill

Colonial era



Data / Statistics

- *Irrigation system methods during Vijayanagara period*



It was entirely by chance that we stumbled upon the kere (Lake). We were in Chikkabenakal, a small village to the northwest of Hampi, in 2008, looking for the megalithic site that was said to exist nearby. Chikkabenakal is accessed from the highway connecting...

The main categories of irrigation work popular during the reign of the Vijayanagara kings were either river-fed or rain-fed. The former employed small dams called anicuts to channelize river water to canals which enabled large tracts of land away from the places.

OBJECTIVES

- To understand the importance of irrigation for the development of the economy from the past time in Karnataka.
- For greater knowledge and important contributions of the past kingdoms in development of rivers, canals, irrigational projects, etc.
- For efficient usage of water and natural resources by following the old and historical records and developments.

Sir M vishveshwaraiya and his role in development of irrigation in Karnataka, building of the KRS (Krishna Raja Sagara) reservoir and dam

The Krishnarajasagara dam is the biggest landmark in Mysuru. Dating back to the 1930s, this 130 feet high dam isn't just a popular tourist attraction; it is also the source of irrigation and drinking water for large parts of Karnataka. The dam is closely linked to two individuals; Krishnaraja Wodeyar IV, the erstwhile king of Mysuru at the time this dam was built and the dam's designer and engineer, Sir Mokshagundam vishveshwaraiya

CONCLUSION

Though irrigation is highly advanced and is on very large scale in the present times with its own pitfalls such as siltation of reservoirs, land becoming water logged and saline, many aspects of hydraulics, construction and management that were adopted in the ancient times of Vijayanagara period are noteworthy and the techniques adopted and lessons learnt by our predecessors in successful construction and management of irrigation systems will continue to inspire the generations to come in better management of rich water resources of the Karnataka State, Vijayanagara empires contributions for irrigation development, contributions of Dr. Sir M Vishveshwaraya's contributions was the milestone in the Indian irrigation history. The contributions of Sir M V made



useful for thousands of agricultural lands for growing seasonal crops.

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SYNTAXEMES REPRESENTING TOPONYMS IN THE PLACE OF NUCLEAR COMPONENTS IN ENGLISH

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ANNOTATION

In this article, the categorical differential syntactic-semantic features of toponyms in English sentence structures were identified and then the non-categorical differential syntactic-semantic features in their coverage are revealed and analyzed through examples.

KEYWORDS: *syntaxeme, toponym, locative, qualitiveness, processuality, nuclear, component, seme.*

INTRODUCTION

From the point of view of comparative linguistics, analysis of toponyms in different systematic languages, in particular English and Uzbek languages, by separating them into syntaxemes is one of the most urgent issues. A number of studies have been conducted on toponyms in both languages, but the topic has not been approached from the point of view of syntaxeme research. In the process of researching the composition of the sentence separating into syntaxemes, categorical differential syntactic-semantic signs are first identified, and then non-categorical differential syntactic-semantic signs are revealed in their scope. Next, syntaxemes identified in the English and Uzbek language systems are compared and functionally analyzed.

DISCUSSION

Linguist O.G. Vetrova says that substantiality is one of the categorical syntactic-semantic signs, which is defined by contrasting it with other differential syntactic-semantic signs, that is, qualificativeness and processuality [1, 45].

When toponymic examples taken from works of art were analyzed, locative syntaxemes and their paradigmatic series were identified and compared within the framework of substantive and qualificative syntaxemes from categorical symbols.

Let's analyze the following examples by separating them into syntaxemes:

1. *On August 15, India will celebrate 75 years of independence.*

2. *A Blue Crab Advisory Commission was appointed.*

3. *Stonehenge attracts up to 1.6 million visitors a year.*

4. *... the Mount Pleasant mega-henge was built on a grassy upland overlooking the Rivers Frome and Winterborne.*

5. *The Reykjanes peninsula was erupting, again.*

In the given sentences, the syntactic units *India* (1), *A Blue Crab Advisory Commission* (2), *Stonehenge* (3), *the*

Mount Pleasant (4), *The Reykjanes peninsula* (5) are the nuclear predicated components, i.e., it represents substantiality among the categorical differential syntactic-semantic signs. In order to determine the non-categorical sign of the components in the sentence, it is necessary to determine the component with which they entered into a syntactic relationship. It is known that, as mentioned above, the categorical sign is the lexical meaning of the word in the dictionary, while the non-categorical sign is the meaning expressed by it under the influence of other syntactic units in the context of the sentence. In this regard, when comparing with the lexicology branch of linguistics, we suggest that the categorical sign can be an alternative to the denotative meaning, and the non-categorical sign can be an alternative to the connotative meaning. In the sentence, the nuclear predicated (having) component enters into a syntactic relationship with the core predicating (predicate) component. In the given sentence devices, the nuclear predicating components *will celebrate* (1), *was appointed* (2), *attracts* (3), *was built* (4), *was erupting* (5) express processuality from the categorical signs and non-categorical actional (1, 3, 5) and actional directive (2, 4) signs. The components associated with actional syntaxeme represent agentiveness, the units associated with directive syntaxeme represent objectivity. So, the toponyms in the function of the nuclear predicated component in the sentences represent substantial agentive – SbAg (1, 3, 5) and substantial object – SbOb (2, 4) syntaxemes.

The non-categorical sign of agentiveness is derived from the word *agence*, which means *doer* and indicates the doer of the action represented by the unit in syntactic relation. The object syntaxeme represents the person or object to which the action is directed, on which the action is performed.

Non-nuclear dependent components also participated in the given sentences. In the first sentence, the syntactic unit *On August 15* expresses substantiality from categorical signs and temporality from non-categorical signs, that is, *On August 15* is a substantial temporal – SbTm syntaxeme. The component of *75 years* indicates quantification (Qun) on the



basis of the qualitative (Qlf) categorical seme and the object (Ob) in relation to the component *will celebrate*, the syntactic unit of *independence* indicates possessiveness (Ps) on the basis of substantiality (Sb).

In the third sentence, the number of subordinate components is three, the component *up to 1.6 million* embodies the quantitative and limitative (limitation) syntaxemes in the scope of qualification, the component *visitors* embodies the object syntaxeme in the basis of substantiality, *a year* – substantial temporal iterative – SbTmItr (periodicity) syntaxeme.

The fourth sentence contains 4 subordinate components: the combination *on a ... upland* represents substantive locative (Lc) adhesive (Ad), *grassy* – qualificative qualitative explicative, *overlooking* – procedural stative, *Rivers Frome and Winterborne* – substantive locative allative syntaxemes.

The fifth sentence has one subordinate component, which is a qualificative temporal iterative syntaxeme because it expresses the repetition of an action. The syntaxeme model of the analyzed sentences is as follows:

1) *On August 15, India will celebrate 75 years of independence* – QlfTm . SbAg . PrAc . QlfQun . SbPs;

2) *A Blue Crab Advisory Commission was appointed* – SbOb . PrAcDr

3) *Stonehenge attracts up to 1.6 million visitors a year* – SbAg . PrSt . QlfQunLm . SbOb . SbTmItr;

4) *... the Mount Pleasant ... was built on a grassy upland overlooking the Rivers Frome and Winterborne* – SbOb . PrAcDr . QlfQltExp . PrSt . SbLcAll;

5) *The Reykjanes peninsula was erupting, again* – SbAg . PrAcCnt . QlfTmItr.

It is often observed that toponyms are metonymically used in the function of a subject, that is, the name of that country or its capital is spoken instead of the government of a certain country.

6. *The Great Britain is reported to be on favour of.*

7. *Tashkent seems to have more tourists this season.*

8. *Samarkand was appointed to hold the summit ...*

The toponyms in the given sentences *The Great Britain* (6), *Tashkent* (7), *Samarkand* (8) are considered to be as double nuclear predicated components, because they are in a predicative relationship with the syntaxemes – *is reported* - PrAcDr (6), *seems* – PrSt (7), *was appointed* – PrAcDr (8) and at the same time they are in non-nuclear predicative relationship with the syntaxemes represented by infinitive forms of the verb *to be on favor* – QlfSt (6), *to have* – PrStPs (7), *to hold* – PrAcFn (8). Therefore, the toponyms in the sentences are bivalent and represent the 1st – substantive stative object (SbStOb), 2nd – substantial stative and possessive (SbStPs), 3rd – substantial object agentive (SbObAg) syntaxemes. The syntaxeme models of sentences are as follows:

6) *The Great Britain is reported to be on favour of* – SbStOb . PrAcDr . QlfSt;

7) *Tashkent seems to have more tourists this season* – SbStPs . PrSt . PrStPs;

8) *Samarkand was appointed to hold the summit ...* – SbObAg . PrAcDr . PrAcFn . SbOb.

In the analysis of the following examples, we will reveal that the toponyms that replace the nuclear predicated component can also embody several types of syntaxemes.

9. *The Caucasus are higher than the Urals.*

10. *Niagara is the highest waterfall in the world* (Wikipedia.org).

11. *Mariana Trench is 11,034 meters deep.*

12. *Both Europe and Russia have stakes in the region.*

13. *Armenia has remained part of Russia...*

Based on the syntaxemes represented by the nuclear predicating components in the given sentences, we determine the non-categorical signs of toponyms in the function of a subject: *are higher* (9) - qualificative qualitative comparative, *The Caucasus* –substantial qualitative comparative object syntaxeme, *is the waterfall* (10) – substantial identifying syntaxeme, *Niagara* – substantial identified syntaxeme, *is 11,034 meters deep* (11) – qualifying quantitative identifying, *Mariana Trench* – substantial quantitative identified syntaxeme, *have* (12) – processual possessive, *Both Europe and Russia* – substantial existential comitative syntaxeme, *has remained part of Russia* (13) – processual existential, *Armenia* – substantial stative syntaxemes are connected based on a nuclear predicative relationship. We express the syntax model of sentences as follows:

9) *The Caucasus are higher than the Urals* – SbQltCmpOb . QlfQltCmp . SbOb;

10) *Niagara is the highest waterfall in the world* – SbId₁ . QlfQlt . SbId₂ . SbLc;

11) *Mariana Trench is 11,034 meters deep* – SbQunId₁ . QlfQunId₂;

12) *Both Europe and Russia have stakes in the region* – SbExCm . SbExCm . PrPs . SbOb . SbLcAd;

13) *Armenia has remained part of Russia...* – SbSt . PrEx . SbPs.

The analyzed examples were collected and sorted not only from literary texts, but also from periodicals and electronic magazines. As a result, it was found that the toponyms in the place of the nuclear predicative component in English represent ten different syntaxemes.

Next, we will deal with the syntaxeme analysis of sentences with toponyms in the place of the nuclear predicating component in English. It is known that the nuclear predicating component, that is, the predicate, is divided into verb-predicate and noun-predicate according to its morphological representation. Since toponyms belong to the noun group, they can only appear in the function of noun-predicate and are activated on the basis of substantiality.

1. *... space-watchers could track the errant rocket body with enough precision to predict its final resting place: Hertzprung crater.*

2. *Another nation to watch is Israel, which has been closely aligned with Azerbaijan.*

3. *It's not just Stonehenge.*

4. *The next station is Bethnall Green.*

5. *... the perpetrator is the antagonist on Armenia's Western border, NATO member Turkey.*

We can shorten the structure of the sentence by removing certain components of the given first sentence:



1) ... *space-watchers could track the errant rocket body with enough precision to predict its final resting place: Hertzprung crater → its final resting place is Hertzprung crater.*

Nuclear predicating components *Hertzprung crater* (1), *Israel* (2), *Stonehenge* (3), *Bethnall Green* (4), *the antagonist* (5) represent substantial identifying syntaxemes and syntactic units they are connected on the basis of nuclear predicative relationship substantial identified syntaxemes – *nation* (2), *It* (3), *the perpetrator* (5) and substantial identified locative syntaxemes as *place* (1), *station* (4).

Also, in the second sentence, the component *Israel* is the anaphoric possessor of the next adverbial clause and represents the agentive syntaxeme. The component *with Azerbaijan* in the sentence is connected to the syntactic unit *has been ... aligned* on the basis of a subordinate relation and expresses a substantial object comitative syntaxeme.

In the fifth sentence, the syntactic unit *NATO member Turkey* comes into an appositive relationship with the NP2

component and is in appositive relation to the antecedent. The syntaxeme model of the sentences is as follows:

1) ... *its final resting place is Hertzprung crater* – SbPs . QlfQlt . PrAcEx . SbId₁ . SbId₂;

2) *Another nation to watch is Israel, which has been closely aligned with Azerbaijan* – SbAdd . SbId₁Ob . PrAc . SbId₂ . SbOb . PrAcDr . SbObCm;

3) *It's not just Stonehenge* – SbId₁ . SbNgId₂;

4) *The next station is Bethnall Green* – QlfOrd . SbId₁ . SbId₂;

5) ... *the perpetrator is the antagonist on Armenia's Western border, NATO member Turkey* – SbId₁ . SbId₂ . SbPs . SbQlt . SbLc . SbExp.

CONCLUSION

In English, it was observed that toponyms appearing in the place of the nuclear predicating component (NP2) represent three syntaxemes and in the place of the nuclear predicated component (NP1) are associated with one syntaxeme.

Table 1.
Syntaxemes represented by toponyms in place of NP₁P₁ (1a) and NP₂ (1b) and possibilities of connection with other syntaxemes

1a	NP ₁ P ₁	SbStOb	SbStPs	SbObAg
		↓	↓	↓
	NP ₂	PrStPs	QlfSt	PrAcFn
1b	NP ₂	SbId ₂	SbNgId ₂	SbExp
	NP ₁			
	SbId ₁	+	+	+

Table 2.
Possibilities of connection of syntaxemes represented by toponyms in the place of a subject (NP₁) with syntaxemes in the place of a predicate (NP₂).

NP ₁ \ NP ₂	PrAc	PrAcDr	PrSt	PrAcCnt	QlfQlt Cmp	SbId ₂	QlfQunId ₂	PrPs
SbAg	+		+	+				
SbOb		+						
SbStOb		+						
SbSt			+					
SbStPs			+					
SbObAg		+						
SbQltCmpOb					+			
SbId ₁						+		
SbQunId ₁							+	
SbExCm								+

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BARANGAY PEACEKEEPING ACTION TEAM OF SELECTED BARANGAYS OF CABANATUAN CITY, NUEVA ECIJA

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ABSTRACT

“For some must watch, while some must sleep, so runs the world away”- William Shakespeare, Hamlet. While you were enjoying your deep sleep, there are somebody tasked to ensure your safety, some of them are called BPATs (Barangay Peace Keeping Action Team). This study aims to determine the level of implementation, effectiveness and degree of problems encountered of Barangay Peacekeeping Action Team in the City of Cabanatuan, Nueva Ecija. it used of descriptive research design. A survey questionnaire was used as a main tool of the study that was validated by experts. Data gathered were tallied, tabulated, treated and interpreted using Likert Scale and Weighted Mean. The study was conducted in 9 selected barangays the City of Cabanatuan, Nueva Ecija where 605 respondents participated composed of; 40 PNP Personnel, 188 Barangay Officials and 377 Residents. Results showed that the BPAT were implemented, effective and the problems encountered were fairly serious. In conclusion, Barangay Peacekeeping Action Team of selected barangays in the City of Cabanatuan was mobilized, working and effective. The problems encountered were less serious and manageable. It is then recommended that implementers of the team should continue to perform well and to ensure the effectiveness of the team there is a need to systematize their daily routine activities in implementation of peace and order. Also, implementers of BPAT must strengthen and update the knowledge, skills and attitude of the members through a joint trainings and seminars.

KEYWORDS: *Barangay Peacekeeping Action Team, Level of Implementation, Level of Effectiveness, Problems Encountered*

INTRODUCTION

Peacekeeping has proven to be one of the most effective tools available to the United Nation to assist host countries navigate the difficult path from conflict to peace. Peacekeeping has unique strengths, including legitimacy, burden sharing, and an ability to deploy and sustain troops and police from around the globe, integrating them with civilian peacekeepers to advance multi-dimensional mandates.

United Nation Peacekeepers provide security and the political and peace building support to help countries make the difficult, early transition from conflict to peace. Peacekeeping is flexible and over the past two (2) decades has been deployed in many configurations. There are currently sixteen (16) United Nations peacekeeping operations deployed on the following four (4) continents: Asia, Europe, America, Africa. (UN, n.d.)

Moreover today's multidimensional peacekeeping operations are called upon not only to maintain peace and security, but also to facilitate the political process, protect civilians, assist in the disarmament, demobilization and reintegration of former combatants; support the organization of elections, protect and promote human rights and assist in restoring the rule of law. Success is never guaranteed, because United Nation peacekeeping almost by definition goes to the most physically and politically difficult environments. However we have built up a demonstrable record of success over our sixty (60) years of existence, including winning the (Nobel Peace Prize)

United Nation, (n.d.) added that peacekeeping has always been highly dynamic and has evolved in the face of new challenges. Recently, Secretary-General Ban Ki-moon established a seventeen (17) member high level Independent Panel on United Nation peace operations to make a comprehensive assessment of the state of United Nation peace operations today, and the emerging needs of the future.

Furthermore, peacekeeping is the basic function of the police. And the police visibility is one of the main thrusts of the peacekeeping activity. Without this, it would be very difficult to maintain peace and order. The term Barangay level is used to denote the sphere of operation or application of the system if amicably settling disputes instituted through the creation of Barangay Peacekeeping Action Team. The Barangay Peacekeeping Action Team Community justice System functions within the barangay which is the basic conciliation unit under system.

The basic philosophy behind it is that through the amicable settlement of the disputes, the volume of cases filed before the courts and quasi-judicial bodies may be reduced. (BPAT Manual, 2009)

It is along this line that a peacekeeping concept responsive to the unique peace and order condition in the Philippines needed to be crafted. The concept basically calls for. PNP members to lead in the fight against all force of criminality (including insurgency) distinct to their areas of responsibilities, utilizing active citizen involvement and community empowerment (BPAT Manual, 2009)

Various anti-criminality strategies and concepts were adopted by the PNP in its effort to curb and maintain peace and order. However most of the concepts were found to be unsustainable as these were just revised version of crime prevention concepts from other countries and were not suitable to the existing criminality situation in the Philippines. (BPAT Manual, 2009)

Also the Philippine National Police (PNP) recognized the role of Barangay Tanods, Bantay Chief Visionary Officer (CVOs) Barangay auxiliaries; Non-Governmental Organization (NGOs) and people's organization as force multiple in the fight against criminalities/insurgency/terrorism. These organizations are also valuable partners' of government in the community development. (BPAT Manual, 2009)



With the implementation of the junior-Regional Regatta (JIRR) as provided by Executive order (EO) 546, the PNP will have an active role in international standardization organization (ISO). Complementing the Arm Forces of the Philippines (AFP) strategy of Shape-Clear-Hold-support, the Barangay Peacekeeping Action Team (BPAT) as the sectoral equivalent of the CTM will limit if not prevent the access of the insurgents to cleared barangays. In the support phase, the Barangay Peacekeeping Action Team (BPAT) will metamorphose into an effective neighborhood security and public safety organization supporting the consolidation and development activities of the civil government. As such, it will perform not only crime prevention function but also implement anti-insurgency, disaster mitigation and community assistance programs. Moreover, this organization credibility of the Philippine National Police (PNP) and promote wide public acceptance of Barangay Peacekeeping Action Team (BPAT). This part of the effort to assimilate the police organization into the community itself, thus epitomizing the adage, "The Community is the Police and the Police is the Community".

Barangay Peacekeeping Action Team (BPAT) shall function solely for community-based activities, info campaign in support to Philippine National Police (PNP) anti-criminality effort, crime prevention on – the – spot conflict resolution. Cases may be referred to the Barangay Justice System as the situation may require. Cases which need police intervention shall be immediately acted upon by the police. Facilities delivery of basic government services through coordination with the Local Government Unit (LGU), Proof of Concept (POC).

Barangay Peacekeeping Action Team desk shall be established in the city and municipal police stations or the police community precincts in the urban centers. The present community police relations office (PCR) shall allocated of Barangay Peacekeeping Action Team office where the organization regularly holds meetings. Consequently, the Police Community Relation (PCR) functions and the Beat Patrol System will be implemented by the Barangay Peacekeeping and Action Team officers. (BPAT Manual, 2009)

As such the essence of Barangay Peacekeeping Action Team Community Justice (Barangay Conciliatory Level) System is the amicable settlements of disputes where in the disputing parties of the barangay are encourage making mutual concession to obtain peaceful resolution of the dispute without formal adjudication thereof. The important settlement is extent to which the parties are willing to compromise their respective claims against each other within the limits impose the law, morals, good customs, public order and public policy. The amicable settlement is in the nature of a contract between the parties. The Barangay Peacekeeping Action Team, which is organized in every barangay, exercise its authority to settle disputes only within the confines of its own barangay. Those issues that cannot be settled amicably despite earnest effort shall be brought before the Lupong Tagapamayapa.

As an added feature of the Philippine National Police medium term development plan launched on October 2002, the Philippine National Police (PNP) Police Community Relation (PCR) master plan and its components "Sambayanan" and "Santinig" have gone a long way as furthering the Community Oriented Policing System Doctrine is concerned. Much has been accomplished and bringing the police closer to the people, forging partnerships which have successfully addressed peace and order concerns.

Pursuant to the authority of the national peace and order council and the PNP, the BPAT is hereby created as the primary operators to conduct Community Oriented Policing System and Public Safety System (COPSPSS). The BPAT will be composed of PNP supervisor, barangay chairman, executive

officer, Barangay tanods. Its mission is to conduct peacekeeping activities in association with the various sectors of the community and ensure their continuous support toward the maintenance of peace and order and safety. Its vision is a peaceful and orderly community organized and responsive to the safety and security needs of its citizens in cooperation with the local police. (BPAT Manual, 2009)

Its functions are A.) Organized and mobilize various sectors of the community in support of the maintenance of peace and order and safety. B.) conduct crisis management, disaster mitigation, search, rescue, and relief operations within the community. C.) strengthen and support the barangay justice system (lupong tagapamayapa). D.) conduct crime prevention and deterrence measures to protect the vulnerable sectors of the community. (BPAT Manual, 2009)

Theoretical Framework

Under the Executive Order (EO) 739 known as Reorganizing of the Peace and Order Council, which makes counter-insurgency no longer the Armed Forces Sole responsibility but makes it part of the main task of local government units and executives. Executive order of the President is that local government officials are also primarily responsible for the anti-insurgency campaign in their area. (<http://www.timawa.net/forum/index.php?topic=15626.0>)

Under section 1 of the Executive Order (EO) 773 otherwise known as the Further Reorganizing the Peace and Order Council the peace and order council is hereby further reorganized on the national, regional, provincial, city and municipal levels of government to be constituted as a.) The chair of the National Peace and Order Council (NPOC) shall be the Secretary of Interior and Local Government (SILG); b.) Regional Peace and Order Council (RPOC) shall be composed of the region's Provincial Governors, Mayors of the highly Urbanized Cities, the presidents of the Leagues of the Municipalities, the regional counterparts of the departments, offices and agencies; c.) The Provincial Peace and Order Council (PPOC) shall be composed of the provincial counterparts of the departments offices and agencies where the Provincial Governor as the chairman and the Vice Governor as the Vice Chairman and; d.) The City or Municipal Peace and Order Council (CPOC or MPOC) shall be composed of the city or municipal counterparts of the departments, offices and agencies where the Mayor as the Chairman and the Vice Mayor as the Vice Chairman. ([www.lawphil.net/executive/execord/eo2009/eo_773\(10/14/16](http://www.lawphil.net/executive/execord/eo2009/eo_773(10/14/16))

Social investigation shall be conducted prior to the recruitment of prospective members of the Barangay Peacekeeping Action Team (BPAT). The result of the investigation will be the basis for the configuration of the team since no two barangays are the in terms of peace and order and safety situation. Citizen will then be informed of the formation of the new organization which will cater to the needs of their own community. Included in the information will be the basic knowledge on crime prevention and deterrence and safety precaution during calamities. A very important facet will dwell on the shared responsibilities of each and every member insofar as community peacekeeping is concerned. (BPAT Manual, 2009)

Executive Order (EO) No. 546 authorizes the Philippine National police (PNP) to deputize the barangay tanods as force multipliers in the implementation of the peace and order plan subject to the concurrence of the appropriate local Chief Executive through the Local Peace and Order Council (LPOC). More recently, with Executive Order (EO) 773, it is incumbent upon the Philippine National Police (PNP) to enhance its operational procedure on community safety and



security system in order to address criminality, international standardization organization (ISO) and terrorism problems by establishing Neighborhood Support Group (NSG) through Barangay Peacekeeping Action Team (BPAT) operatives, peace partners, and friends to achieve peace and order throughout the country.

The Philippine National Police (PNP) shall also conduct training of the BPAT's based on a standard Program of Instruction (POI) which focuses on law enforcement, community organization and public information, disaster mitigation, relief management, and case monitoring. Also gender and juvenile concerns and religious consideration and human rights shall form part of the training module. (BPAT Manual, 2009)

In Letter of Instructions (LOI) 22/09 Bayanihan otherwise known as Barangay Peacekeeping Operations (BPO) mandates the organization of Barangay Peacekeeping Action Teams (BPATs), a conglomeration of various sectoral groups, in each barangay nationwide. The Barangay Peacekeeping Action Team (BPAT) serves as the force multipliers and will be under the direct supervision of PNP personnel in close coordination with the Barangay Officials.

There shall be at least one policeman designated for each barangay to be called Pulis Sa Barangay (PSB). The duties and responsibilities of a Pulis Sa Barangay (PSB) are; a.) It emphasized that the designation of PSB is an additional functions/task over and above the personnel's present and responsibilities; b.) As a conduit between the PNP and the community, the PSB shall serve as the focal person and shall monitor the peace and order situation in his/her assigned barangay on a 24-hour basis; c.) All activities shall be undertaken in close coordination with the barangay officials and other key stake holders and support groups for emphasis of active community involvement in peacekeeping efforts; and d.) The PSB shall design his/her own schedule on how to serve the barangay. Such schedule will be reviewed will be reviewed by an immediate supervisor. As far as practicable, the PSB shall visit his/her assigned barangay at least once a week in order to carry out community-based activities such as, but not limited to; a1.) engaging the community and barangay officials by way of dialogues, pulong-pulong, meetings, house-to-house visits, crime prevention and safety awareness lectures, distribution of personal safety leaflets, brochures and other information materials, etc; b1.) Identifying peace and order issues and other public safety concerns such as prevalent crimes, drug problems, health issues, hazard/disaster prone areas, etc; c1.) Providing immediate police assistance in times of emergencies, disasters, etc;.d1) Supervising and/or assisting the BPATs. (Didm.pnp.gov.ph/ letters %2520of %Instructions)(10/14/16)

Under Section 24 of Republic Act (R.A) No. 8551 the Philippine National Police shall (a) enforce all laws and ordinances relative to the protection of lives and properties (b) maintain peace and order and take all necessary steps to ensure public safety (c) investigate and prevent crimes, effect the arrest of criminal offenders, bring offenders to justice and assist in their prosecution (d) exercise the general powers to make arrest, search and seizure in accordance with constitution and pertinent laws (e) detain an arrested person for a period not beyond what is prescribed by law, informing the person so detained of all his rights under the constitution (f) perform such other duties and

exercises all other functions as may provided by law.(www.lawphil.net> ra_8551_1998)

The BPAT Officers in close coordination with LGU and other sectors shall organize Barangay official. Barangay Tanods and other potential force multipliers to compose initial core group of Barangay Peacekeeping Action Team (BPAT).They shall be organized into teams performing their specific functions. The members will be screened and carefully selected from among the existing barangay Officials, barangay tanods and other anti-crime groups with the community. The chief of police and the station commanders of city/municipal stations shall direct their policemen to include in their patrol and visitation of the barangays under in its establishments which are high risk to criminal elements. (BPAT Manual, 2009)

The City of Cabanatuan is situated in the heart of Nueva Ecija, it has 89 barangays, each is headed by a Barangay Captain. It is also one of the cities that are operated by Barangay Peacekeeping Action Team (BPAT). This study focused on the implementation of Barangay Peacekeeping Action program in the 9 Selected Barangays of the city.

Objectives

This study aims to determine the level of implementation, effectiveness and degree of problems encountered of Barangay Peacekeeping Action Team in the City of Cabanatuan, Nueva Ecija.

METHODOLOGY

The study made used of the descriptive research design. A survey questionnaire was used as a main tool of the study that was validated by experts from the Philippine National Police and Barangay Officials of the city. Data gathered were tallied, tabulated, treated and interpreted using Likert Scale and Weighted Mean. The study was conducted in 9 selected barangays the City of Cabanatuan, Nueva Ecija. The respondents have a total of 605 composed of 40 PNP Personnel, 188 Barangay Officials and 377 Residents. Safety protocols and ethical standards were observed during the conduct of the study for the integrity and safety of the researchers and participants.

Level of Implementation

It can be gleaned in table 1 that the highest mean is establishment of close working relationship with resident obtained 4.23 interpreted as highly implemented. This shows that the Barangay Officials and the PNP are practicing their community relation.

The lowest mean that according to the citizens is Conduct Police Security Education and Orientation obtained 4.04 interpreted as implemented. This implies that there were limited activities on orientation, seminars and trainings on police security education. Though it is the lowest it doesn't mean that this was not addressed by the PNP, only that there were limited activities because it still falls on implemented.

Thus, the overall weighted mean still falls on implemented, it only implies that the level of implementation of BPATS in the City of Cabanatuan is implemented.



Table 3. Level of Implementation of Barangay Peacekeeping Action Team In Selected Barangays in the City of Cabanatuan, Nueva Ecija

Indicators	Citizens n=377	PNP Personnel n=40	Barangay Officials n=188	WM	DER
1. Establishment of close working relationship with resident.	4.42	4.03	4.24	4.23	HI
2. Conduct mobile/beat patroller at congested and crime prone areas and vital infrastructures, residence/subdivision, banks, business centers.	4.25	3.98	4.21	4.15	I
3. Establishment of communication link with police.	4.13	4.08	4.05	4.09	I
4. Coordination with peace partners (LGUs, concerned citizen, security agencies and other and other law enforcement units.	4.08	4.18	4.02	4.09	I
5. Proper deployment of BPAT personnel in the different areas like schools, church, bars and other public areas.	3.98	4.18	4.03	4.06	I
6. Conduct meetings and announcements for security purposes.					
7. Organize and train barangay peacekeeping operators on law enforcements, people's organization, responders to calamities and disasters.	4.00	4.10	4.01	4.05	I
8. Conduct Police Security Education and Orientation.	3.96	4.22	4.02	4.07	I
9. Active participation of PNP territorial units in the implementation of peace and order.	3.90	4.18	4.04	4.04	I
10. Community empowerment/development linkage through the deployment of BPATs.	4.10	4.20	4.16	4.14	I
11. Conduct patrol during night time.					
	4.03	4.28	4.02	4.11	I
	4.12	4.43	4.11	4.22	I
OVERALL WEIGHTED MEAN	4.09	4.17	4.08	4.11	I

Legend:

DER= Descriptive Equivalent Rating

HI= Highly Implemented

WM= Weighted mean

I= Implemented

Level of Effectiveness

It can be gleaned in table 2 that the highest mean is active participation of PNP territorial units in the implementation of peace and order obtained 4.17 interpreted as effective. This shows that the PNP is doing their job well in the maintenance of peace and order and that they really take time to participate in the implementation of peace and order.

The lowest mean is proper deployment of BPAT personnel in the different areas like schools, church, bars and other public areas that obtained 4.02 but still interpreted as effective. This means that BPATs visibility is not that visible in

the community, this can be because of limited manpower and sometimes BPATs cannot be easily identified because they were not required to wear their uniform everyday especially the members in the barangay level. In addition to this, some residents doesn't seem to understand that their barangay officials, and barangay tanods are form part of the BPAT.

Nevertheless, the overall mean is 4.10 interpreted as effective. It only shows that BPATs in the City of Cabanatuan are effective.



Table 2. Level of Effectiveness of Barangay Peacekeeping Action Team In Selected Barangays in the City of Cabanatuan, Nueva Ecija

Indicators	Citizen	PNP	Barangay	WM	DER
	N = 377	Personnel n=40	Officials n=188		
1. Establishment of close working relationship with resident.	4.11	4.05	3.90	4.07	E
2. Conduct mobile/beat patroller at congested and crime prone areas and vital infrastructures, residence/subdivision, banks, business centers.	4.07	4.10	3.90	4.06	E
3. Establishment of communication link with police.	4.05	4.15	3.98	4.06	E
4. Coordination with peace partners (LGUs, concerned citizen, security agencies and other and other law enforcement units.	4.09	4.28	4.00	4.12	E
5. Proper deployment of BPAT personnel in the different areas like schools, church, bars and other public areas.	4.04	4.20	4.09	4.02	E
6. Conduct meetings and announcements for security purposes.	3.93	4.13	4.07	4.04	E
7. Organize and train barangay peacekeeping operators on law enforcements, people's organization, responders to calamities and disasters.	4.02	4.25	4.07	4.11	E
8. Conduct Police Security Education and Orientation.	3.90	4.33	4.10	4.11	E
9. Active participation of PNP territorial units in the implementation of peace and order.	4.07	4.28	4.16	4.17	E
10. Community empowerment/development linkage through the deployment of BPATs.	3.99	4.38	4.12	4.16	E
11. Conduct patrol during night time.	4.10	4.38	3.98	4.15	E
OVERALLWEIGHTED MEAN	4.03	4.23	4.03	4.10	E

Legend:

HE= Highly Effective

E= Effective

Degree of Seriousness

It can be gleaned in table 3 the highest mean was unable to establish BPAT outpost obtained 2.86 interpreted as fairly serious. This result shows that some barangays have no BPAT outpost, true enough that in a certain barangay, there was no visible BPAT outpost because some barangays assumes that their barangay tanod outpost can also serve as the BPAT outpost.

The lowest mean is lack of cooperation between the PNP and BPAT obtained 2.86 interpreted as fairly serious, this

result shows that the PNP and BPATs practice proper cooperation and coordination.

The overall weighted mean is 2.94 interpreted as fairly serious, this result shows that the PNP and BPATs should put their eyes and take actions to their encountered problems as stated.

Though there were encountered problems by the BPATs, it is still manageable because the degree of seriousness of the problem falls only on fairly serious.



Table 3. Degree of seriousness of the problems encountered of Barangay Peacekeeping Action Team in Selected Barangays in the City of Cabanatuan, Nueva Ecija

Indicators	Citizens n=377	PNP Personnel n=40	Barangay Officials n=188	WM	DER
1. Lack of communication of BPAT to other law enforcement organization such as PNP, NGO, LGU etc.,	2.58	3.88	2.12	2.86	FS
2. Lack of equipments such as radio, whistle and etc.	2.55	4.05	2.14	2.91	FS
3. Undisciplined member of the community especially on nighttime.	2.55	3.98	2.32	2.95	FS
4. Lack of sign boards/Patrolman officer especially on the crime zone areas.	2.58	3.85	2.43	2.95	FS
5. Unable to establish BPAT outpost.					
6. Lack of training and seminars with regards to peace and order in every barangays.	2.79	3.88	2.44	3.04	FS
7. Lack of cooperation between the PNP and BPAT.	2.72	3.90	2.40	3.00	FS
8. Unorganized daily routine activities.	2.62	3.83	2.30	2.92	FS
	2.50	3.98	2.21	2.90	FS
OVERALL WEIGHTED MEAN	2.61	3.92	2.30	2.94	FS

Legend: FS= Fairly Serious

CONCLUSION AND RECOMMENDATION

In conclusion, Barangay Peacekeeping Action Team of selected barangays in the City of Cabanatuan was mobilized, working and effective. The problems encountered were less serious and manageable. It is then recommended that implementers of the team should continue to perform well and to ensure the effectiveness of the team there is a need to systematize their daily routine activities in implementation of peace and order. Also, implementers of BPAT must strengthen and update the knowledge, skills and attitude of the members through a joint trainings and seminars.

6. <http://www.timawa.net/forum/index.php?topic=15626.0>

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AWARENESS OF MERGERS AND ACQUISITION AMONGST FINANCE MANAGERS IN INDIA

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ABSTRACT

This research seeks to understand the awareness of M&A across finance managers in various organizations in various segments of the industry. The goal was to understand the success rate of mergers and acquisitions as well as the reasons for it. This study helped us realise that M&A awareness must be enhanced in the initial stages of our career.

KEY WORDS - Synergy, Acquirer, Due diligence, Vertical integration, parent company, dilution, target firm, acquirer

SECTION 1

INTRODUCTION

Merger-and-acquisition frenzy has created intense competition for the same target companies, where a premium is placed on price and speed.

DISTINCTION BETWEEN MERGERS AND ACQUISITIONS

In an acquisition, another organization does not rise. Rather, the littler organization is regularly expended and stops to exist with its benefits winding up some portion of the bigger organization. Acquisitions – some of the time called takeovers – for the most part convey a more negative undertone than mergers. Because of this reason, many securing organizations allude to an acquisition as a merger notwithstanding when it is plainly not.

A merger requires two organizations to solidify into another element with another proprietorship and the executives structure (apparently with individuals from each firm). An obtaining happens when one organization assumes control over the majority of the operational administration choices of another organization. The more typical refinement to separating an arrangement is whether the buy is well disposed (merger) or threatening (acquisition).

Since mergers are so phenomenal and takeovers are seen in a negative light, the two terms have turned out to be progressively mixed and utilized related to each other. Contemporary corporate restructurings are generally alluded to as merger and obtaining (M&A) exchanges as opposed to just a merger or securing. The reasonable contrasts between the two terms are gradually being disintegrated by the new meaning of M&A bargains.

(2022) (Borad, 2022)

M&A IN INDIA BETWEEN 2021- 2022

- Prosus acquires Billdesk at USD 4.7 billion
- Piramal Group acquires DHFL at USD 4.7 billion
- Tata Digital acquires BigBasket
- Merger between Zee Entertainment Enterprises And Sony Pictures Network .
- Adani Green Energy Limited took over SB Energy India
- PharmEasy acquires Thyrocare at USD 610 million
- Byju acquires Aakash Educational Services
(Agarwal, 2022)

SECTION 2



RESEARCH OBJECTIVES

1. To understand the various reasons behind Mergers and Acquisition in India.
2. To understand the awareness and opinion of mergers and acquisition among the finance managers' in different organizations across various segments of industries in India

SCOPE OF THE STUDY

This paper is mainly highlighting the study on Mergers and Acquisitions among the finance managers in different organizations across segments of industries in India.

SECTION 3

RESEARCH METHODOLOGY

The research methodology section includes the sampling, design, data collection methods and the analysis plan.

The sampling plan includes the profile of the sample unit of study, the size of the sample, the sampling procedures, the period of study.

Sample unit of the study – The sample unit for our study are the finance managers aged between 25-23 years working across segments of industries in India.

Size of the sample – A Sample size of 110 users was used for the research purpose and collecting primary data. The respondents were finance managers in organizations of various segments in industries. A Questionnaire was prepared for the respondents and the data is duly recorded.

Sampling procedures – The sampling was done on a random basis wherein our previous managers of previous organizations were tapped.

Period of the study – The period of the study was April – June 2022.

Data collection plan contains the sources of data and the method of collecting data.

Sources of Data Collection - We have used Primary and Secondary data for my project report. The main advantage of using secondary form of data is that it is easy to collect. It is less time consuming and efforts in collecting the secondary data are less than primary data. Collecting primary data was tedious but we enjoyed it as we interacted with many people while doing the research. This research helped us gain in the interaction with the finance managers.

Method of Data Collection - A questionnaire constructed through google form was sent to various finance managers and they were requested to fill the same and send us.

The analysis was done using various charts, tables and graphs.

SECTION 4

REVIEW OF LITERATURE

A number of studies were done in the developed capital markets of Europe, Australia, China, India, and the USA on the evaluation of corporate financial performance following mergers.

1. **Gantumur and Stephan (2007)**, in a study “**Merger, Acquisitions and Innovation Performance in the Telecommunications Equipment Industry**” analysed the innovation determinants of M&As activity, and the consequences of M&As transactions on the technological potential and the innovation performance. The study examined the telecommunications equipment industry over the period 1988 – 2002 using 638 newly created data sets with firm-level data describing M&As and innovation activity, as well as financial characteristics. Based on a matching propensity scorereader, the study provided evidences that M&A's realize significantly positive changes to the firm's post-merger innovation performance. The study delivered insights into the desirability of M&A's for the innovation performance of firms by analyzing the M&A's that took place in the international telecommunications equipment industry from the late 1980s until the early 2000s. The study concluded that, on an average, M&A's realize significantly positive changes to the innovation performance of firms following M&As. The post-merger changes are driven by both the success in R&D activity and the weakness in internal technological capabilities at acquiring firms prior to a merger. (Stephan, 2007)
2. Mantravadi and Reddy (2008) stated that the type of industry does seem to make a difference to the post-merger OP of acquiring firms. According to McGowan And Sulong (2008) who studied the effect of M&A's completion announcement on the stock price behaviour for two anchor banks in Malaysia, the M&As completion announcements are treated as positive information by the market. (Sulong, 2008)
3. **Kumar and Bansal (2008)**, in their study “**The Impact of Merger and Acquisitions on Corporate Performance in India**” attempted to analyze whether the claims made by the corporate sector while going for M&A's to generate



synergy are being achieved or not in the Indian context. They did so by studying the impact of M&A’s on the financial performance of the outcomes in the long- run and compared and contrasted the results of merger deals with acquisition deals. The study used ratios and correlation matrix for analysis, and found that in many cases of M&A’s, the acquiring firms were able to generate synergy in the long run, which might have been in the form of higher cash flow, more business, diversification, cost cuttings and more. (Bansal, 2008)

Mantravadi and Reddy (2008), in a study entitled “**Post-merger Performance of Acquiring Firms from Different Industries in India**” attempted to study the impact of M&A’s on the OP of the acquiring corporate firms of different industries, by examining some pre-and post-merger financial ratios, with the sample of firms chosen as all M&A’s involving public limited and traded firms in India during 1991-2003. The study suggested that there are minor variations in terms of impact on OP following M&A’s in different industries in India. In particular, M&A’s seem to have had a slightly positive impact on the profitability of firms in the banking and finance industry, while the pharmaceutical, textiles, and electrical equipment sectors saw a marginal negative impact on OP (in terms of profitability and returns on investment). (Reddy, 2008)

(Ghosh, 2022)

4. Prof. M. Guruprasad (2012) in a study entitled “**Business Basics and Management Mantras- Understanding Mergers**” explained the basic concepts of merger, types of mergers, reasons behind mergers and the concept of demerger. According to the study, the reasons for mergers include economies of scale, strategic benefit, tax benefits and reduction in operation cost. The paper also mentions certain demerits of mergers including management styles, organization structures. The paper concludes by stating the example of Bharti, Hutchison and Birla – M&A in the telecom sector. (Guruprasad, 2012)

SECTION 5

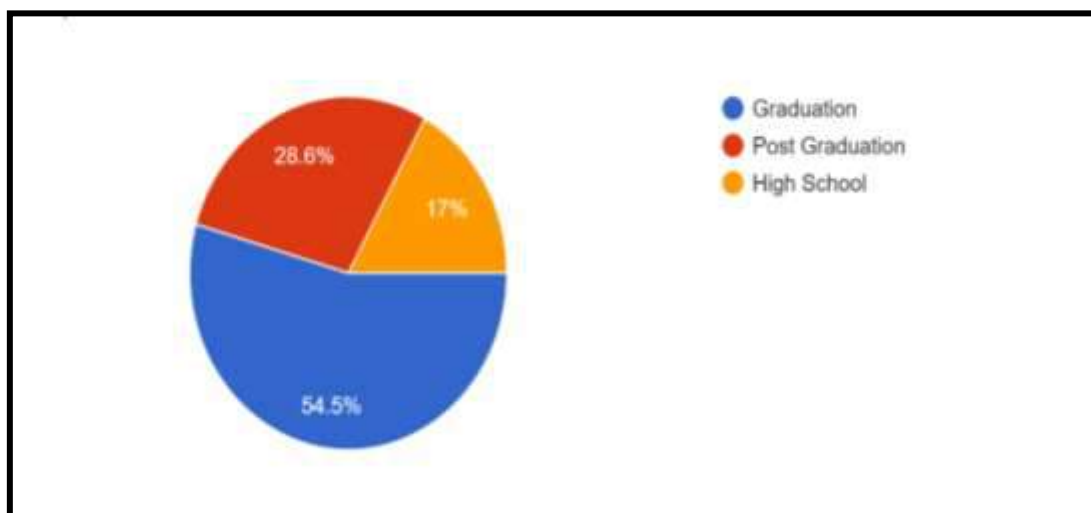
DATA ANALYSIS, INTERPRETATION AND PRESENTATION

5.1 Awareness of Mergers and Acquisition.

Table 5.1 - Awareness of M&A amongst Finance Managers in India

Sr No	Particulars	No of Respondents	Percentage
1	Yes	86	76.7%
2	No	16	15%
3	Maybe	10	8.3%

Chart 5.1- Awareness of M&A amongst Finance Managers In India



INTERPRETATION

From the above table and chart, we can see that majority of the respondents said yes that they are aware about what a Merger is followed by the options No and Maybe.

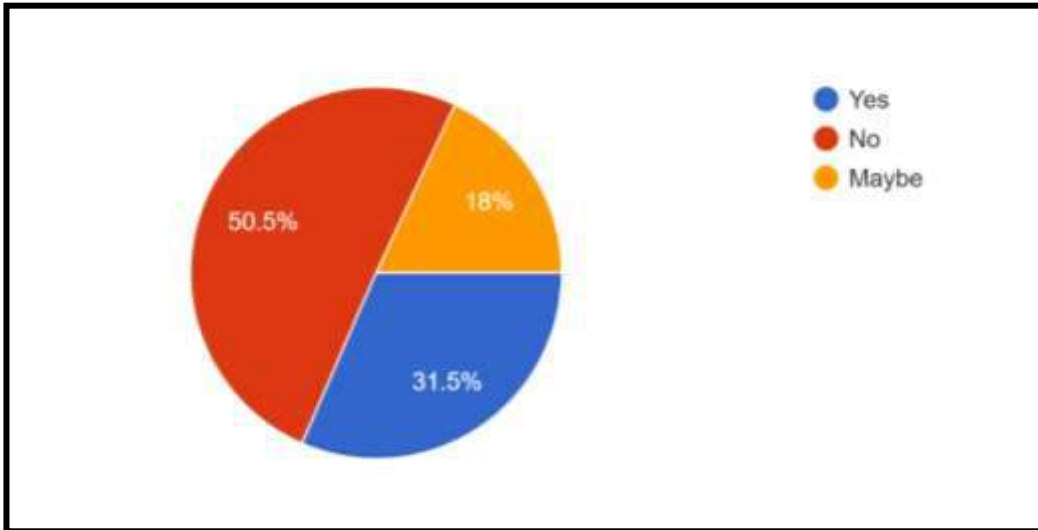
This shows that majority respondents are well versed with the topic Mergers

5.2 Merger and Acquisition - Similarity

Table 5.2 – Similarity between M&A

Sr No	Particulars	No of Respondents	Percentage
1	Yes	35	31.5 %
2	No	56	50.5 %
3	Maybe	20	18 %

Chart 5.2
between



– Similarity
M&A

INTERPRETATION

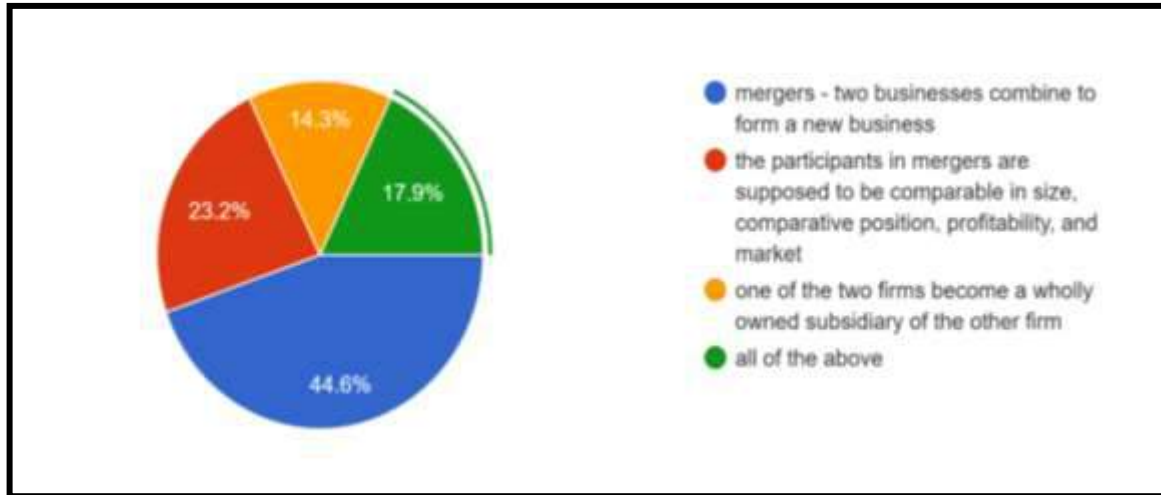
From the above table and chart, 50.5% of respondents think that mergers and acquisition are not same, while 31.5% think maybe they can be same. We think majority (half) respondents are correct that Mergers and Acquisition are slightly different, while the other half are not aware or are confused between the two terms. A merger occurs when two separate entities combine forces to create a new while Acquisition refers to takeover of one entity by another.

5.3 Correct Statements on statements about M&A.

Table 5.3 – Correct statements about M&A

Sr No	Particulars	No of Respondents	Percentage
1	Mergers- two businesses combine to form a new business	50	44.6%
2	the participants in mergers are supposed to be comparable in size, comparative position, profitability, and market	26	23.2%
3	one of the two firms become a wholly owned subsidiary of the other firm	16	14.3%
4	all of the above	20	17.9%

Chart 5.3 – Correct statements about M&A



INTERPRETATION

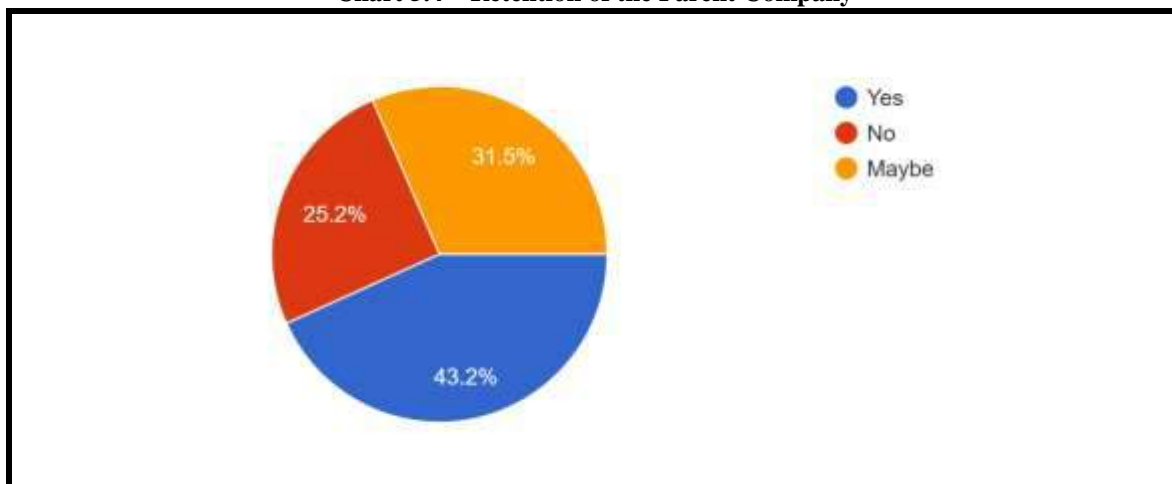
From the above table and chart 44.6% respondents say that a merger is a combination of businesses in which two business combine to form a new business while 23.2% think that merger is a combination of businesses in which the participants are necessarily comparable in size, comparative position, profitability, and market capitalization while 14.3% think a merger is a combination where one of the two firms become a wholly owned subsidiary of the other firm and 20% think none of the above. Well a merger is a combination of businesses where two businesses combine to form a new business which makes majority of individuals are correct.

5.4 Retention of the Name of the Parent Company

Table 5.4 – Retention of the Parent company

Sr No	Particulars	No of Respondents	Percentage
1	Yes	48	43.2%
2	No	28	25.2%
3	Maybe	35	31.5%

Chart 5.4 – Retention of the Parent Company



INTERPRETATIONS

From the above table and chart, 43.2% of the people think that the name of the parent company is retained after the merger and acquisition, while 25.2% respondents think that the name is not retained and the remaining 31% are confused about it.

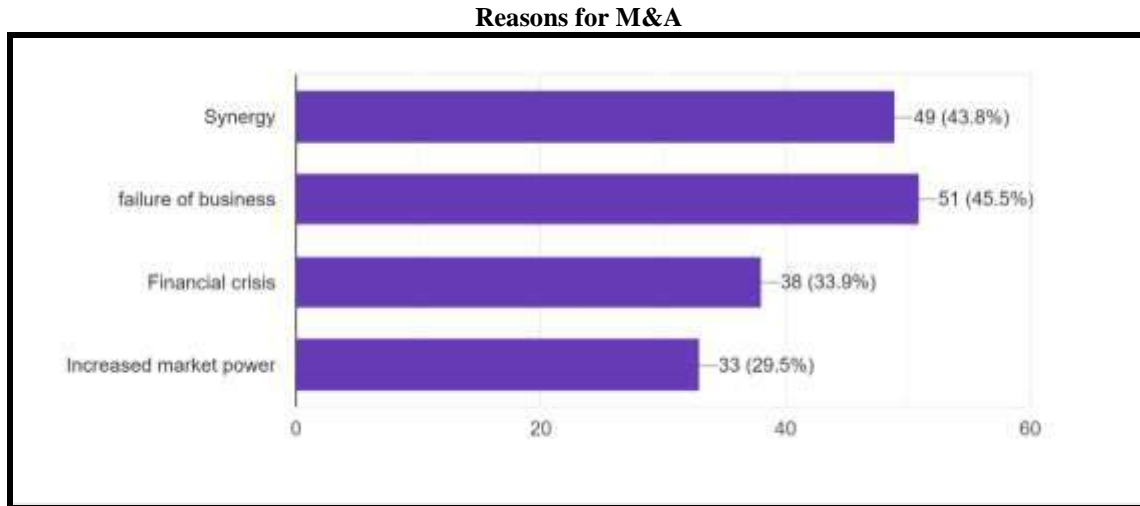
5.5 Reasons for mergers and acquisition.

Table 5.5 – Reasons for M&A

Sr No	Particular	No of Respondents	Percentage
1	synergy	49	43.8%
2	Failure of business	51	45.5%
3	Financial crisis	38	33.9%
4	Increased market power	33	29.5%

Chart

5.5 –



INTERPRETATION

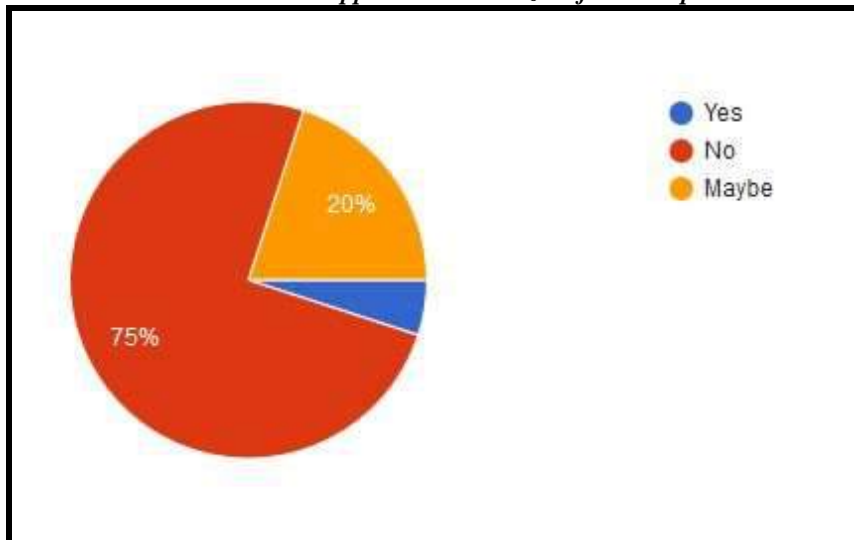
From the above table and graph, 43.8% people think that companies come together for better synergies, while 45.5% of them think it is because their own company is in losses or high debts that they are forced to merge with other big companies. According to 33.9% of respondents, companies come together to fight their financial crisis, while the remaining 29% people think that they come together for increased market power.

5.6 Merger and Acquisition applicable to all sizes of the companies.

Table 5.6 – M & A applicable to all sizes of the companies

Sr No	Particulars	No of Respondents	Percentage
1	Yes	6	5%
2	No	84	75%
3	Maybe	22	20%

Chart 5.6 - M & A applicable to all sizes of the companies



INTERPRETATION

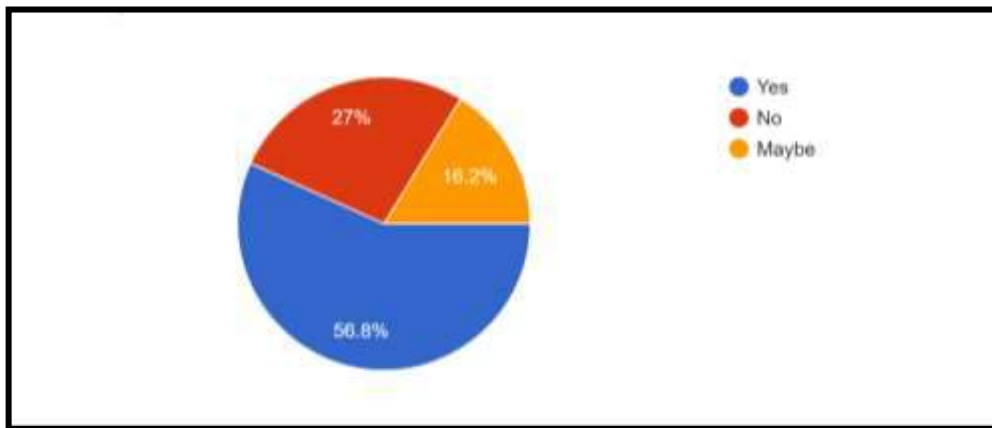
From the above table and chart, we can interpret that 5% think Merger and Acquisition is only for big companies, 20% think maybe it is only for big companies but majority of respondents i.e., 75% of them think mergers and acquisitions are not only for big companies. Any size company can participate in Mergers and Acquisitions.

5.7 Remembrance of any recent M&A

Table 5.7 Remembrance of any recent M&A

Sr No	Particulars	No of Respondents	Percentage
1	Yes	63	56.8%
2	No	30	27%
3	Maybe	18	16.2%

Chart 5.7 – Remembrance of any recent M&A



INTERPRETATION

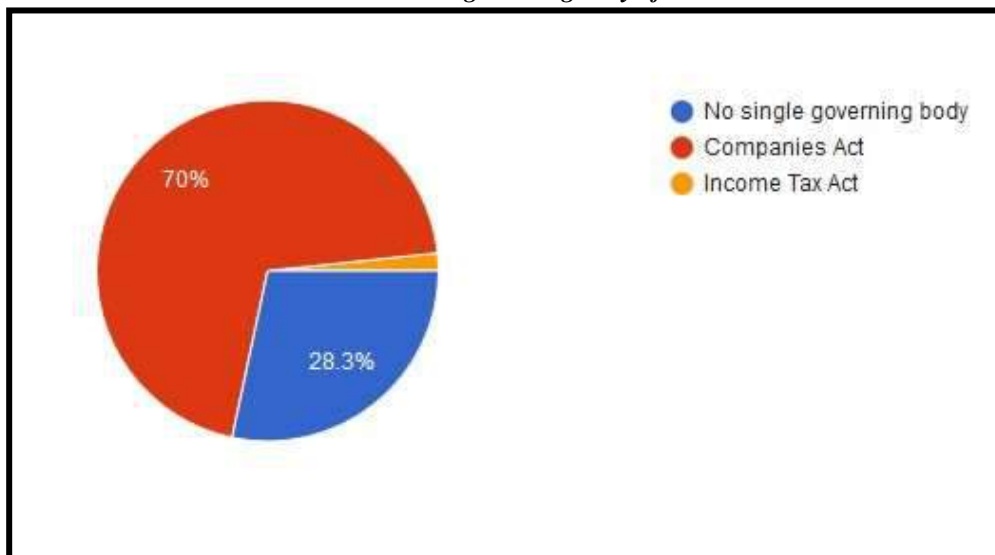
From the above table and chart, 56.8% individuals have heard about mergers and acquisition in their known companies, while 27% have not heard of any mergers or acquisition in their known companies. The rest 16.2 are not sure about the same.

5.8 The governing body of M&A

Table 5.8 The governing body of M&A

Sr No	Particulars	No of Respondents	Percentage
1	No Single Governing Body	32	28.3%
2	Companies Act	79	70%
3	Income Tax Act	1	1.7%

Chart 5.8 - The governing body of M&A



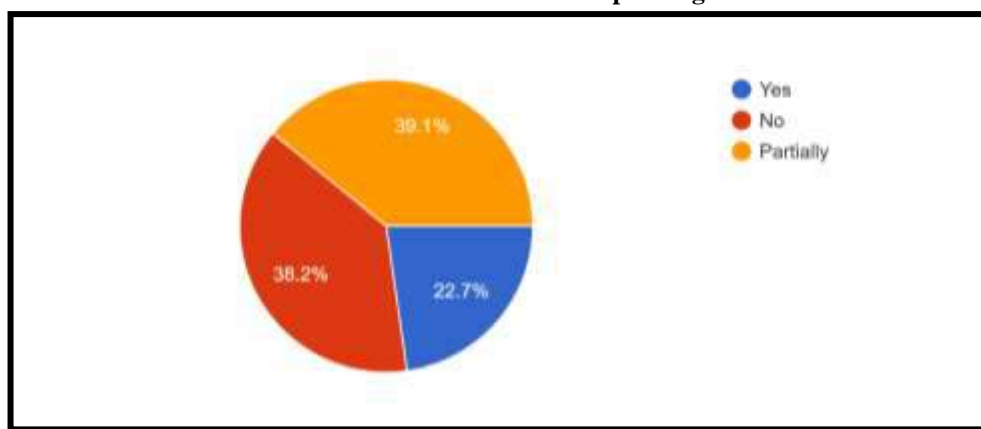
**INTERPRETATION**

From the above table and chart, around 70% of the respondents think Companies Act governs Mergers and Acquisitions in India, 28.3% of them think that there is No single governing body to govern Mergers and Acquisitions in India.

The Statutory law which governs a particular industry, the Industrial Development and Regulation Act, Companies Act, FEMA, Competition Act, Income Tax Act and SEBI Rules 2011 known as the Takeover code, all together have rules and regulations to be followed for M&A in India.

5.9 Effect on companies goodwill**Table 5.9- Effect on companies goodwill**

Sr No	Particulars	No of Respondents	Percentage
1	Yes	25	22.7%
2	No	42	38.2%
3	Partially	45	39.1%

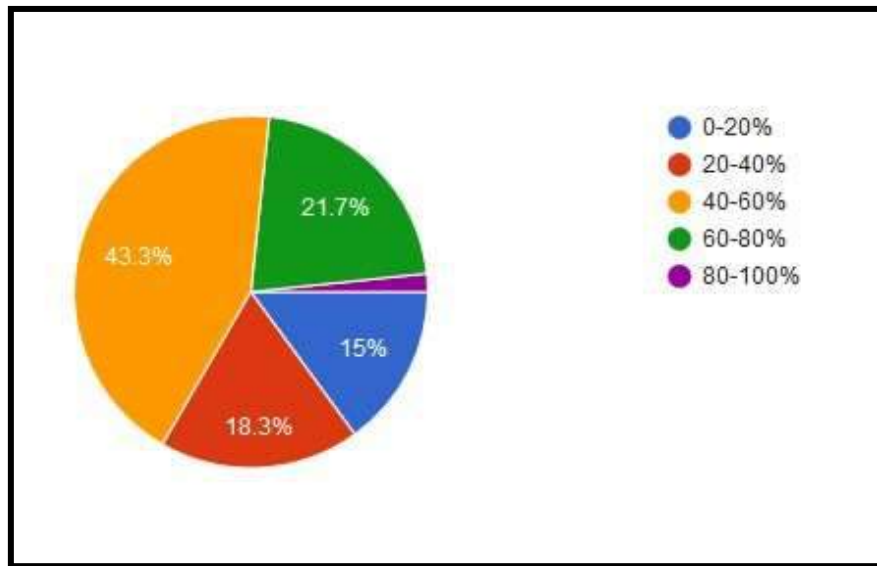
Chart 5.9 - Effect on companies goodwill**INTERPRETATION**

According to the table and chart, 22.7% people think that mergers and acquisition harm the company's goodwill, while 38.2% of them think that mergers and acquisition do not harm the reputation or the goodwill. The remaining 39.1% think that they partially harm the reputation. Thus, majority of the people think that the company's reputation and goodwill will be partially harmed due to the merger or acquisition.

5.10 Percentage of successful M&A**Table 5.10 Percentage of successful M&A**

Sr No	Particulars	No of Respondents	Percentage
1	0-20%	9	15%
2	20-40%	11	18.3%
3	40-60%	26	43.3%
4	60-80%	13	21.7%
5	80-100%	1	1.7%

Chart 5.10 - Percentage of successful M&A



INTERPRETATION

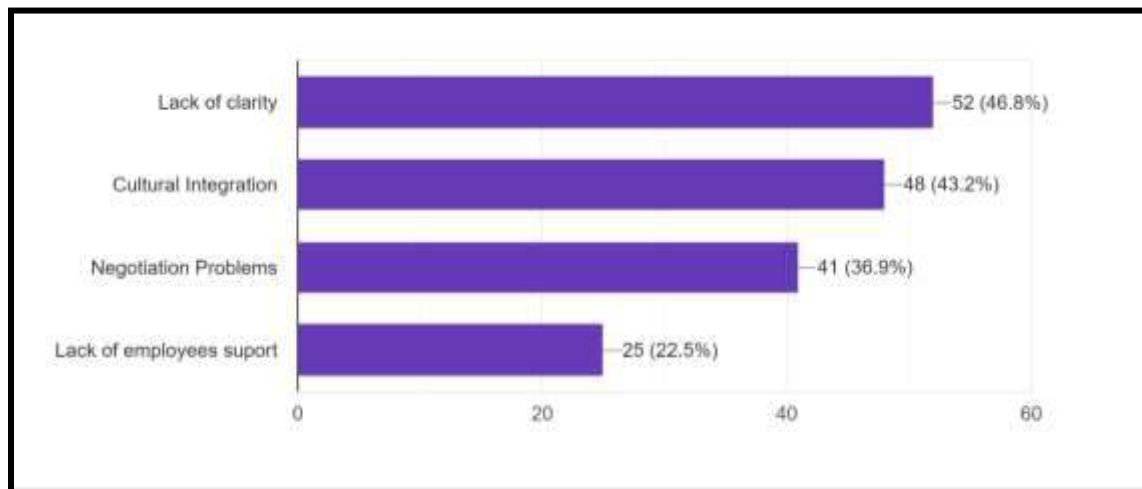
From the above table and chart, 43.3% respondents think that 40-60% mergers are successful while 21.7% think that 60-80% mergers are successful. 18.3% think that 20-40% mergers are successful. The failure rate for mergers and acquisitions sits between 70-90%.

5.11 Reasons for failure of M & A

Table 5.11 Reasons for failure of M & A

Sr No	Particulars	No of Respondents	Percentage
1	Lack of clarity	2	3.3%
2	Cultural Integration	12	20%
3	Negotiation problems	4	6.7%
4	Lack of employees' support	42	70%

Chart 5.11 - Reasons for failure of M & A.

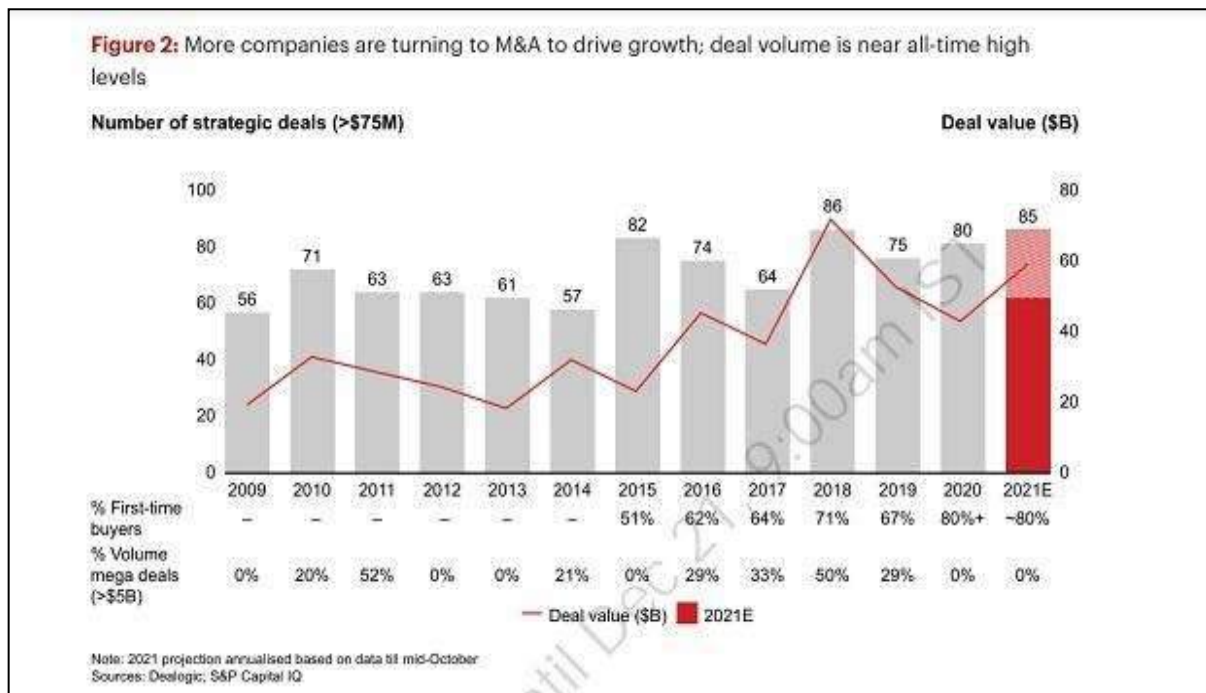


INTERPRETATION

From the above table and chart, majority of people i.e., 46.8% think that mergers and acquisition fail due to lack of clarity, 43.2% think that they fail because of cultural integration, 36.9% think they fail due to negotiations problems, and the rest 22.5% think that companies fail due to lack of employees' support.



5.12 RECENT TRENDS IN M&A



SECTION 6 - SUMMARY, CONCLUSION AND SUGGESTIONS

The underlying motivations behind Mergers & Acquisitions are many. Therefore, it would be difficult to evaluate the success or failure of a merger or acquisition in terms of any single yard stick. Using alternative methods, the empirical literature has narrated the story of failure of M&As. Nevertheless, distinct merger waves across the world are real corporate events, which need to be reckoned with. Of late, cross-border M&As have emerged as an important mode of entry, as far as the foreign direct investment is concerned. Most of the countries by now, have adopted suitable regulatory system, particularly competition policy, to reduce the negative effects of M&As. Business firms presently need to confront expanded challenge from firms inside the nation as well as from universal business goliaths because of globalization, progression, mechanical changes and different changes. For the most part, the target of M&As is riches expansion of investors by looking for additions as far as collaboration, economies of scale, better monetary and showcasing favourable circumstances, broadening and diminished income instability, enhanced stock administration, increment in household piece of the overall industry and furthermore to catch quickly developing global markets abroad. acquirer. From the above table and chart, 43.3% respondents think that 40-60% mergers are successful. In this paper an endeavour has been made to draw the aftereffects of a portion of the prior examinations while dissecting the reasons for disappointment of dominant part of the mergers. While making the merger gives, it is fundamental not exclusively to investigate the money related parts of the arrangement yet additionally to break down the social and individuals issues of both the worries for legitimate post-securing mix and for making the arrangement effective. In this way, in nutshell we can say that M&A have turned out to be basic in our nation's business setup. There is a colossal requirement for individuals to develop and end up worldwide players growing their business circles in future.

On the off chance that achievement is to be accomplished in M&A firm, very much coordinated and propelled workforce is required who is happy to go up against the difficulties that emerge during the time spent M&A and there ought to be legitimate association among representatives and they ought to be furnished with appropriate working conditions.

Below are few recommendations that we believe will help the industry:

- Ed-tech companies should introduce various courses on mergers and acquisition. To educate people working in this field or wants to work in the industry.
- Colleges should organize community learning sessions on mergers and acquisitions by inviting industry experts, who have hands on experience in the industry.
- Case studies should be made on successful and failed mergers and acquisitions. To understand in depth real life examples.

LIMITATIONS

Time was a constraint while conducting this research, we think if there would have been some years allotted to me to complete this study it would have a deeper study.



- Collecting primary data was also challenging as people did not fill the complete survey and many people filled it inappropriately.
- There is always more scope for a wider extensive literature review.

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THE CONNECTION BETWEEN SCHRÖDINGER EQUATION AND QUANTUM FIELD THEORY

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ABSTRACT

The purpose of this research review is to examine the connection between the Schrödinger equation and quantum field theory. The method used in this review is a literature review of existing research on the topic. The results of the review indicate that the Schrödinger equation, which is a fundamental equation in quantum mechanics, can be derived from the principles of quantum field theory. This connection highlights the underlying unity of the two theories and helps to further our understanding of the behavior of subatomic particles. Additionally, it has been found that the Schrödinger equation is useful in describing the behavior of systems with a small number of particles, while quantum field theory is more appropriate for systems with a large number of particles.

Research in this area has led to the development of new methods for solving the equation, such as the path integral approach, which provides a powerful tool for studying quantum systems with a large number of degrees of freedom. Additionally, the Schrödinger equation has led to the discovery of new symmetries and conservation laws, such as the AdS/CFT correspondence, which connects quantum field theory in anti-de Sitter space with a conformal field theory on the boundary of that space. Theoretical frameworks such as quantum field theory in curved spacetime and the holographic principle have also been developed to unify quantum mechanics and general relativity, and to understand the thermodynamic behavior of quantum systems and their behavior in extreme conditions. The study of quantum systems in non-equilibrium conditions is an active area of research and continues to yield new insights and discoveries.

Overall, the research reviewed in this study suggests that the Schrödinger equation and quantum field theory are closely related, and that a deeper understanding of one can lead to a deeper understanding of the other.

KEYWORDS: *Schrödinger equation, quantum field theory, general relativity, quantum systems*

INTRODUCTION

The Schrödinger equation is a fundamental equation in quantum mechanics that describes the time evolution of a quantum mechanical system. It is used to calculate the probability of finding a particle in a certain location at a certain time. On the other hand, quantum field theory is a theoretical framework that describes the behavior of subatomic particles in terms of fields, such as the electromagnetic field. It is particularly useful in describing the behavior of systems with a large number of particles, such as in high-energy physics [1-7].

The connection between the Schrödinger equation and quantum field theory, as well as the connection between quantum mechanics and general relativity, has been the subject of much research in recent years. The purpose of this research review is to examine these connections, providing a clear explanation of the Schrödinger equation and its implications. The review will also discuss how quantum field theory builds on or extends the

principles of quantum mechanics described by the Schrödinger equation and how the principles of general relativity may be applied to the study of quantum mechanics. The review will further explore the connection between the Schrödinger equation and other areas of physics, such as quantum field theory and general relativity [8].

The method used in this review will be a literature review of existing research on the topic. This will include a systematic search of academic journals and other sources for relevant studies, as well as a critical analysis of the findings presented in these studies. The results of the review will be presented in a clear and concise manner, highlighting the key findings and their implications for our understanding of the connection between the Schrödinger equation and quantum field theory, as well as how it relates to other areas of physics such as general relativity. The Schrödinger equation and quantum field theory are two of the most fundamental theories in physics, used to describe the behavior of subatomic particles and the universe as a whole. The



Schrödinger equation is a wave equation that describes the time evolution of a quantum mechanical system, while quantum field theory is a theoretical framework that describes the behavior of subatomic particles in terms of fields, such as the electromagnetic field. Despite their apparent differences, there is a connection between these two theories that has been the subject of much research in recent years.

The purpose of this research review is to examine the connection between the Schrödinger equation and quantum field theory. The review will focus on recent research that has been published on the topic and will explore the ways in which the Schrödinger equation can be derived from the principles of quantum field theory, as well as the implications of this connection for our understanding of the behavior of subatomic particles. The review will also explore the ways in which the two theories can be used together to provide a more complete understanding of the universe.

1- Schrödinger equation and its role in quantum mechanics:

The Schrödinger equation is a fundamental equation in quantum mechanics that describes how a quantum system changes over time[1]. It is a partial differential equation that describes the evolution of a wave function, which represents the state of a quantum system. The wave function, represented by the Greek letter psi (ψ), is a complex function that encodes all the information about the quantum system, including its position and momentum[2]. The Schrödinger equation describes how this wave function changes over time, and it is the basis for understanding the behavior of quantum systems such as atoms, molecules, and subatomic particles. The Schrödinger equation plays a fundamental role in the understanding of quantum mechanics and is used to calculate the properties of a wide range of physical systems[3].

specifically, the Schrödinger equation is used to calculate the energy levels and wave functions of a quantum system, which can then be used to predict the behavior of the system. It is also used to understand the nature of quantum phenomena such as superposition and entanglement, which are key features of quantum mechanics that distinguish it from classical mechanics. The Schrödinger equation is a central equation in the field of quantum mechanics, and it is used extensively in the study of quantum physics and in the development of new technologies such as quantum computing and quantum cryptography[4].

The development of new methods for solving the Schrödinger equation in quantum field theory, such as the path integral approach, which provides a powerful tool for studying quantum systems.

2-Exploring Quantum Systems: The Path Integral Approach to Solving the Schrödinger Equation in Quantum Field Theory:

One powerful method for solving the Schrödinger equation in quantum field theory is the path integral approach. The basic

idea behind this method is to represent the evolution of a quantum system by a sum over all possible paths that the system can take. The paths are weighted by a phase factor that depends on the action of the system, which is a functional of the fields. The path integral approach is particularly useful for studying quantum systems in the presence of interactions, where traditional methods, such as the perturbation theory, can become intractable[5].

The path integral approach can be used to compute various quantities of interest, such as the partition function, correlation functions, and transition amplitudes. The path integral approach can also be used in combination with other methods, such as the renormalization group, to study the behavior of quantum systems at different scales[6].

The path integral approach has been applied to a wide range of quantum field theories, including quantum electrodynamics, quantum chromodynamics, and quantum gravity. It has also been used to study the behavior of quantum systems in condensed matter physics and statistical mechanics [7].

Overall, the path integral approach is a powerful tool for studying quantum systems and provides a probabilistic interpretation of quantum mechanics. It allows for a non-perturbative treatment of quantum systems and provides a way to compute non-perturbative quantities of interest.

The discovery of new symmetries and conservation laws in quantum field theory that are related to the Schrödinger equation, such as the AdS/CFT correspondence [8].

3-Symmetries and Conservation Laws in Quantum Field Theory: The Role of the Schrödinger Equation:

Symmetries and conservation laws play an important role in quantum field theory, as they provide a way to simplify the behavior of quantum systems and relate different physical phenomena. Some symmetries and conservation laws are related to the Schrödinger equation and can be used to study the behavior of quantum systems in different regimes [9].

One example of a symmetry related to the Schrödinger equation is the AdS/CFT correspondence, also known as the gauge-gravity duality. This correspondence states that certain quantum field theories in flat spacetime can be mapped to quantum gravity theories in a curved spacetime with a negative cosmological constant. The Schrödinger equation can be used to study the behavior of quantum systems in the flat spacetime, while the AdS/CFT correspondence provides a way to understand the behavior of the same systems in the presence of gravity [10].

Another example is the conformal symmetry, which is a symmetry that relates to the scale invariance of a theory. The conformal symmetry is related to the Schrödinger equation because the Schrödinger equation is invariant under scale transformations, and the conformal symmetry can be used to



simplify the behavior of quantum systems in certain regimes [11].

Conservation laws such as energy-momentum conservation are also related to the Schrödinger equation, as the Schrödinger equation preserves the total energy of the system. This is an important property of the Schrödinger equation, as it ensures that the total energy of the system is conserved over time.

In summary, the Schrödinger equation is related to various symmetries and conservation laws in quantum field theory. These symmetries and conservation laws provide a powerful tool for understanding the behavior of quantum systems in different regimes and relating different physical phenomena. The AdS/CFT correspondence and the conformal symmetry are some examples of symmetries that are related to the Schrödinger equation and have been an active area of research [12].

4-Connection between the Schrödinger equation and quantum field theory and general relativity:

The development of new theoretical frameworks, such as quantum field theory in curved spacetime, which attempt to unify quantum mechanics and general relativity.

The development of new theoretical frameworks that attempt to unify quantum mechanics and general relativity is an active area of research. One of the most promising frameworks in this area is quantum field theory in curved spacetime (QFTCS)[13].

QFTCS is a theoretical framework that combines the principles of quantum field theory with those of general relativity. It attempts to describe the behavior of quantum systems in the presence of strong gravitational fields, such as those found near black holes or in the early universe. The theory is based on the idea that the properties of a quantum system are determined by the geometry of spacetime, and that the dynamics of the system are governed by the Schrödinger equation in curved spacetime [14].

One of the key challenges in developing QFTCS is reconciling the principles of quantum mechanics and general relativity. Quantum mechanics describes the behavior of matter and energy at the microscopic level, while general relativity describes the behavior of matter and energy at the macroscopic level. The two theories have different mathematical structures and make different predictions about the behavior of matter and energy in certain regimes. Therefore, unifying them requires a theoretical framework that can reconcile these differences [15].

One of the main approaches to QFTCS is based on the path integral approach to quantize gravity. This approach is based on the idea of summing over all possible geometries of spacetime, which is similar to the path integral approach used to solve the Schrödinger equation in quantum field theory. The hope is that by combining these two approaches, a consistent theory of quantum gravity can be obtained [15].

In summary, QFTCS is a theoretical framework that attempts to unify quantum mechanics and general relativity by describing the behavior of quantum systems in the presence of strong gravitational fields. It is based on the Schrödinger equation in curved spacetime and one of the main challenges is reconciling the principles of quantum mechanics and general relativity. The path integral approach to quantize gravity is one of the main approaches to QFTCS [16].

5- The relation between the thermodynamic behavior of quantum systems and the Schrödinger equation:

The understanding of the relation between the thermodynamic behavior of quantum systems and the Schrödinger equation through the holographic principle.

The holographic principle is a principle in theoretical physics that relates the thermodynamic behavior of quantum systems to the behavior of gravity in certain regimes. The principle states that the information content of a region of spacetime is proportional to the area of its boundary, rather than its volume. This principle is closely related to the Schrödinger equation, as it provides a way to understand the behavior of quantum systems in the presence of gravity [17].

One of the key implications of the holographic principle is the holographic entropy bound, which states that the entropy of a quantum system is bounded by the area of its boundary in Planck units. This bound is closely related to the Schrödinger equation, as it provides a way to understand the behavior of quantum systems in terms of their entropy [18].

Another key implication of the holographic principle is the AdS/CFT correspondence, also known as the gauge-gravity duality. This correspondence states that certain quantum field theories in flat spacetime can be mapped to quantum gravity theories in a curved spacetime with a negative cosmological constant. The Schrödinger equation can be used to study the behavior of quantum systems in the flat spacetime, while the AdS/CFT correspondence provides a way to understand the behavior of the same systems in the presence of gravity [17].

The holographic principle also has implications for the study of quantum systems in the presence of black holes. The thermodynamic behavior of a black hole can be related to the behavior of a quantum system in a lower-dimensional space via the holographic principle. The study of quantum systems in the presence of black holes is an active area of research and is closely related to the Schrödinger equation.

In summary, the holographic principle is a principle in theoretical physics that relates the thermodynamic behavior of quantum systems to the behavior of gravity in certain regimes. It is closely related to the Schrödinger equation, as it provides a way to understand the behavior of quantum systems in the presence of gravity. The holographic entropy bound and the AdS/CFT correspondence are key implications of the



holographic principle, and their study is an active area of research.

6- Behavior of quantum systems in extreme conditions, or high temperatures, by using the Schrödinger equation

The Schrödinger equation is a fundamental equation in quantum mechanics that describes the time evolution of a quantum system. It can be used to study the behavior of quantum systems in a wide range of conditions, including in the presence of strong gravitational fields or high temperatures [20].

In the presence of strong gravitational fields, the Schrödinger equation can be used to study quantum systems in the context of quantum field theory in curved spacetime (QFTCS). This is a theoretical framework that combines the principles of quantum field theory with those of general relativity. It attempts to describe the behavior of quantum systems in the presence of strong gravitational fields, such as those found near black holes or in the early universe. The theory is based on the idea that the properties of a quantum system are determined by the geometry of spacetime, and that the dynamics of the system are governed by the Schrödinger equation in curved spacetime [19].

In high temperatures, the Schrödinger equation can be used to study the behavior of quantum systems in the context of quantum statistical mechanics. This is an area of physics that studies the behavior of quantum systems in thermal equilibrium. It can be used to study the behavior of quantum systems in high-temperature regimes, such as those found in the early universe or in the cores of stars. In this context, the Schrödinger equation can be used to study the behavior of quantum systems in terms of their entropy, which is a measure of the disorder of a system [21].

In summary, the Schrödinger equation is a powerful tool that can be used to study the behavior of quantum systems in a wide range of conditions, including in the presence of strong gravitational fields and high temperatures. In the presence of strong gravitational fields, the Schrödinger equation can be used to study quantum systems in the context of QFTCS. In high temperatures, it can be used to study the behavior of quantum systems in the context of quantum statistical mechanics.

7- Properties of the quantum systems in non-equilibrium conditions by using the Schrödinger equation

The Schrödinger equation is a fundamental equation in quantum mechanics that describes the time evolution of a quantum system in equilibrium conditions. However, many physical systems are not in equilibrium and the study of their properties is an active area of research. To study the properties of quantum systems in non-equilibrium conditions, researchers use extensions of the Schrödinger equation or other theoretical frameworks [7-9].

One such extension is the Schrödinger-Langevin equation, which describes the time evolution of a quantum system in the

presence of an external noise. This equation is used to study the behavior of quantum systems in non-equilibrium conditions, such as in the presence of decoherence or dissipation. By solving the Schrödinger-Langevin equation, researchers can study the properties of quantum systems in non-equilibrium conditions, such as their stability and response to external perturbations [20].

Another extension is the time-dependent Schrödinger equation, which describes the time evolution of a quantum system in non-equilibrium conditions. This equation is used to study the behavior of quantum systems in the presence of time-dependent Hamiltonians, such as in the presence of a time-varying external field or in the presence of a time-dependent potential. By solving the time-dependent Schrödinger equation, researchers can study the properties of quantum systems in non-equilibrium conditions, such as their dynamics and response to external perturbations [10].

Another theoretical framework is the density matrix formalism, which is a generalization of the wave function and it can be used to study the properties of quantum systems in non-equilibrium conditions. This approach allows to study the density matrix of a system, which encodes all the information about the state of a system, including the probabilities of its subsystems to be in a certain state, and it can be used to study the properties of quantum systems in non-equilibrium conditions, such as their stability and response to external perturbations [21].

In summary, The study of the properties of quantum systems in non-equilibrium conditions is an active area of research. To study the properties of quantum systems in non-equilibrium conditions, researchers use extensions of the Schrödinger equation, such as the Schrödinger-Langevin equation, time-dependent Schrödinger equation and the density matrix formalism. These extensions and frameworks allow researchers to study the properties of quantum systems in non-equilibrium conditions, such as their stability, dynamics, and response to external perturbations.

Overall, the connection between the Schrödinger equation and quantum field theory is a rich and active area of research that continues to yield new insights and discoveries.

CONCLUSION

The research review concludes that the Schrödinger equation, a fundamental equation in quantum mechanics, can be derived from the principles of quantum field theory. This connection highlights the underlying unity of the two theories and helps to further our understanding of the behavior of subatomic particles. The Schrödinger equation is useful in describing systems with a small number of particles, while quantum field theory is more appropriate for systems with a large number of particles. Research in this area has led to the development of new methods for solving the equation, such as the path integral approach, and the discovery of new symmetries and conservation laws. Theoretical frameworks have also been developed to unify



quantum mechanics and general relativity, and to understand the thermodynamic behavior of quantum systems in non-equilibrium conditions. Overall, the research suggests that a deeper understanding of one theory can lead to a deeper understanding of the other.

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