



# PREVALENCE AND PERCEPTIONS OF CAFFEINATED PRODUCT CONSUMPTION IN NOAKHALI REGION, BANGLADESH

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## ABSTRACT

Caffeine is a complicated chemical that is naturally occurring and can be synthesized, manufactured, and added to food, dietary supplements, cosmetics and drugs. Caffeine, particularly in the form of coffee or tea, is used by the majority of people worldwide. The current study data represents that most respondents take tea (90% male and 83% female), coffee (82% male and 71% female) and soft drinks (81% male and 64.5% female) as caffeine-containing products. Few respondents take caffeine as a medicine. This data shows that male respondents take more caffeine as a medicine than female respondents. For all ages, male respondents essentially get caffeine-containing products through a day at work/study more than females. The data suggest that in all ages, both respondents believe that caffeine has increased their activeness and alertness during the day. Most respondents replied that their behaviour does not change after taking caffeine-containing products. The majority of the neurobehavioral work suggests that the desirable benefits of caffeine (e.g., increased alertness) are ubiquitous. Caffeine is a potent drug that complies with the criteria of an addictive substance regarding dependence, tolerance and withdrawal. We observed that 46% of males and 34% of females (age < 20 years), 49% of males and 36% of females (age 20-30 years), 40% of males and 24% of females (age >30 years) respondents are addicted to above caffeine-containing products, without a proper diagnosis by a specialist. The respondents mostly take caffeine for refreshment (21% male and 17% female), enjoyment (18.5% male and 24.5% female), habitually (19.5% male and 15.5% female), and most respondents (32.5% male and 40% female) take caffeine-containing products two times per day according to above data. Female respondents (38%) respond that they can continue their work without the intake of caffeine-containing products more than 24 than male respondents (20.5%). We inferred that the prevalence of caffeinated drinks was higher in males compared to female students. Caffeine could lead to discomfort and impaired cognitive performance, and over-intake can cause adverse effects such as headache, drowsiness, depression, fatigue, and difficulty concentrating in students.

**KEYWORDS:** Caffeine; Cognitive performance; caffeinated product; students; addiction

## 1. INTRODUCTION

Caffeine (1,3,7-trimethylxanthine) is a natural alkaloid found in coffee beans, tea leaves, cocoa beans, cola nuts and other plants (1). This is the most frequently ingested pharmacologically active substance in the world (1). Low to moderate doses are safe, but higher doses can lead to negative health consequences. LD50 is 150-200 mg for every kg of body mass(2). Caffeine is an important part of the diet in North America and Europe, with coffee and tea being the major sources (1). In Canada, published values for the average daily intake of caffeine from all sources are 2.4mg/kg-1 body weight (bw) for adults and 1.1 mg/kg-1 bw for children 5-18 years old (3). In the USA, daily caffeine intakes range from 1mg/kg-2 bw in the USA to 3mg/kg-4bw in the UK and 5mg/kg-6bw in Denmark (3,4). The caffeine content of coffee and tea depends on their preparation method and the product brand. Variations in caffeine intake can occur due to

differences in the size of the serving 'cup' (5), and the impact of these variations should be considered in the interpretation and comparison of clinical studies.

Caffeine is quickly and entirely absorbed from the gastrointestinal tract, with 99% being absorbed within 45 min of ingestion (6). Maximum caffeine concentrations in blood are reached within 1-1.5h following ingestion (1). It passes across the blood-brain barrier (7), into amniotic fluid and the fetus, and into breast milk. The liver is the primary site of caffeine metabolism, catalyzed by the CYP1A2 enzyme (8). Only 1-5% of ingested caffeine is recovered unchanged in the urine, and infants up to the age of 8-9 months have a greatly reduced ability to metabolize caffeine (9). The half-life of caffeine in healthy adults is approximately 4-5 hours (9,10) and can be influenced by many factors, including sex, age, use of oral contraceptives, pregnancy and smoking (11). Children



aged  $\leq 12$  years metabolize caffeine more rapidly than adults (12), and the half-life in newborns ranges from 50 to 100h, but it gradually approaches that of an adult by 6 months of age (11).

Caffeine is an inhibitory neuromodulator in the central nervous system, and four subtypes of Gprotein-coupled ARs in the brain are responsible for its behavioural effects (13). Caffeine is an adenosine receptor antagonist that blocks endogenous adenosine from binding to the receptors (1). Studies suggest that dopamine discharge in the nucleus accumbens shell may be a neuropharmacological mechanism underlying caffeine withdrawal disorder (14). The metabolic process involves the conversion of caffeine by the CYP1A2 isozyme into three dimethylxanthines, each of which has its own effects on the body (15). Paraxanthine increases lipolysis, dilates blood vessels, and increases urine volume. Theophylline relaxes the smooth muscles of the bronchi and is used to treat asthma (15). Caffeine can have various psychological effects, such as augmented alertness and diminished weariness. Low doses of caffeine can lessen symptoms of depression and lower suicide chances, while high dosages can bring about repulsive impacts (16). Consuming only 100 mg of caffeine can prompt symptoms such as dizziness, anxiety, irritability, restlessness, sleep deprivation and headaches(7). Caffeine is a drug, and repetitive administration allows the body to develop dependence. People dependent on caffeine start to show withdrawal symptoms after admission is halted for 12 to 24 h (17). The body's withdrawal system can be decreased through dose adjustments or analgesic drugs (17). Large dosages of caffeine can originate another sort of disorder known as caffeinism, which can prompt aggressiveness and psychotic behaviour. Sleep is exceptionally defenceless against even the smallest caffeine consumption, and caffeine can influence sleep before bed (17).

Caffeine stimulates the CNS, cortex, medulla, and spinal cord, leading to alertness, enhanced attention, and fortified night driving (1). Around 150-250 mg of caffeine is sufficient to incite adverse impacts, but the relationship between caffeine and cerebral pains is confounded (18). Overdose can lead to confusion and hallucinations, as well as death. Studies have examined the association between coffee consumption and the risk of CVD, but the findings have been unclear (19,20). Genetic variability between the populations examined may explain the discrepancies. Genetic modifiers of exposure or biological effect are a promising new approach to address limitations identified in previous studies (21). Coffee is also a dietary source of flavonoids, which have been proposed to have beneficial effects on the cardiovascular system (22). Several studies have recommended that caffeine consumption can increase gastric juice secretion, which may cause acid reflux, upset stomach, or ulcer (23). Emesis can be triggered by coffee moreover; it can induce catecholamine release from the adrenal medulla. It can also act as a potent diuretic and also can potentiate blood flow, glomerular filtration rate and rennin discharge (1). Caffeine can lead to osteoporosis, achy muscles, and muscle twitches (1). Caffeine can cause male

and female infertility, cross the placenta barrier, and upsurge the heart rate and metabolism of the baby, leading to miscarriage and congenital deformities (24).

Caffeine's effects on cognitive performance are complex and depend on the type of task, situational demands, and characteristics of the individual (25). The clearest evidence for caffeine effects on vigilance is found following sleep deprivation and after a period of time on the task, but the effect of caffeine on working memory tasks is less clear. Jochebed et al.,2015 (26) and Nawrot et al.,2003 (1) conducted studies on the effects of caffeine on human health. They found that moderate daily caffeine intake at a dose level up to 400 mg day<sup>-1</sup> is not associated with adverse effects such as general toxicity, cardiovascular effects, effects on bone status and calcium balance, changes in adult behaviour, increased incidence of cancer and effects on male fertility. Meredith et al.,2013 (27) and Lara et al.,2010 [49] conducted systematic reviews of the potential adverse effects of caffeine consumption in healthy adults, pregnant women, adolescents, and children. Uddin et al.,2017 (7) reviewed the Neuropsychological Effects of Caffeine, concluding that it is the most widely used psychotropic drug in the world. Low to moderate doses lead to amplified alertness and attention, while higher doses can lead to negative effects such as anxiety, insomnia, restlessness and tachycardia. Some caffeine users become dependent on the drug and are unable to reduce consumption despite knowledge of health complications.

Caffeine has many physical effects, including increased alertness, speeding up reaction time, and enhancing physical endurance. Its effect on shorter-term physical behaviour is less well-documented, but the effect of caffeine on physical exercise of short duration suggests that peak power output, speed and isokinetic strength are improved. This has led to its widespread use among elite athletes and performers, even though its benefits are not well established across activities. Caffeine is a stimulant substance that blocks adenosine receptors in the brain cells, leading to increased drowsiness (28). Regular intake of caffeine can affect the chemistry and activity of the brain, leading to withdrawal symptoms like tiredness and irritability (29). However, caffeine withdrawal is comparatively short-lived and rarely serious compared to addictive prescription drugs or street drugs (7). Caffeine withdrawal syndrome is an official diagnosis in the ICD-10, DSM-IV and DSM-5 (7), with symptoms such as persistent desire or unsuccessful efforts to cut down or control caffeine use, continued use despite knowledge of a physical or psychological problem, and tolerance.

### 3. METHODOLOGY

This section deals with the methodology which was adopted to attain the objectives of the study. It explains the selection of the Study area, Study design, Sampling size, Design and formulation of the questionnaire, Data collection, Data processing and analysis methods that have been used in the study (Fig. 3.1). The study was based on the survey, obtaining information through a sample survey among various professional people of Noakhali region, Bangladesh.

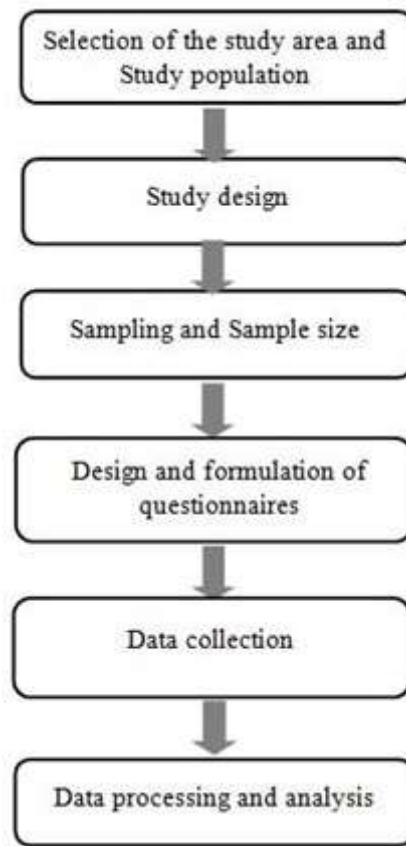


Figure 3.1: Methodology followed for the study

### 3.1 Study area

Three institutions of noakhali were selected as the study area. This cross-sectional descriptive study was carried out at one public university, one govt. University College and one govt. medical college of Noakhali. Our target populations were different professional people. We selected this university and colleges depending on the easy accessibility and easy availability of people.

These three public institutions are-

**The Noakhali Science and Technology University:** The Noakhali Science and Technology University is 10<sup>th</sup> public university which is located at Sonapur, 8 kilometres southwest of Maijdee. It has a land area of 101 acres (0.41 km<sup>2</sup>). The university has 26 departments under 05 faculties. The total number of students is about 5043.

**Abdul Malek Ukil Medical College (AMUMC):** Abdul Malek Ukil Medical College (AMUMC), formerly known as Noakhali Medical College, is a government medical school in Bangladesh, established in 2008. It is located in Noakhali. This college is affiliated with Chittagong University. The total number of students is about 300.

**Noakhali Government College:** Noakhali Government College is a public college in Noakhali, Bangladesh, established in 1963. It is located in Maijdee. This college is affiliated with Bangladesh National University. The total number of students is about 10,000.

### 3.2 Study design

For this study, respondents are selected by random method from different institutions in Noakhali and different places in Noakhali. For this study, four hundred respondents were selected randomly. In Noakhali Science and Technology, University took a total of 125 respondents; Noakhali Government College took 100 respondents; Abdul Malek Ukil Medical College (AMUMC) took 175 respondents. The project worker tried to find out and note down each and every respondent interview of those regions in the survey period

### 3.3 Participants

Among 400 participants, There were students, pharmacists, doctors, job holders, businessmen, teachers, unemployed and other professional people. These participants ranged in age from <20 years, 20-30 years and > 30 years. Among them, 200 were male, and 200 were female. Participants were randomly assigned to read about the topic. The present sample was 77.5% from the urban area and 22.5% from the rural area.

### 3.4 Design and Formulation of Questionnaire

The questionnaire was developed after a detailed review of relevant literature. In addition, some novel questions were developed in accordance with the study objectives. The questionnaire contained close-ended questions. The questionnaire consisted of seven sections with a total of 33 questions. Section A consists of questions on demographics and socio-economical information of respondents (age, gender, profession, area of residence, marital status). Section

B asked which type of caffeine-containing products were taken by respondents among certain caffeine-containing products ( eight products ). Section C consists of five question's on the basis of Section B's answer. Section C was asked to know personal information related to caffeine intake. Section D was asked to know about problems during the period of taking the particular caffeine-containing products. This section contains nine problems. Section E was asked to

know about feeling problems then don't take the particular products for more than 24 hours. Section F consists of How long can be passed without taking that particular product. Section F was asked to know about changes in their behaviour after taking particular caffeine-containing products. The questionnaire was worded in English language and was translated into Bangla if needed.

Section	Type of question
A	Demographic and socio-economical information
B	Taken of certain caffeine-containing products
C	Personal information related to caffeine intake
D	Problems during the period of taking or after taking caffeine-containing products
E	Problems when don't take caffeine-containing products
F	The passing of time without taking caffeine-containing products
G	Changes in behaviour after taking particular caffeine-containing products

**Table 3.1: Sections divided and the respective type of question**

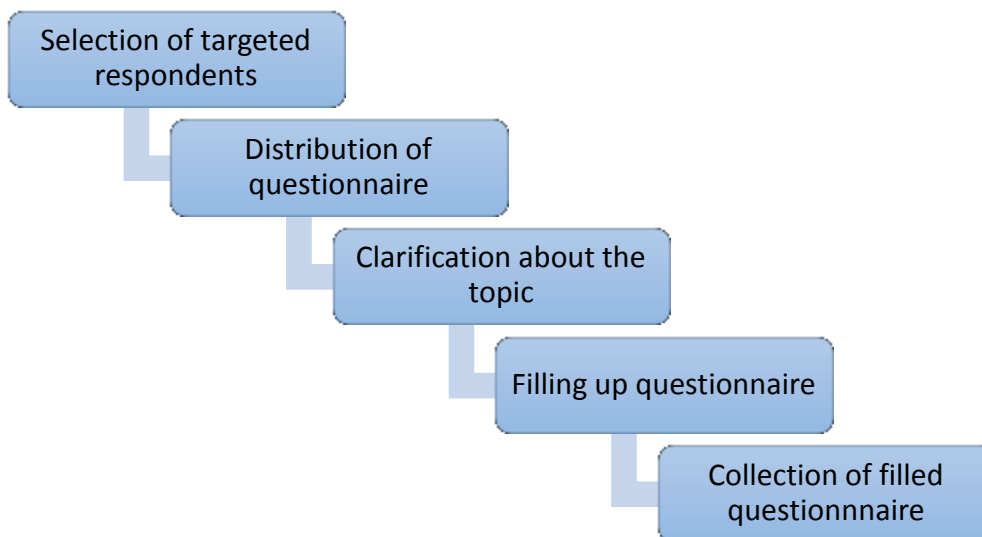
**3.5 Validation of questionnaire**

The content of the questionnaire was checked by an assistant professor and cross-checked by an associate professor in the department of pharmacy at Noakhali Science and Technology University (NSTU), and their feedback was incorporated into the revised questionnaire.

**3.6 Data collection**

Data were collected by cross-sectional survey. We tried to approach groups of students after major lectures, class tests, and other respondents in their free time. The questionnaires were distributed to selected respondents with a written consent form that explained the purpose of the research and assured them of their confidentiality. Each fifteen minutes teaching

block consists of an explanation of the therapy, its main principles and evidence base and a practical demonstration. The purpose of this survey was to determine the knowledge of the respondents at the point of administration of the questionnaire. The option of completing the survey through the internet or via email was not pursued as that might have introduced bias. The respondents were told that their participation was anonymous and entirely voluntary, and there was no reward for taking Part. They were invited to complete the questionnaire immediately. The authors were present on hand to answer questions or clarify any doubts that they might have. The authors collected all filled questionnaires. The questionnaire was administered to the subjects between December 2017 and May 2018.



**Figure 3.2: Data collection process**

**3.7 Problems Encountered During Data Collection**

Some problems were confessed during the interview, such as students being busy with studying and unwilling to talk. The researcher overcame the problems through given extra attention and more discussion. Clarification of terminologies

and units was obtained from key informants during cross-check interviews.

**3.8 Data processing and analysis**



All data obtained were entered into and analyzed with a Microsoft Excel spreadsheet. The data was then coded, and participants were categorized into groups according to their backgrounds. Descriptive statistics were computed when possible. The data were summarized as counts (or percentages) occurring in the various response categories. Complete confidentiality was maintained while the data were being processed. Descriptive statistics were computed on all variables as the primary method of data evaluation. A descriptive method of analysis was used to describe the survey results using means and percentages. Some diagrams were also used to describe the findings. Microsoft excel program was used for data analysis and for chart, graph & diagram preparation.

#### 4. RESULT AND DISSCUSION

##### 4.1 Demographic profile

The table uses five indicators to describe the demographic characteristics of respondents. The table showed that 50% of respondents are male and 50% of respondents are female. The majority of respondents was students, with a percentage of 62.5% among total 400 respondents. Among all respondent 6.25% was pharmacist, 6.25% was doctor, 7.5% was job holder, 6.75% was businessman, 2.75% was teacher, 4.25% was unemployed, and 3.75% was other professions. 25% of students were in the age group <20 years and >30 years both. The highest number of students was in 20-30y age group with a percentage of 50%. Among the respondents, 77.5% were from an urban area, and 22.5% were from a rural area. The highest number of respondents were single, with a percentage of 69.25%, while 30.75% were married.

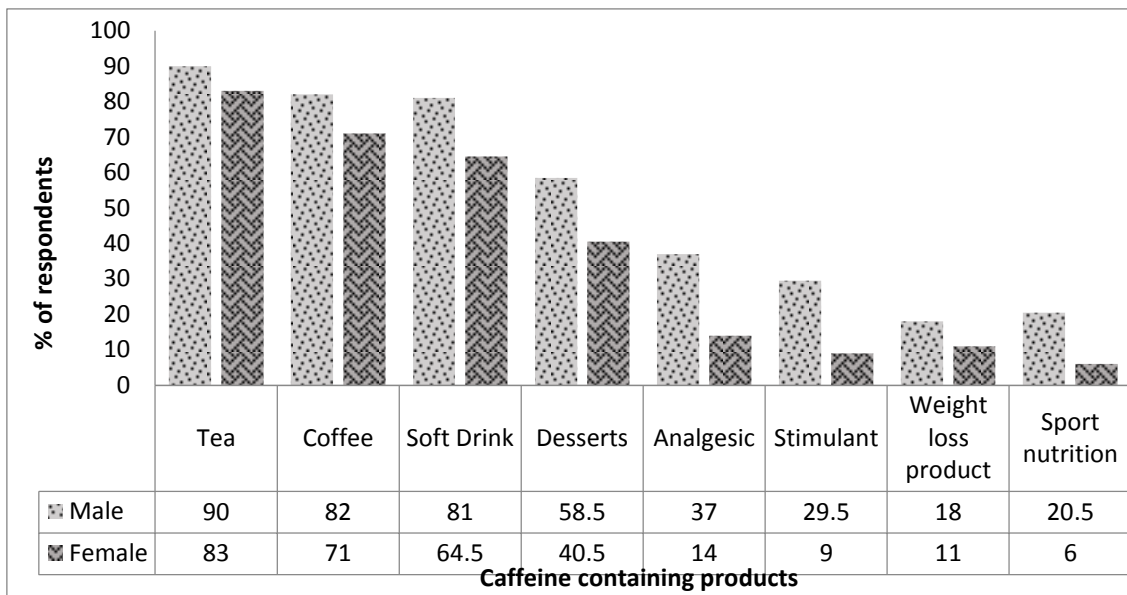
Item	Subgroup	Number	percentage
Sex	Male	200	50
	Female	200	50
Profession	Student	250	62.5
	Pharmacist	25	6.25
	Doctor	25	6.25
	Job Holder	30	7.5
	Businessman	27	6.75
	Teacher	11	2.75
	Unemployed	17	4.25
	others	15	3.75
Age group	<20y	100	25
	20-30y	200	50
	>30y	100	25
Area of Residence	Urban	310	77.5
	Rural	90	22.5
Marital status	Single	277	69.25
	Married	123	30.75

**Table 4.1: Demographic characteristics of respondents**

##### 4.2 Taken of caffeine-containing products

The following diagram describes the comparative justification of taken of caffeine-containing products between the male and female respondents. The opinions were collected from 200 male and 200 female respondents, where the response was compared on the basis of a yes answer. Among 200 male and 200 female respondents, 90% of male respondents mentioned taking tea whereas 83% of female took tea, 82% of male respondents replied they take coffee where 71% female respondents took coffee, 81% of male respondents responded take soft drinks where 64.5% female takes soft drinks, 58.5%

male respondents mentioned take desserts where 40.5% female respondents are taking desserts, 37% male respondents mentioned take analgesic where 14% female respondents are taking analgesics, 29.5% male respondents mentioned take stimulants where 9% female respondents are taking stimulants, 18% male respondents mentioned take weight loss product where 11% female respondents are taking weight loss product, 20.5% male respondents mentioned take sport nutritions where 6% female respondents are taking sports nutrition.

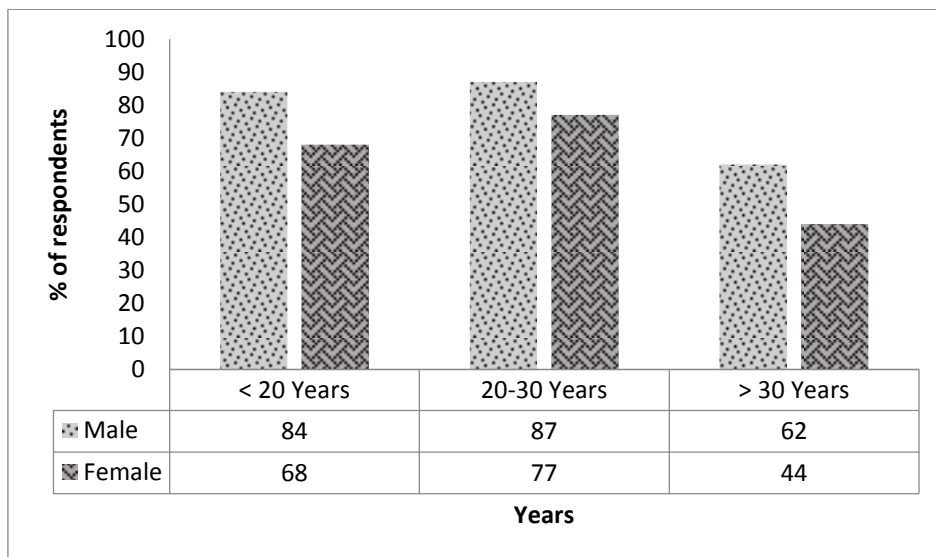


**Figure 4.2 : Comparative justification of taken of caffeine-containing products**

**4.3 caffeine-containing products are essential to get through a day at work/study**

The following diagram represents the comparative justification of essentially getting caffeine-containing products through a day at work/study among 200 male and 200 female respondents. The opinion was collected from 200 male and 200 female respondents, where the response compared to the yes answer. In this study, the information was collected from

the different institutions where both male and female ages were classified into below 20 years, 20-30 years and more than 30 years. Among the participants, 84% were male and 68% female (age < 20 years), 87% were male and 77% female (age 20-30 years), and 62% were male and 44% female (age >30 years) respondents mentioned they essentially to get caffeine-containing products through a day at work/study.



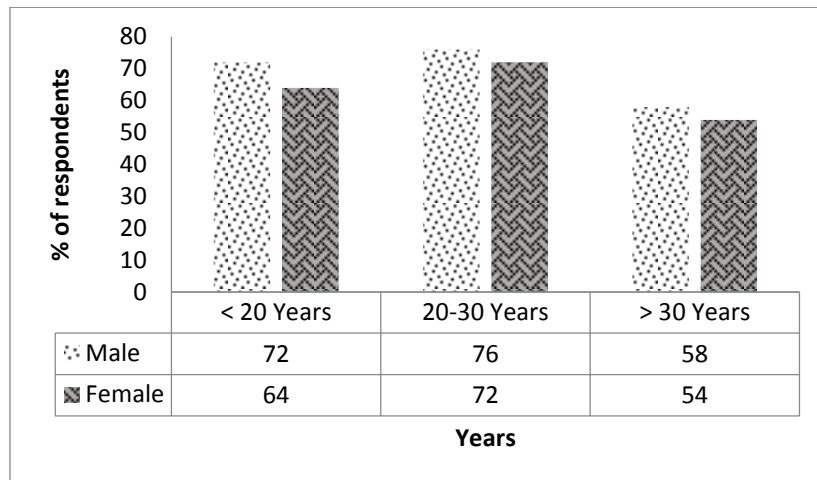
**Figure 4.3 : Comparative justification of essentially to get caffeine-containing products through a day at work/study**

**4.4 caffeine-containing products increase alertness and activeness during the day**

The following diagram describes the comparative justification of feeling that the above caffeine-containing products increase alertness and activeness during the day. The opinion was collected from a total of 200 male and 200 female respondents, where the response was compared on the basis of

a yes answer. In this study, the information was collected from the different institutions where both male and female ages were classified into below 20 years, 20-30 years and more than 30 years. Among the participants, 72% were male and 64% female (age < 20 years), 76% were male and 72% female (age 20-30 years), and 58% were male and 54% female (age >30 years) respondents mentioned that the above caffeine-

containing products increase alertness and activeness during the day.

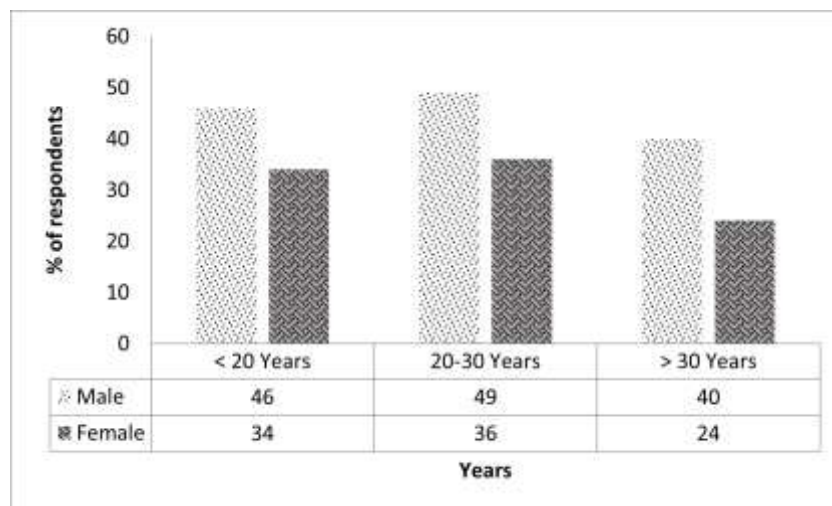


**Figure 4.4 : Comparative justification of feeling that the above caffeine-containing products increase alertness and activeness during the day**

#### 4.5 Addiction to caffeine-containing products

The following diagram represents the comparative justification of addiction to the above caffeine-containing products among the various respondents. The opinion was collected from a total 200 male and 200 female respondents, where the response was compared on the basis of yes answer. In this study, the information was collected from the different

institutions where both male and female ages were classified into below 20 years, 20-30 years and more than 30 years. Among the participants, 46% were male and 34% female (age < 20 years), 49% were male and 36% female (age 20-30 years), 40% were male and 24% female (age >30 years) respondents mentioned they are addicted to above caffeine-containing products.

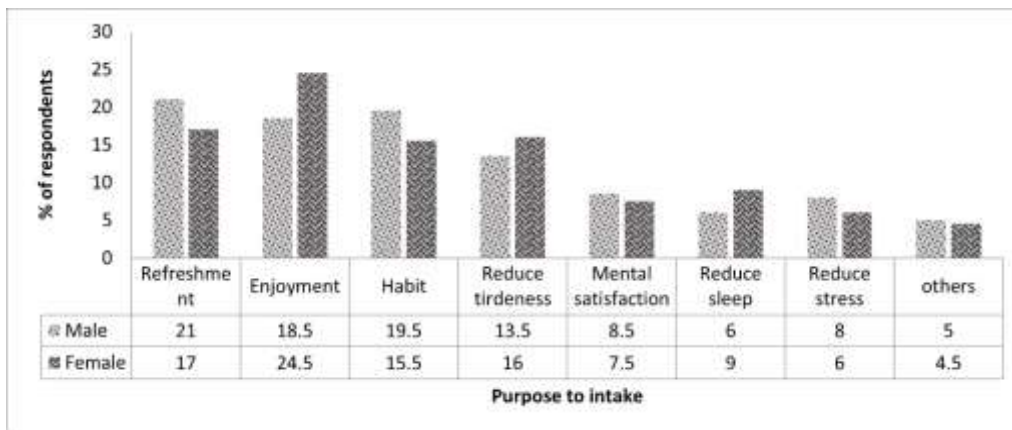


**Figure 4.5 : Comparative justification of addiction to caffeine-containing products**

#### 4.6 purposes of intake of caffeine-containing products

The following diagram represents the Comparative justification of the purposes of intake of caffeine-containing products between the male and female respondents. The opinion collected from total 400 respondents were the response compared to respondents' purposes of intake of caffeine-containing products. Among 200 male and 200 female respondents, 21% of male respondents mentioned they intake caffeine-containing products for refreshment, 18.5% male intake for enjoyment, 19.5% male for habit, 13.5% of

male for reduced tiredness, 8.5% male for mental satisfaction, 6% male for sleep, 8% male for reduce stress and 5% male for others purposes where 17% female intake caffeine for refreshment, 24.5% female intake for enjoyment, 15.5% female for habit, 16% female for reduce tiredness, 7.5% female for mental satisfaction, 9% female for sleep, 6% female for reduce stress and 4.5% female intake of caffeine-containing products for other purposes.

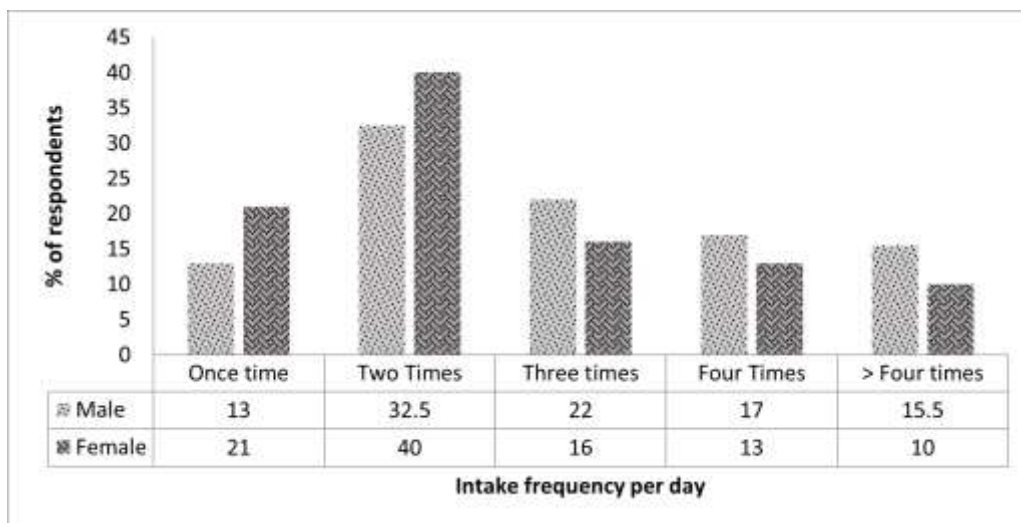


**Figure 4.6 : Comparative justification of purposes of intake of caffeine-containing products**

**4.7 Frequency of intake of caffeine-containing products per day**

The following diagram describes the comparative justification of the frequency of intake of caffeine-containing products per day between male and female respondents. The opinion was collected from 400 respondents, where the response compared to respondent Frequency of caffeine-containing products per day. Among 200 male and 200 female respondents, 13% of

male and 21% of female respondents mentioned they intake caffeine-containing products once per day, 32.5% male and 40% female respondents mentioned twice per day, 22% of male and 16% females three times per day, 17% male and 13% female four times per day and 15.5% male and 10% female respondents intake caffeine-containing products more than four times per day.



**Figure 4.7 : Comparative justification of frequency of intake of caffeine-containing products per day**

**4.8 Feeling problems during the period of taking caffeine-containing products**

The following diagram describes the comparative justification of feeling problems during the period of taking caffeine-containing products between male and female respondents. The opinion was collected from total 400 respondents, where the response was compared on the basis of yes answer. Among 200 male and 200 female respondents, 87% of male and 52% of female respondents mentioned feeling excitement, 72% of male and 30% of female respondents replied restlessness feeling, 57.5% of male and 56% of female

respondents responded feeling insomnia, 48.5% male and 39% female respondents mentioned feeling GIT problems, 42% male and 28% female respondents mentioned feeling nervousness, 45.5% male and 29% female respondents mentioned feeling visual problems, 40.5% male and 36% female respondents mentioned feeling diuresis, 48% male and 28% female respondents mentioned feeling tachycardia and 44.5% male respondents mentioned feeling teeth stain where 27% female are feeling teeth stain problems during the period of taking caffeine-containing products.



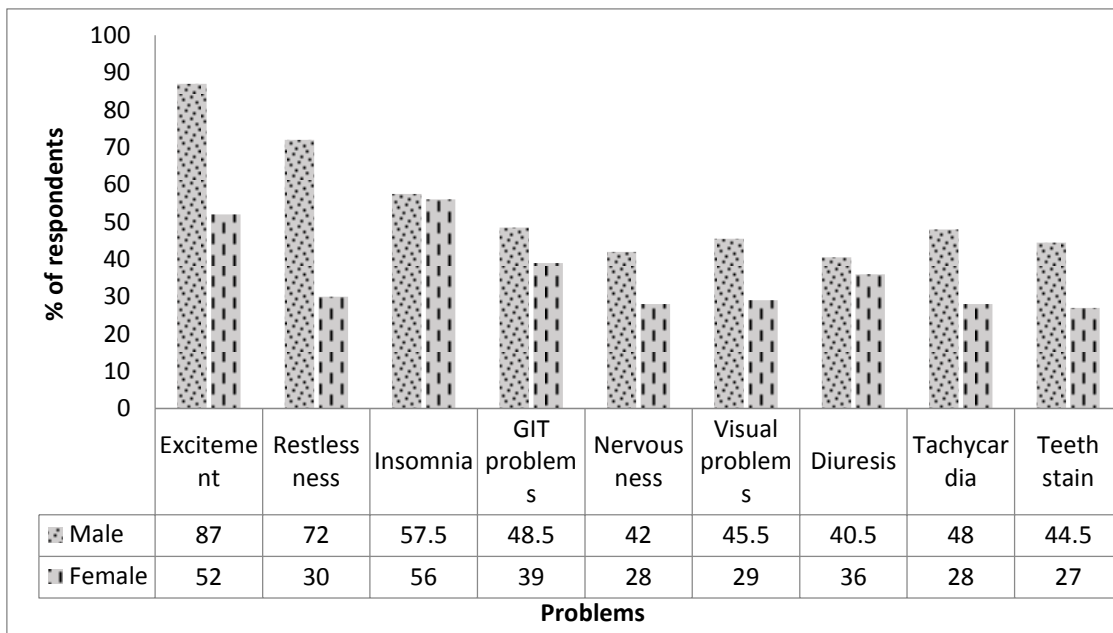


Figure 4.8 : Comparative justification of feeling the problems during the period of taking caffeine-containing products

#### 4.9 Time spend without the intake of caffeine-containing products

The following diagram describes the comparative justification of time spent without the intake of caffeine-containing products between male and female respondents. The opinion was collected from total 400 respondents, where 200 are male, and 200 are female. The response compared respondent time spent without the intake of caffeine-containing products.

Among 400 respondents, 36.5% of male and 19% of female respondents mentioned they could continue their work without intake caffeine-containing products 1-8 hours, 29% of male and 25% of female could 8-16 hours, 14% of male and 18% female can 16-24 hour, 20.5% male and 38% female respondents can continue their work without intake caffeine-containing products more than 24 hour.

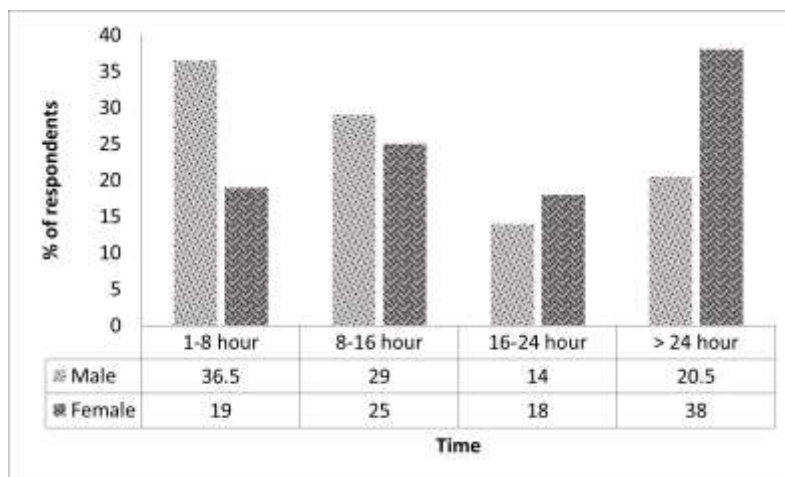
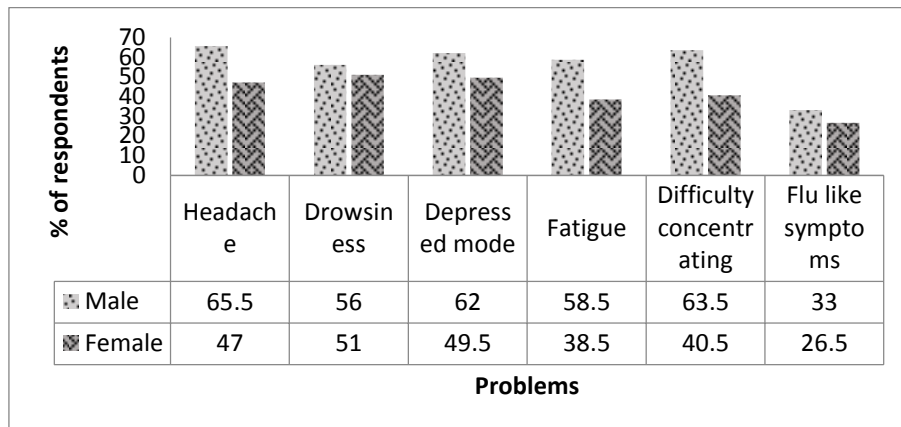


Figure 4.9 : Comparative justification of time spent without the intake of caffeine-containing products

#### 4.10 Feeling the problems without taking caffeine-containing products more than 24 hour

The following diagram describes the comparative justification of feeling problems without taking caffeine-containing products for more than 24 hour Between male and female respondents. The opinion was collected from total 400 respondents, where 200 are male, and 200 are female. The response was compared on the basis of a yes answer. Among 200 male and female respondents, 65.5% of male respondents mentioned feeling headaches, whereas 47% of females are

feeling headaches without taking caffeine-containing products for more than 24 hours, 56% of male and 51% of female respondents replied drowsiness, 62% male and 49.5% female respondents responded feeling depressed mode, 58.5% male and 38.5% female respondents mentioned feeling fatigued, 63.5% male and 40.5% female respondents mentioned feeling difficulty concentrating and 33% male respondents mentioned feeling flu-like symptoms where 26.5% female are feeling flu-like symptoms without taking caffeine-containing products more than 24 hours.

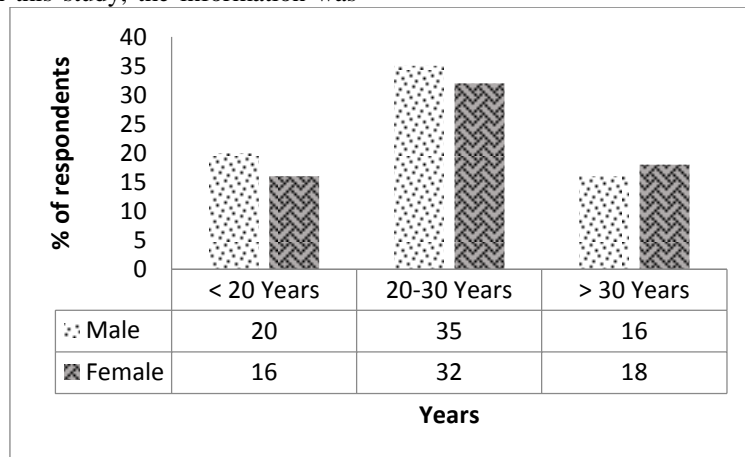


**Figure 4.10 : Comparative justification of feeling of the problems without taking caffeine-containing products more than 24 hour**

**4.11 Changes of behaviour after taking the caffeine-containing product**

The following diagram represents the comparative justification of changes in behaviour after taking caffeine-containing products between male and female respondents on the basis of their own feeling or telling by anyone. The opinion was collected from total 400 respondents, where 200 are male, and 200 are female. The response was compared on the basis of a yes answer. In this study, the information was

collected from the different institutions where both male and female ages were classified into below 20 years, 20-30 years and more than 30 years. Among the participants, 20% were male and 16% were female (age < 20 years), 35% were male, and 32% were female (age 20-30 years), 16% were male, and 18% were female (age >30 years) respondents replied their behaviour, not changes after taken caffeine-containing products.



**Figure 4.11 : Comparative justification of Changes of behaviour after taking the caffeine-containing product**

**5. CONCLUSION**

Caffeine is a complex chemical that is present in foods, dietary supplements, cosmetics, and medications. Most people consume caffeinated coffee or tea. Few respondents use caffeine as a medication. Men respondents consume more medications containing caffeine than female respondents. Men of all ages use more caffeinated products at work/school than women. According to respondents of all ages, caffeine increases their daytime alertness and activity. Products containing caffeine do not alter the conduct of the majority of people. The majority of neurobehavioral studies indicate that the benefits of caffeine, such as alertness, are universal. Caffeine is an addictive substance characterized by tolerance and withdrawal. The majority of responders consume caffeine-containing beverages twice daily for refreshment, pleasure,

routine, and habit. Caffeine is typically consumed deliberately. Thus products containing caffeine can be avoided. But many people regularly consume caffeine. Greater doses can result in discomfort and mental damage. Male responders reported experiencing increased agitation, restlessness, insomnia, GIT difficulties, visual issues, diuresis, tachycardia, and tooth discolouration during or after coffee consumption. After 24 hours without coffee, however, headaches, drowsiness, depression, fatigue, concentration difficulties, and flu-like symptoms are observed. Males had more problems after 24 hours without coffee. Research on caffeine affects both health professionals and consumers. The prevalence and functional impairment of Caffeine Use Disorder require additional research.



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