



RELIABILITY MEASURE OF THE KAP STATEMENTS FOR ANAEMIC ADOLESCENT GIRLS IN PALANI BLOCK

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ABSTRACT

According to World Health Organisation, Adolescents are defined as the period of life spanning the ages between 10-19 years. It is a vulnerable period in the human life cycle for the development of nutritional anaemia. The main objective of the study was to estimate personal background of the adolescent girls and to measure the internal consistency of the items using Cronbach's alpha value. A cross sectional study was conducted with 30 adolescent girls from the selected school in Palani Block, Dindigul District, Tamil Nadu. Data was coded, analysed and presented in frequency tables and inferential statistics through SPSS version 23. All the statements (Knowledge, Attitude and Practice) meet the acceptable standards for reliability coefficient, with values greater than 0.80. Thus the study concludes that the statements are highly reliable to the adolescent girls suffering from anaemia.

KEY WORDS: Adolescent girls, Anaemia, Reliability, KAP, Palani Block

INTRODUCTION

Adolescence being a rapid transition phase with rapid requirement additional nutrition. It is well established that in adolescent girls, menstrual blood losses with rapid growth leading to expansion of red cell mass and increased tissue iron requirements, make them particularly vulnerable to iron deficiency compared to male counter- parts. The female child is more likely to be neglected as she is deprived of good food and education and is utilized as an extra working hand to carry out the household chores. Anemia in adolescent girls in future attributes to high maternal mortality rate, high incidence of low birth weight babies, high prenatal mortality and fetal wastage (Shesha, Chaluvraj, & Satyanarayana, 2018).

Nutritional anaemia especially iron deficiency anaemia is widely prevalent in many parts of the world. The prevalence in the developing countries tends to be three to four times higher than that in the developed countries. Anaemia is the most common nutritional disorders in the developing world and the most common cause of nutritional anaemia among young women with 40% of prevalence of anaemia in the world. Iron deficiency of anaemia is probably the result of many factors with loss of iron during menstruation.

The term teenage years are used synonymously with adolescence to describe ages 13 through 19 years. Adolescence extends from 10 – 19 years in girls (Murteli, 2015).

School-based nutrition education research studies were based primarily on a knowledge-attitude-behavior approach, while disease reduction/health enhancement studies were behaviorally oriented and generally based on social learning theory. It is commonly understood that good nutrition among adolescents is important for healthy growth and development. But in addition to good health and nutrition increase the adolescent's attention span, its learning capacity, and its ability to fully engage in educational experiences (Perveen, 2017).

Several studies report a lack of appropriate knowledge and attitude regarding healthy eating among adolescents and consequent unhealthy eating behaviour. A desire to consume a healthy and balanced food may exist, but it does not translate fully to behaviour modification. Continuous eating of unhealthy food leads to serious health problems. Achieving the desired changes of behaviour in health and nutrition depends on gaining sufficient knowledge,



attitudes, good practice, and self-efficacy (Jalambo, Sharif, Naser, & Karim, 2017).

Behavior manifested in three forms, namely knowledge, attitudes, and practices. Social determinants become an important point to encourage the occurrence of nutrition and health problems (Patimah, Royani, Mursaha, & Thaha, 2016). KAP studies have been used for two main purposes: (1) to collect key information during a situation analysis, which can then feed into the design of nutrition interventions and (2) to evaluate nutrition education interventions (Shilpa, Sreni, & Betty, 2016).

Tests and questionnaires are instruments that are commonly used in the behavioral and social sciences to measure knowledge, skills and attitudes of participants or respondents. Once a test or questionnaire has been administered, a test score, for example the sum score, is used to summarise the knowledge, attitude or performance of a respondent. In practice, the reliability of a test score must be estimated from the data of a study. The measure that is most frequently used to estimate reliability in behavioral and social science research is coefficient alpha (Hoekstra, Vugteveen, Warrens, & Kruyen, 2019).

Testing for reliability is important as it refers to the consistency across the parts of a measuring instrument. A scale is said to have high internal consistency reliability if the items of a scale “hang together” and measure the same construct. The most commonly used internal consistency measure is the Cronbach Alpha coefficient. It is viewed as the most appropriate measure of reliability when making use of Likert scales. No absolute rules exist for internal consistencies, however most agree on a minimum internal consistency coefficient of 70 (Hamed Taherdoost 2017).

Cronbach’s alpha is a measure of the internal consistency or reliability between several items, measurements or ratings. In other words, it estimates how reliable are the responses of a questionnaire (or domain of a questionnaire), an instrumentation or rating evaluated by subjects which will indicate the stability of the tools. Alpha was developed by Cronbach, which was originally used to measure the reliability of a psychometric instrument. The value of Cronbach’s alpha ranges from zero to one with the higher values implying the items are measuring the same dimension. In contrary, if the Cronbach’s alpha value is low (near to 0), it means some or all of the items are not measuring the same dimension. To ascertain whether the items are reliable in measuring the same dimension, a test for Cronbach’s alpha may be used. The Cronbach’s alpha test is usually applied to test the consistency and stability of the questionnaires which

measure latent variables. Although Cronbach’s alpha test may be applied in situations other than questionnaire development or validation, there is limited literature of its application in such scenarios. Cronbach’s alpha has been applied in research to develop clinical tool (Bujang, Omar, & Baharum, 2018).

OBJECTIVES OF THE STUDY

- To elicit personal background of the selected adolescent girls.
- To measure the reliability/ internal consistency of the items using Cronbach’s alpha value.

METHODOLOGY

Methodology is the general research strategy that outlines the way in which a research project is to be undertaken and, among other things, identifies the methods to be used in it (Igwenagu, 2016).

RESEARCH DESIGN AND SAMPLING

Cross sectional research design was carried Cross-sectional study design is a type of observational study design. In a cross-sectional study, the investigator measures the outcome and the exposures in the study participants at the same time (Setia, 2016). The study population consists of 30 adolescent girls from Palani block which is located in Dindigul District, Tamil Nadu. Sampling is concerned with the selection of a subset of individuals from within a defined population to estimate characteristics of the entire population (Igwenagu, 2016).

SAMPLING TECHNIQUE

Convenient sampling technique was used by the researcher to select the subjects. In this method, the investigators enroll subjects according to their availability and accessibility. Therefore, this method is quick, inexpensive, and convenient. It is called convenient sampling as the researcher selects the sample elements according to their convenient accessibility and proximity (Elfil & Negida 2017).

Data collection procedure

Permission was obtained from District Educational Officer and Head Master for requirement of study participants. The data was collected through Google forms with a close ended structured questionnaire to the adolescent girls.

Statistical design

The data was coded and analysed using SPSS version 23 to give clear picture of background information. Quantitative data was represented in the

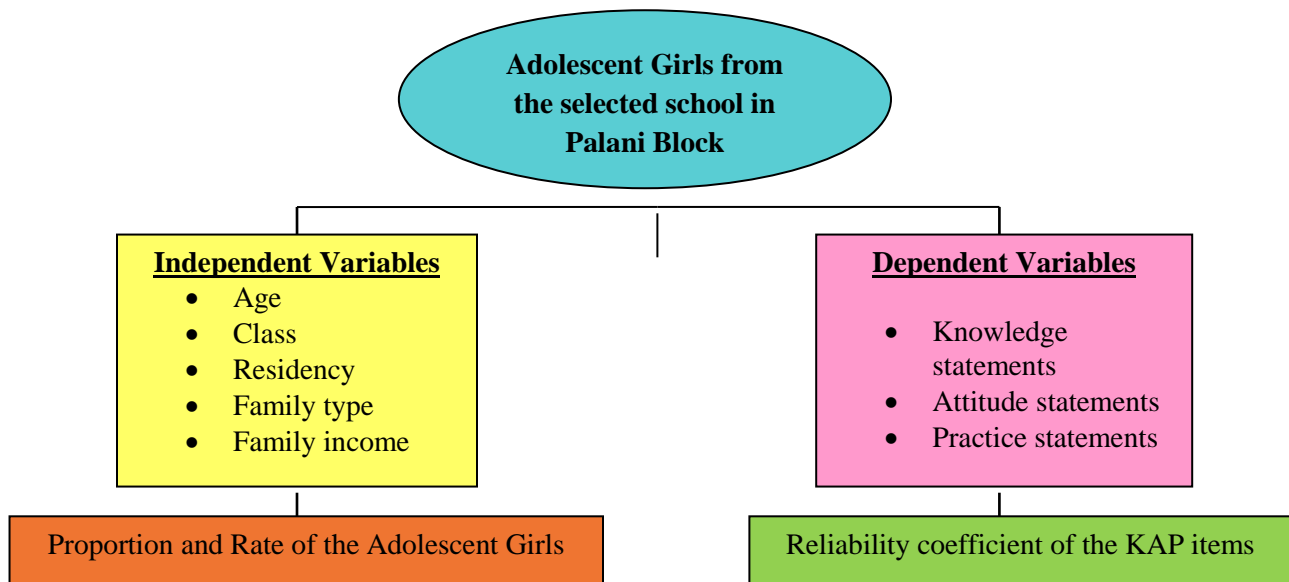
form of frequency and percentages. The reliability test was measured using Cronbach's alpha value. Then the data was analysed, tabulated and interpreted.

Geographical area

The study was carried in Palani block of Dindigul District which is located in Tamil Nadu, India. According to National Family Health Survey-4, 53 per cent of women aged 15-49 years are anaemic

in India. The prevalence of anaemia in pregnant and non pregnant females aged 15-49 years is 50.3 per cent and 53.1 per cent respectively in India. Similarly the prevalence of anemia in women aged 15-49 years in Tamil Nadu is 55.1 per cent and in Dindigul District is 51 per cent respectively (NFHS IV Tamil Nadu, 2014-2016). Therefore the prevalence rate of anaemia is high in the selected area.

Figure 1 Conceptual framework of the study



The conceptual framework of the study was shown in the fig.1. A conceptual framework is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied. It is linked with the concepts, empirical research and important theories used in promoting and systemizing the knowledge espoused by the researcher. It is the researcher's explanation of how the research problem would be explored. The conceptual framework offers many benefits to a research. For instance, it assists the researcher in identifying and

constructing his/her worldview on the phenomenon to be investigated. Conceptual frameworks are always constructed by researchers. The author also states that conceptual frameworks are a generative framework that reflects the thinking of the entire research process. Mostly, diagrams are created to clearly define the constructs or variables of the research topic and their relationships are shown by the use of arrows (Adom, Hussein, & Joe, 2018).



RESULTS AND DISCUSSION

Table 1 Personal background of the adolescent girls

Variables	No.of students (N=30)	Percentage (%)
Age		
15 years	12	40
16 years	4	13.3
17 years	6	20
18 years	8	27
Class		
9 th Std	12	40
10 th Std	4	13.3
11 th Std	6	20
12 th Std	8	27
Residency		
Urban	19	63.3
Rural	11	37
Family Structure		
Joint family	19	63.3
Nuclear family	11	37
Family income		
Rs.3000/- Rs.5000/-	7	23.3
Rs.5001/- Rs.10,000/-	13	43.3
Rs.10,001 and above	10	33.3

Out of 30 adolescent girls 12(40%) of them were in the age of 15 years, 12(30%) of them were in the age of 17 years and 11(27.5%) of them were in the age of 16 years. The selected adolescent girls were studying in 9th, 10th, 11th, and 12th standard. Nearly 12(40%) of them are in 9th standard, 8(27%) of them are in 12th standard, 6(20%) of them are in 11th standard and 4(13.3%) of them are in 10th standard respectively.

About 19(63.3%) of the subjects were from urban area and joint family. Nearly 11(37%) of the subjects were from rural area and nuclear family in and around the Palani Block. Most of the income was between Rs.5001-10000/-. Those who are in the bracket of above Rs.10,000/- constituted 10(33.3%).

Only 7 (23.3%) of the families were living below the poverty line.

The results of reliability analysis and item analysis are discussed below. As employed in the study, reliability analysis using internal consistency measures was one in reference to the questions. As a reliability coefficient, Cronbach's alpha estimates the reliability of the scale by determining the internal consistency of the test or the average of all the correlations between each item and the total score (Rosaroso, 2016).

The reliability coefficients of the Knowledge statements and its overall reliability are shown in the table 2.

Table 2 Reliability coefficient of the knowledge items

Knowledge statements	Mean	Standard Deviation	Correlation	Reliability coefficient
Anaemia refers to a reduced haemoglobin level	4.87	.450	.821	0.900
Normal Hb level among Adolescent Girls is 12g/dl	4.90	.430	.900	
Girls are more vulnerable to anaemia	4.97	.379	.668	
Heavy blood loss due to menstruation can cause anaemia	4.90	.430	.505	
Magnesium increases iron requirements	4.90	.430	.900	

The respondents agreed that they are more vulnerable to anaemia (4.97) according to the statement. The Cronbach's alpha values for the knowledge

statements meet the acceptable standards for reliability coefficient, with values greater than 0.80.



Table 3 Reliability coefficient of the attitude items

Attitude statements	Mean	Standard Deviation	Correlation	Reliability coefficient
Treatment of anaemia is expensive	4.67	.346	.828	0.828
Consuming deworming tablets will kill the worms	4.63	.379	.815	
Regular exercise helps in curing anaemia	4.57	.430	.258	
Food supplementation will prevent anaemia	4.70	.305	.539	
Drinking tea/coffee after meals will hinder the absorption of iron	4.63	.379	.815	

Table 3 shows the reliability coefficient of the supplementation. The Cronbach's alpha values for the following statements. The statements are highly reliable attitude statements meet the acceptable standards for and the girls responds positively (4.70) to the food reliability coefficient, with values greater than 0.80.

Table 4 Reliability coefficient of the attitude items

Practice statements	Mean	Standard Deviation	Correlation	Reliability coefficient
Individuals should not take iron supplementation/other treatment without Physicians advice	4.73	.430	.855	0.807
Rice is the poor source of dietary iron	4.77	.407	.757	
Consuming neem leaf is a good practice/home remedies for deworming	4.87	.305	.554	
Anaemia can be treated by consuming low cost iron rich foods	4.77	.407	.582	
Junk food helps in preventing anaemia	4.73	.430	.297	

Table 4 shows the reliability coefficient of the following statements. The practice of home remedies for deworming statement (4.87) is highly reliable. The Cronbach's alpha values for the attitude statements meet the acceptable standards for reliability coefficient, with values greater than 0.80. Cronbach's alpha is often used in assessing the reliability of tests for knowledge on nutrition, with questions that have more than two possible responses (8). Cronbach's alpha ranges from r=0 to 1, with r=0.7 or greater considered as sufficiently reliable (18) (Deniz & Alsaffar, 2013).

CONCLUSION

For an exploratory or pilot study, it is suggested that reliability should be equal to or above 0.60. Hinton et al have suggested four cut-off points for reliability, which includes excellent reliability (0.90 and above), high reliability (0.70-0.90), moderate reliability (0.50-0.70) and low reliability (0.50 and below) (Hamed Taherdoost 2017). The questionnaire

assessed in this study proved to be a reliable tool to determine the knowledge, attitude and practice. The present study found that the knowledge coefficient as 0.9, for attitude and practice 0.8. Cronbach's alpha test is suitable for conducting pilot studies. In studies related to questionnaire development Cronbach's alpha is common pointer for internal consistency and so it was used. The test shows the items are highly reliable to the adolescent girls pertaining to anaemia knowledge, attitude and practice.

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