



## ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE REGARDING PREVENTION OF ANEMIA AMONG ADOLESCENT GIRLS OF SELECTED SCHOOL OF OMPURA BUDGAM

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### Abstract

Anemia is major public health issue among adolescent girls and is often caused by iron deficiency. The prevalence of anemia among adolescent women in India increased from 54.2% to 58.9%. Among the 28 Indian states, 21 reported an increase in the prevalence of anemia. However, the levels of increase varied across the States. Additionally, the number of States with anemia prevalence exceeding 60%, doubled from 11 in 2019 -21. Several factors were found associated with anemia. Objectives: of the study were (1) To assess the pre-test knowledge score among adolescent girls at Spring buds school Budgam regarding prevention of anemia .(2) To assess the post-test knowledge score among adolescent girls at spring buds school Budgam regarding prevention of anemia .(3) To compare pre-test and post-test knowledge scores among adolescent girls at spring bud school Budgam regarding prevention of anemia .(4) To find out association of pre-test knowledge score among adolescent girls with their selected demographic variables[Age, Religion, Residence, Monthly income, Father's education, Mother's education, Father's occupation, Mother's occupation, Type of family, Age of menarche, Duration of menses].Materials and Methods: in the present study one group pre-test and post-test experimental research design was used to conduct the study on 30 adolescent girls, selected by using purposive sampling technique at Spring Buds girls School ompura Budgam Kashmir. Self-structured knowledge questionnaire was used for data collection. It consists of two sections: Section 1: demographic data and section 11: knowledge questionnaire related to prevention of Anemia. Results: Majority of the adolescent girls had inadequate knowledge 28(93.3%), 2(6.7%) had moderate knowledge and none 0(0%) had adequate in pretest before administering STP. After getting STP, none 0(0%) of adolescent girls had inadequate knowledge, 4(13.3%), moderate knowledge and 26(86.7%) of adolescent girls had reported adequate knowledge. Conclusion: It can be concluded that knowledge of study subjects regarding prevention of anemia after implementation of STP has increased. Consumption of iron and folic acid tablets prevent anemia to a great extent among adolescents.

**Keywords:** Knowledge, Structured Teaching Program (STP), Anemia, Adolescent Girls.

## 1. Introduction

Blood is a specialized connective tissue in a fluid medium of body in circulatory system which delivers necessary substances such as nutrients and oxygen to cells and brings back metabolic waste products away from those same cells. Blood consists of two main components i.e Blood cells and Plasma. There are three main types of Blood cells which are RBCs, WBCs and Platelets. Anemia is a condition in which the no. of red blood cells or the amount of hemoglobin is low. Red blood cells contain hemoglobin protein that it enables them to carry oxygen from the lungs and deliver it to all parts of body. When the no. of red blood cells is reduced or the amount of hemoglobin in them is low, it leads to a condition of iron deficiency anemia which is the most common type of anemia in which the blood cannot carry the adequate supply of oxygen. An inadequate supply of oxygen in the tissues produces the symptoms of anemia (Gupta and Kocher, 2009) [1].

Anemia accounts for a majority of the nutritional problem across the globe and it is principally engendered by deficiency of iron. Although it occurs in all the age group, prevalence is on a higher side among women of childbearing age [2].

In developing countries, the adolescent group is more exposed to nutritional challenges and are more vulnerable to the disease. Studies showed that adolescent anemia was the greatest nutritional problem encountered in developing countries. India had reported high prevalence of anemia among adolescent girls, which is apparently higher when compared with the other developing nations [3].

WHO states that anemia as a condition in which hemoglobin content of the blood is lower than normal as a result of deficiency of one or more nutrients. Normal hemoglobin is (14-16g/dl for males), (12-14g/dl for females). If HB level is below 12g/dl then it is considered as anemia [4]. Anemia is estimated to be of greater nutritional problem in adolescents. Anemia in adolescents and young adults can cause negative effects on their cognitive performance and

physical growth. At all levels, the negative effects of anemia during adolescence justify public health action [5].

The associated factors of anemia among adolescent girls differ from study to study like low dietary intake, duration of menstruation, history of parasitic infestation, low socioeconomic status, family size, inadequate dietary iron intake, low consumption of vitamin C rich food. Anemia among adolescent girls can be detected by physical examination as symptoms includes poor physical growth, Cognitive impairment, fatigue, weakness, pale skin, shortness of breath, dizziness, cold hands and feet, irregular menstruation. This condition can be diagnosed by doing physical examination, CBC, serum ferritin, TIBC, serum iron, HCT/PCV. If the condition is not detected or treated properly it can lead to the complications like lung and heart problems, mental retardation, tooth decay, neurological problems, angina, poor physical growth. Having balanced diet rich in iron (daily requirement of iron is 15mg), vitamin C rich foods help in absorption of iron) and minerals like green vegetables, fruits, Sprouted pulses, Groundnuts. Using safe drinking water, Regular exercises, Iron supplements, taking tablet albendazole twice a year for de-worming greatly helps to prevent and control anemia among adolescent girls [6].

## 2. Need for the Study

Anemia remains a major cause of mortality and morbidity in developing countries where resources to determine the underlying etiology remains poor. Its prevalence in South Asia is among the highest in the world mirroring over all high rates of malnutrition (Steven and Abraham, 2008) [7].

The most common type of anemia is iron deficiency anemia, it is a condition in which blood cannot carry adequate supply of oxygen. it is the most common type and a serious public health concern in most of developing countries. IDA is estimated to cause 591,000 prenatal deaths and 115,000 maternal deaths globally (Meier et al 2003) [8].

Choudary (2008) A cross sectional study was conducted to assess anemia among unmarried adolescent girls in South India, 100 adolescent girls, aged from 11 to 18 years were selected as samples by purposive sampling method. Blood samples were collected and hemoglobin test was done. The result showed that 29% of adolescent girls were affected with severe anemia, rest of them had mild anemia 71% (P<0.05). Anemia has a significant association with low socio-economic status, religion and reporting of infrequent or non- consumption of meat. He concluded that the hemoglobin status of the adolescent girls needs to be improved through dietary modification along with the iron supplement and nutritional education [9] joy p Mariama (2011) Conducted a quasi-experimental study to assess the effectiveness of self-instructional module on knowledge regarding anemia among sixty adolescent girls between the age group 16-18 years in selected pre-university colleges, manglore, Karnataka, india and the result shown significantly increased the knowledge in prevention of anemia [10].

### 3. Methodology

A pre-experimental quantitative research approach, one group pre-test post-test research design was selected to carry out this study. The data for this study was collected from Spring buds' school ompora Budgam after obtaining permission from the concerned authorities of school to conduct the final study. Ethical clearance was obtained from Institutional committee and study was ethically exempted. A sample of 30 adolescent girls who were

studying, willing and available at the time of data collection were selected by using purposive sampling technique. Permission was also obtained by taking informed consent from each study subject, prior to their inclusion as sample in the study. Privacy, confidentiality and anonymity were being guarded. Data was collected from study subjects (pre-test) on 22th April (post-test) on 29th April by using self-structured knowledge questionnaire.

#### A. Description of Tool: It consists of Two parts:

Part 1: It consists of demographic variables like Age, Religion, Residence, father's education, Mother's education, father's occupation, Mother's occupation, Monthly income, Type of family, Age of menarche, Duration of menses. Part 2: Self structured knowledge questionnaire was developed to assess the knowledge regarding prevention of anemia. it comprises of 37 knowledge items covering the following content area concept, Types, causes of anemia, symptoms of anemia, complications, prevention and control of anemia.

#### 3.1 Scoring Procedure

Self-structured knowledge questionnaire consists of 37 knowledge items which are in the form of multiple choices. Each item has only one correct option and rest of the options are incorrect. For every correct answer, a score of one point will be awarded and for every incorrect answer or un-attempted question will get a 0 point.

Maximum score of Tool is 37 and minimum score is 0.

S. No.	Score	Percentage	Category
1.	0-18	50% or below	Below Average
2.	18-28	51% or 74%	Average
3.	28-37	75% or above	Good

### 4. Results

Data presented in Figure 2 shows: 100.0% were Muslims only.

Table 1 Figure 1, shows that (83.3%) were 13-15 yrs, 16-19 yrs. were (16.7%).

**Table 1: Frequency and Percentage Distribution of Study Subjects According to Demographic Variables**

Variables	Opts	Percentage	Frequency
Age	13-15 Years	83.3%	25
	16-19 Years	16.7%	5
Religion	Muslim	100.0%	30
	Hindu	0.0%	0
	Sikh	0.0%	0
	Other	0.0%	0
Residence	Rural	66.7%	20
	Urban	33.3%	10
Education of father	Illiterate	40.0%	12
	Primary and Secondary	33.3%	10
	Higher Secondary	23.3%	7
	Diploma	0.0%	0
	Graduation	3.3%	1
	Above Graduation	0.0%	0
Education of mother	Illiterate	30.0%	9
	Primary and Secondary	56.7%	17
	Higher Secondary	13.3%	4
	Diploma	0.0%	0
	Graduation	0.0%	0
	Above Graduation	0.0%	0
Father's Occupation	Private employee	36.7%	11
	Govt. employee	40.0%	12
	Self-Employee	10.0%	3
	Farmer	13.3%	4
	Labourer	0.0%	0
	Unemployed	0.0%	0

Mothers' occupation	Private employee	0.0%	0
	Govt. employee	6.7%	2
	Self-Employee	0.0%	0
	House Maker	93.3%	28
Type of family	Joint Family	16.7%	5
	Nuclear Family	83.3%	25
	Extended Family	0.0%	0
Monthly income	Less than Rs. 20,000	16.7%	5
	Rs.20,000-40000	50.0%	15
	Above Rs. 40,000	33.3%	10
Age of menarche	10-13 Years	3.3%	1
	13-16 Years	96.7%	29
Duration of menses	0-3 Days	0.0%	0
	3-5 Days	90.0%	27
	5-7 Days	10.0%	3

n=30

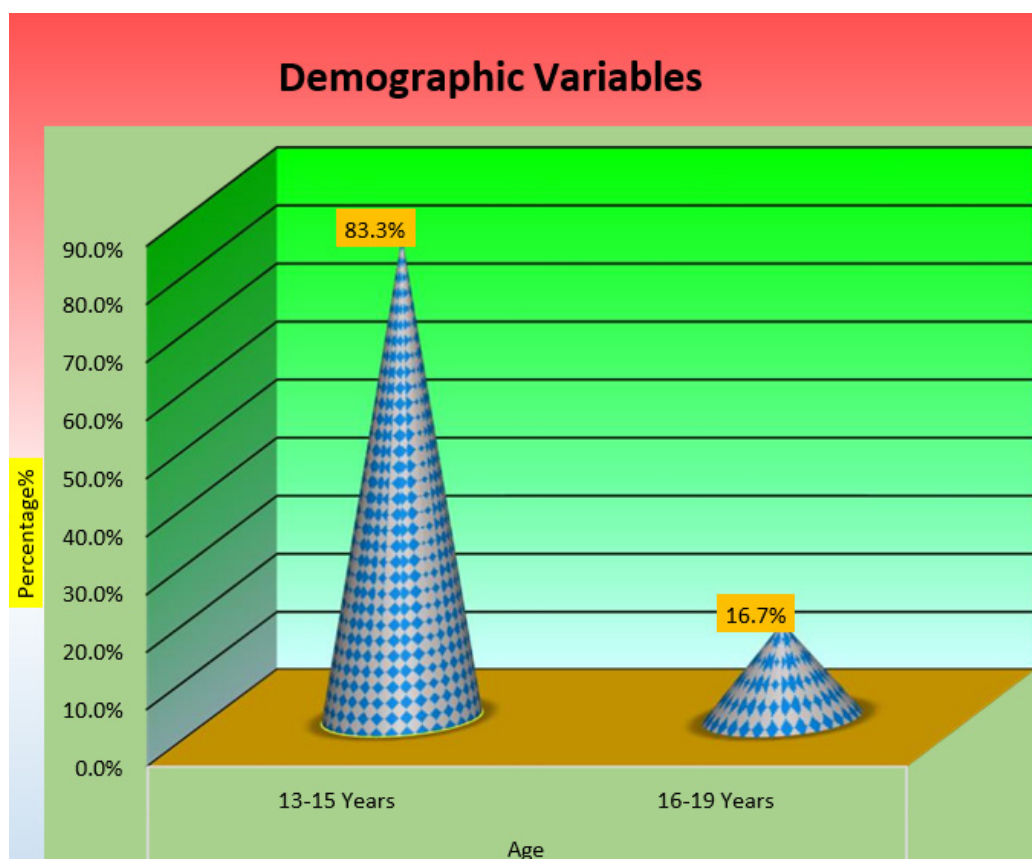


Figure 1: Conical diagram showing: frequency and percentage distribution of study subjects according to age (n=30)

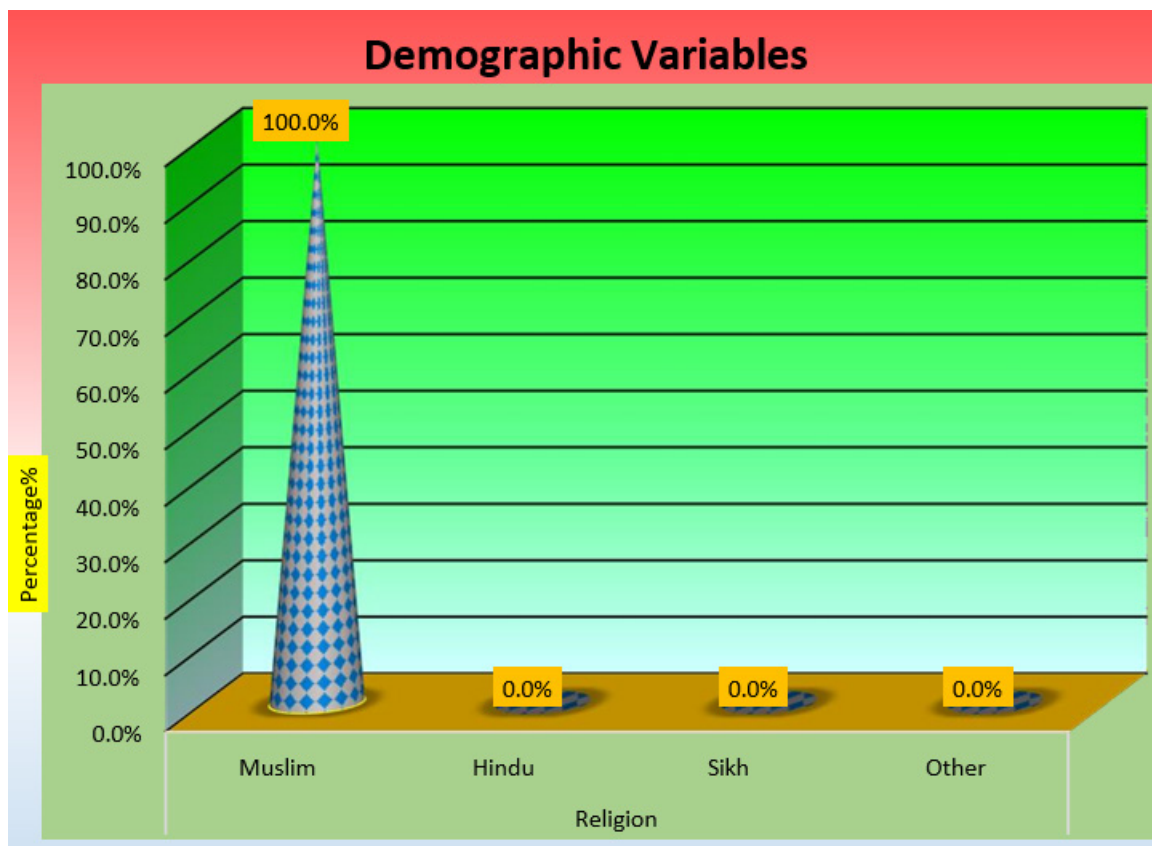


Figure 2: Conical diagram showing frequency and percentage distribution of study subjects according to religion

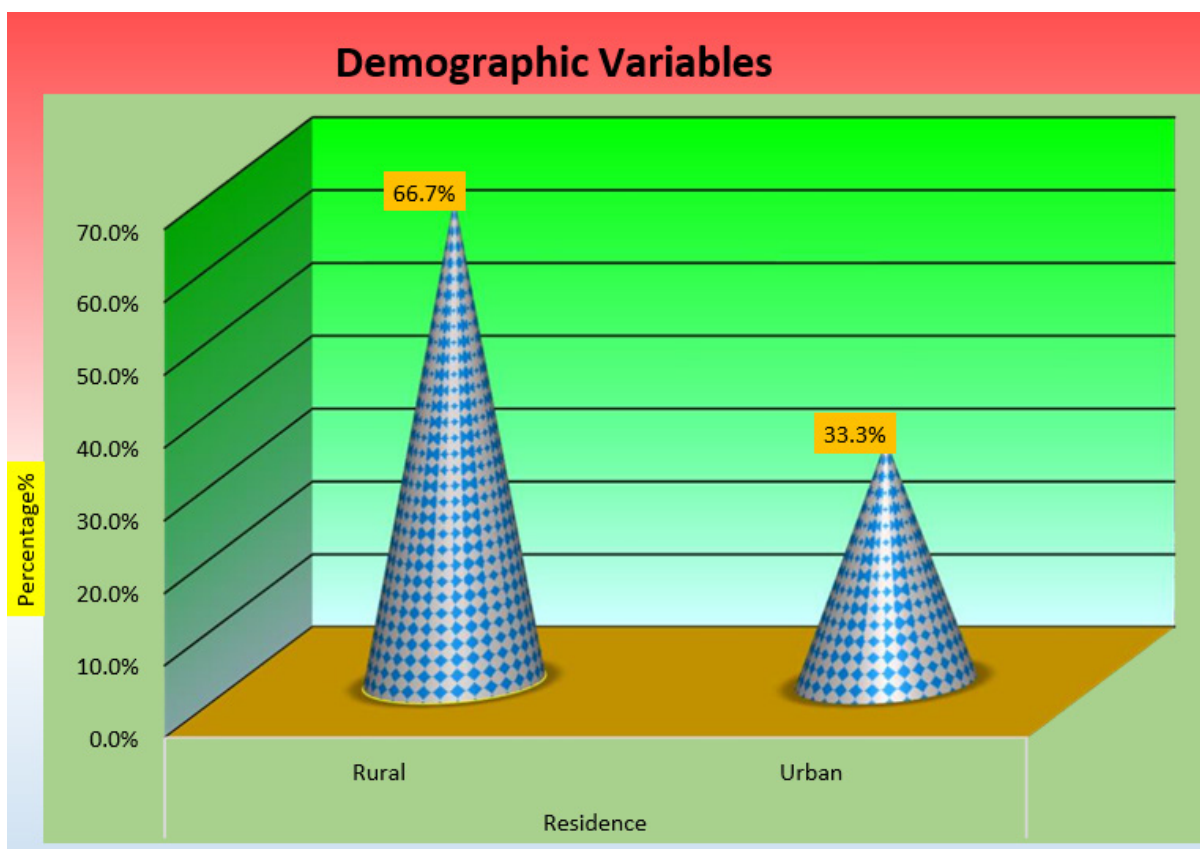


Figure 3: Conical diagram showing frequency and percentage distribution of study subjects according to residence

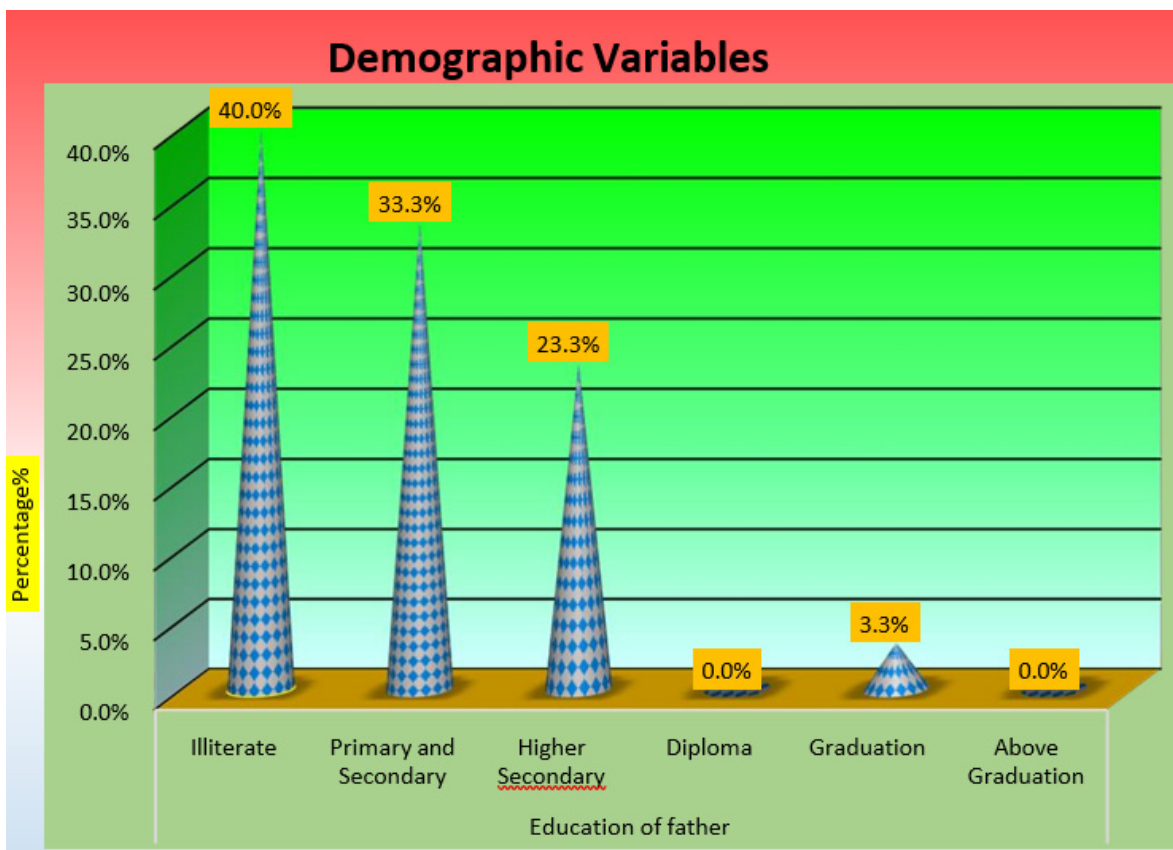


Figure 4: Conical diagram showing frequency and percentage distribution of study subjects according to education of father

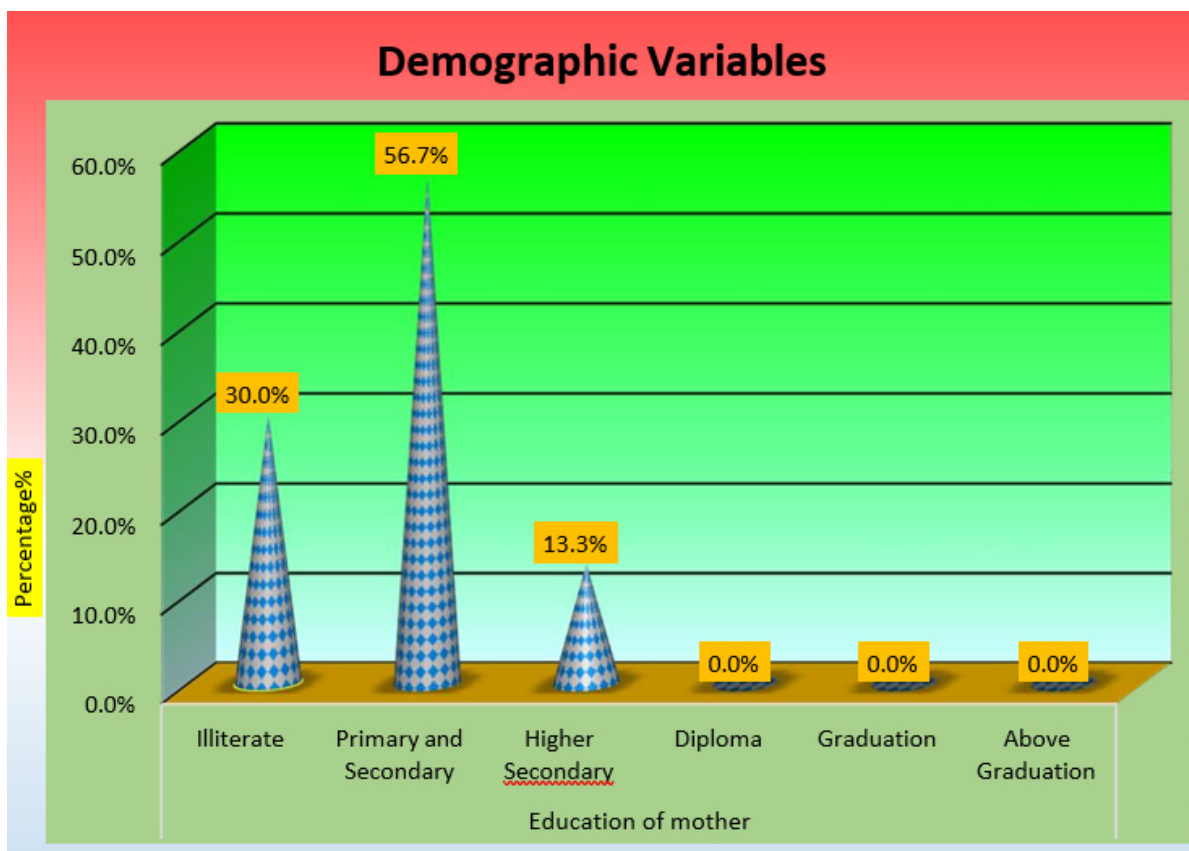


Figure 5: Conical diagram showing frequency and percentage distribution of study subjects according to education of mother. (n=30)

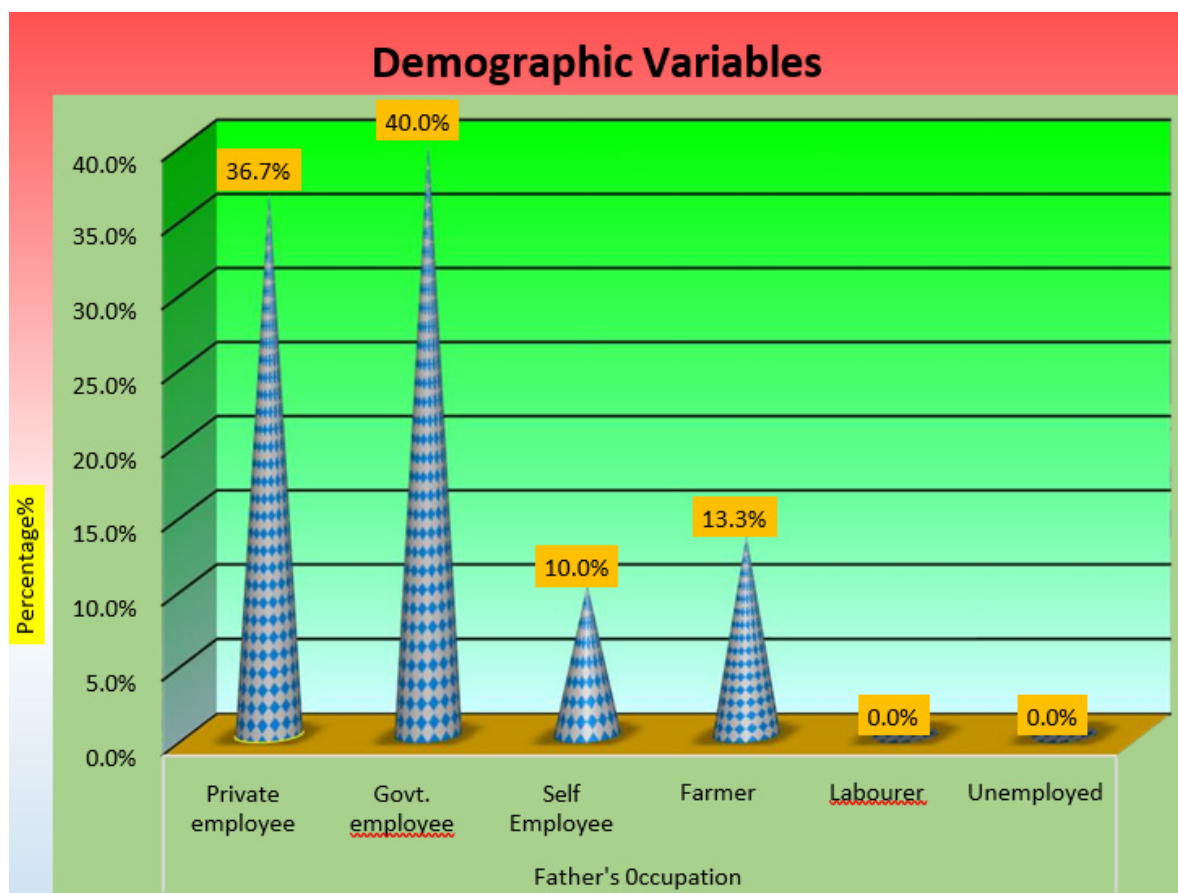


Figure 6: Showing frequency and percentage distribution of study subjects according to father's occupation. (n=30)

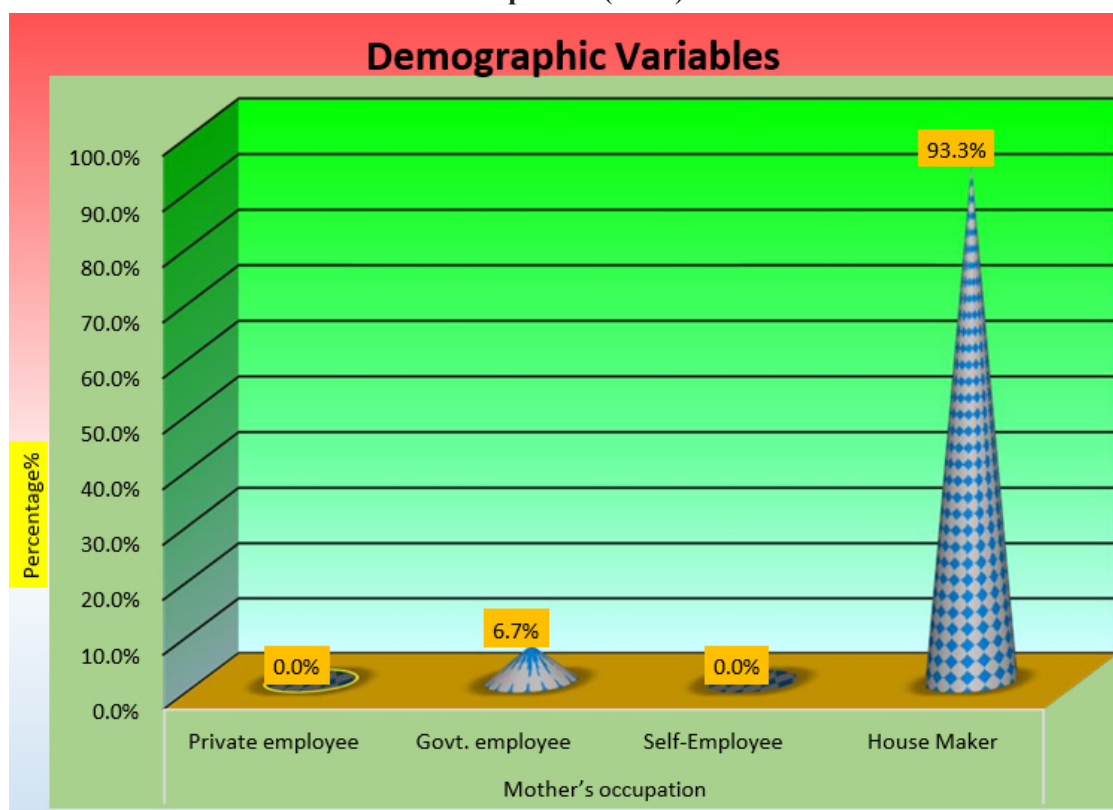


Figure 7: Conical diagram showing frequency and percentage distribution of study subjects according to mother's occupation.



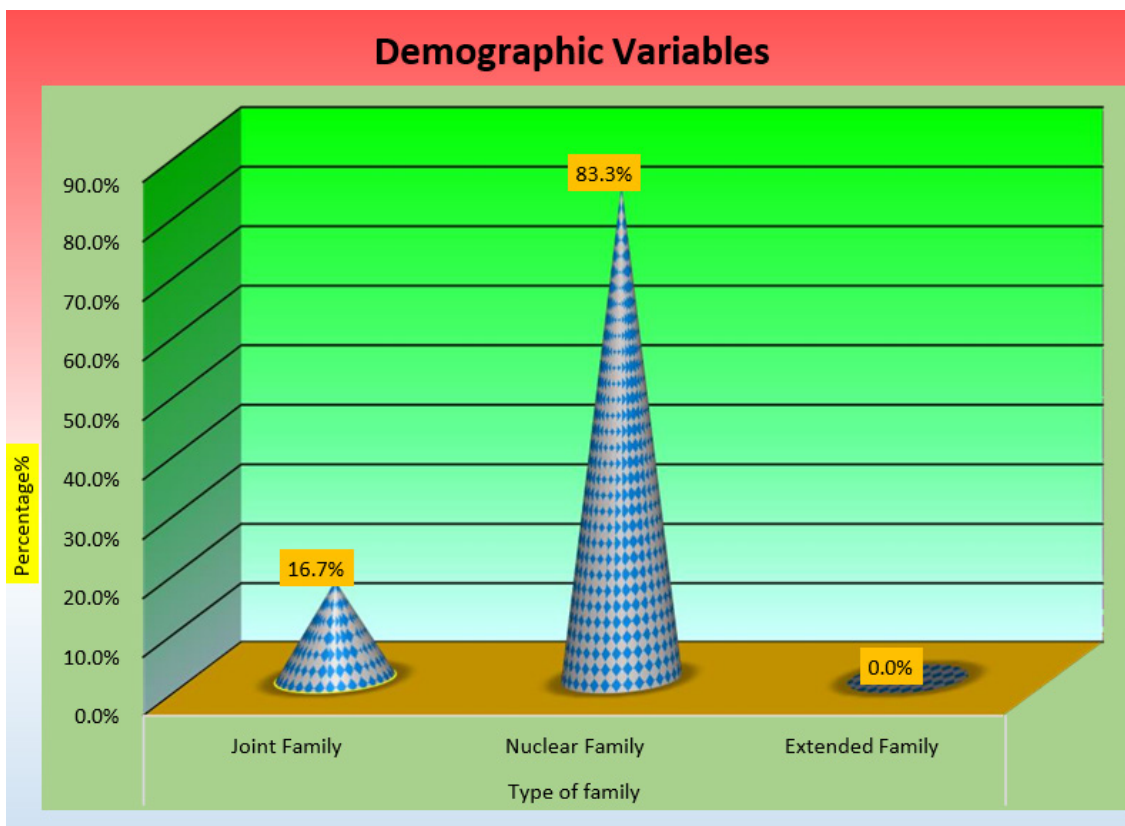


Figure 8: Conical diagram showing frequency and percentage distribution of study subjects according to type of family

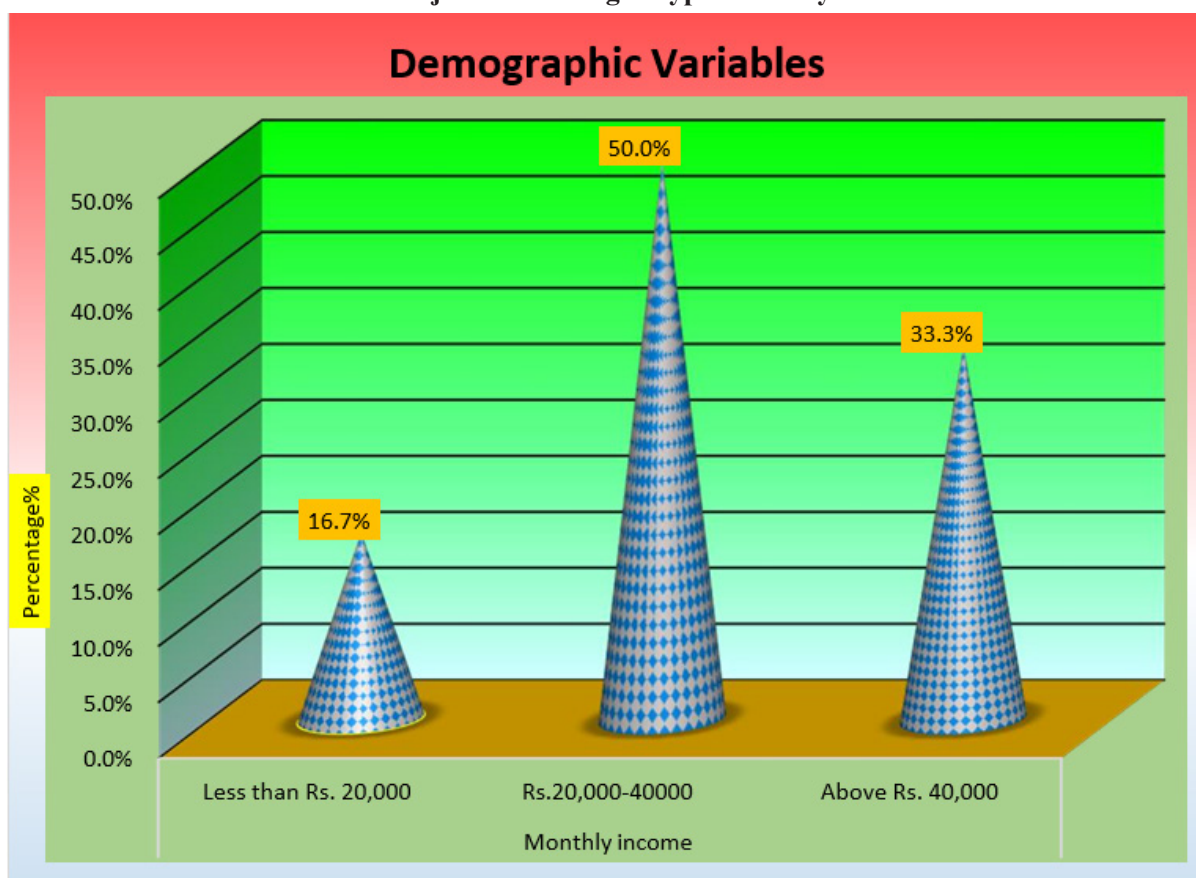


Figure 9: Conical diagram showing frequency and percentage distribution of study subjects according to monthly income

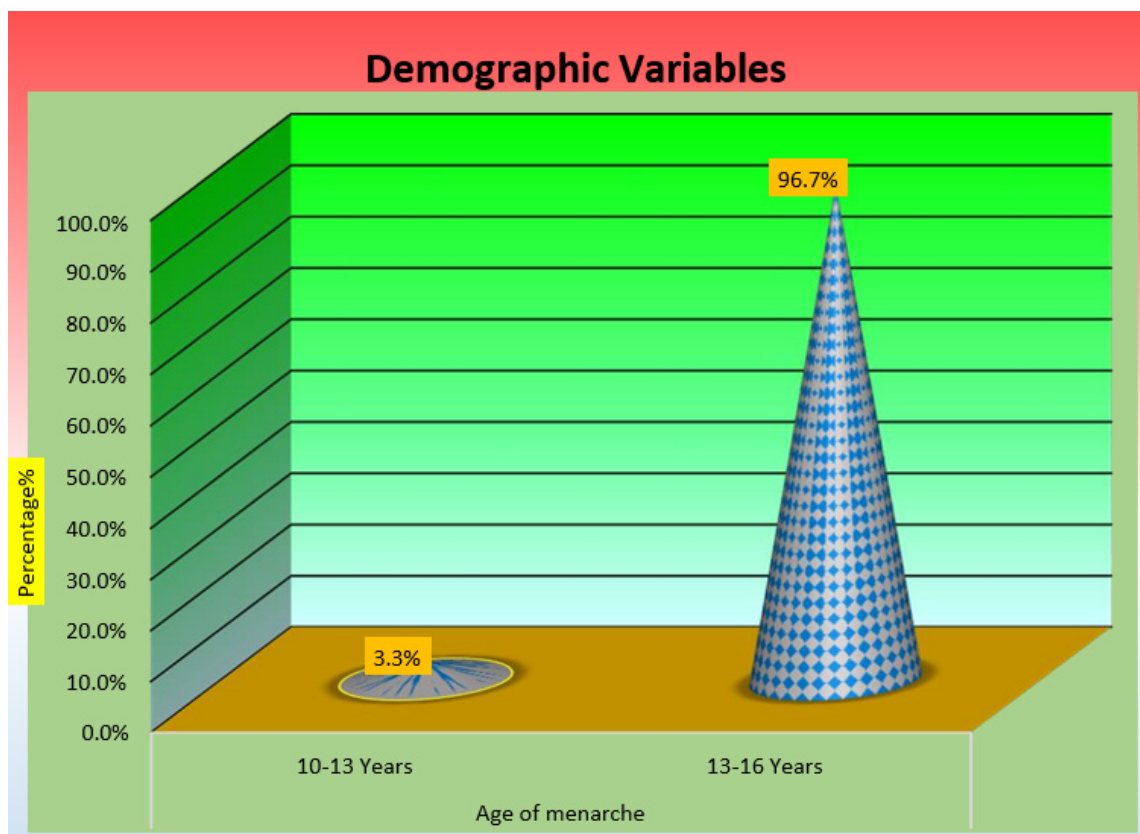


Figure 10: Conical diagram showing frequency and percentage distribution of study subjects according to age of menarche

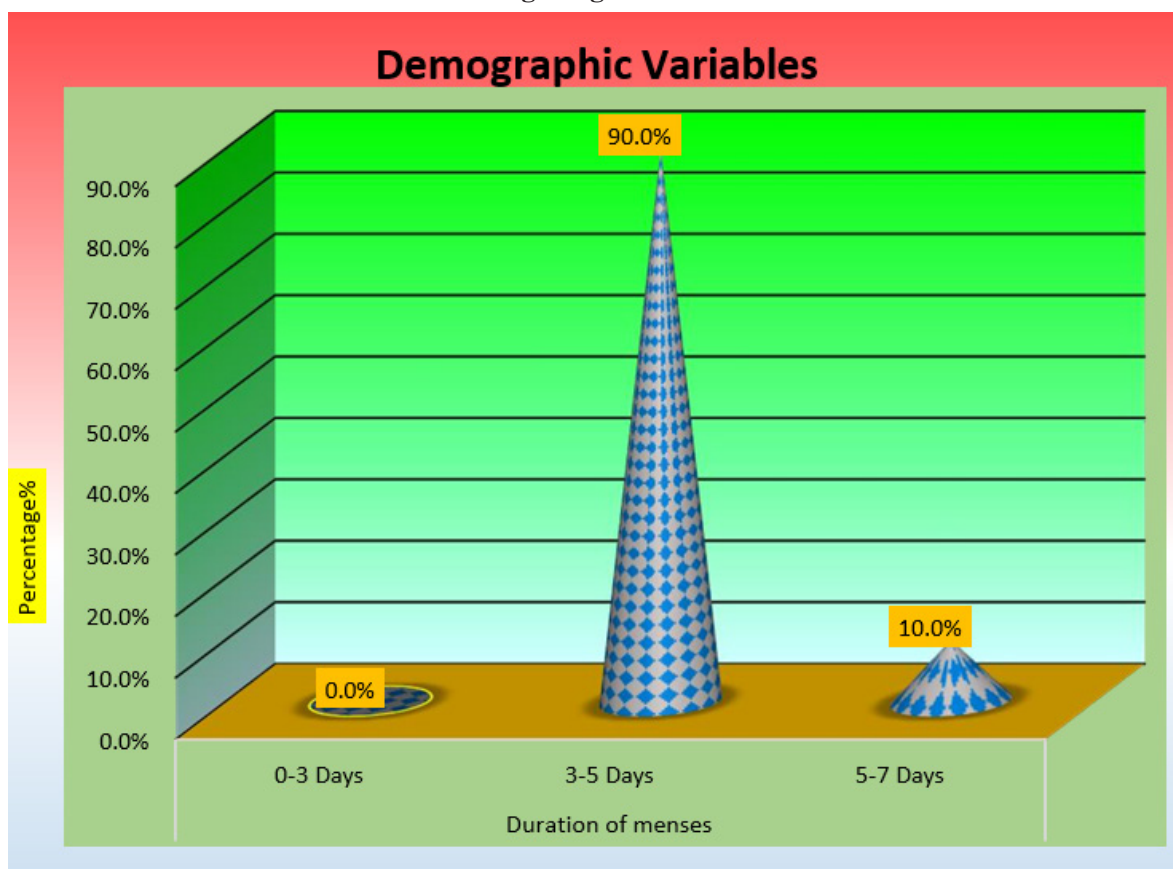


Figure 11: Conical diagram showing frequency and percentage distribution of study subjects according to duration of menses

Table 2: Frequency & Percentage distribution of pre-test knowledge score of study subjects (n=30)

CRITERIA MEASURE OF PRETEST KNOWLEDGE SCORE	
SCORE LEVEL (N= 30)	PRE-TEST f (%)
BELOW AVERAGE. (0-18)	28(93.3%)
AVERAGE. (19-27)	2(6.7%)
GOOD. (28-37)	0(0%)
Maximum Score=37 Minimum Score=0	

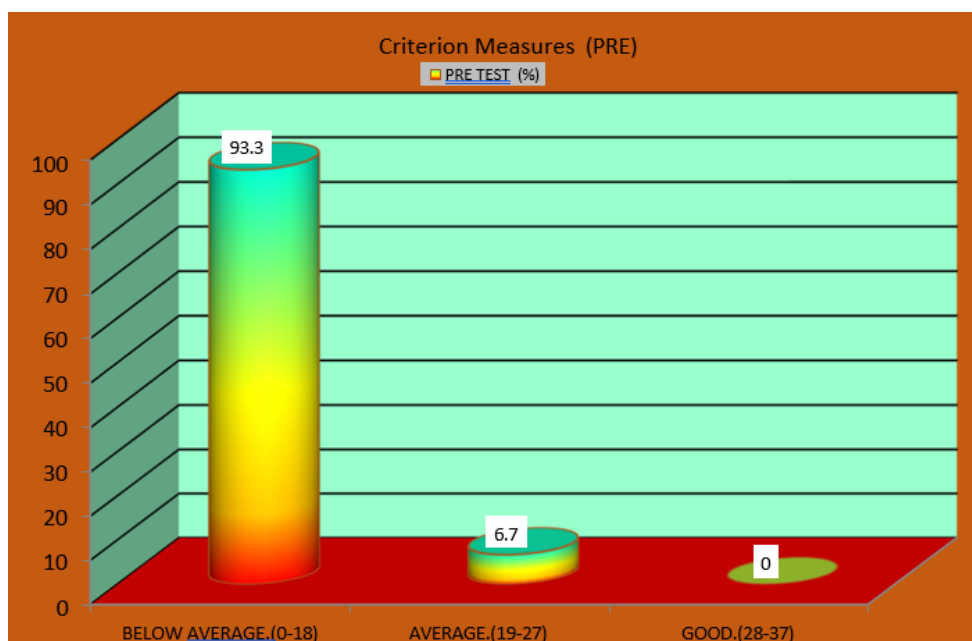


Figure 12: Cylindrical Diagram showing the percentage distribution of pre-test knowledge

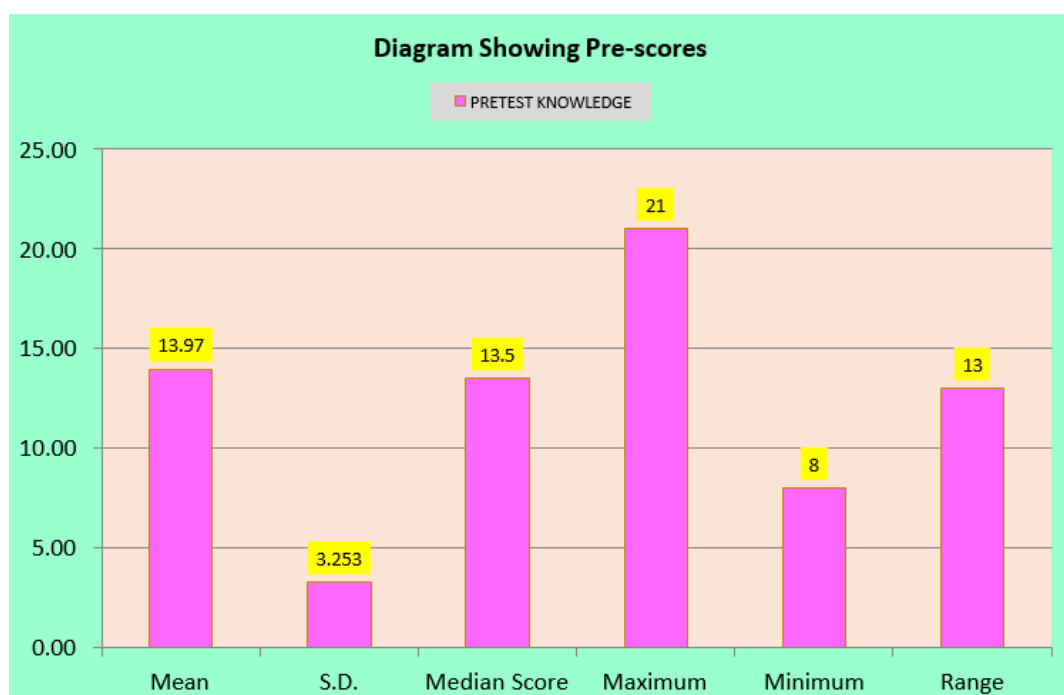


Figure 13: Bar diagram representing descriptive statistics of pre-test level of knowledge

Table 3

Descriptive Statistics	Mean	S.D.	Median Score	Maximum	Minimum	Range	Mean%
Pretest Knowledge	13.97	3.253	13.5	21	8	13	37.70
	Maximum=	37	Minimum=	0			

Table 4: Frequency & Percentage distribution of post-test knowledge score of study subjects

Criteria Measure Of Posttest Knowledge Score	
Score Level (N= 30)	Post Test f(%)
Below Average (0-18)	0 (0%)
Average (19-27)	4 (13.3%)
Good (28-37)	26 (86.7%)
Maximum Score=37 Minimum Score=0	

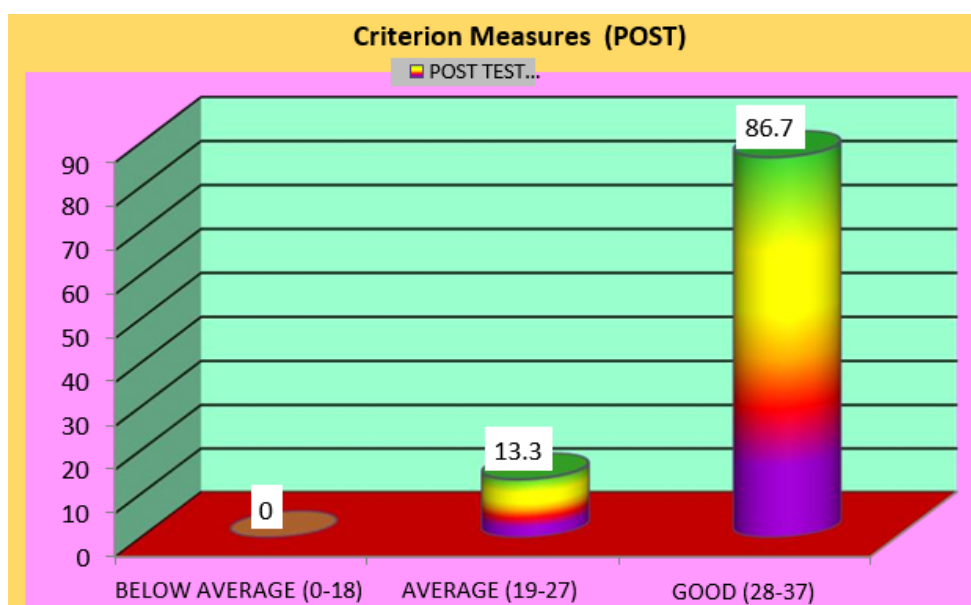


Figure 14: Cylindrical Diagram representing percentage distribution of post-test level of knowledge

Data presented in figure 3 shows: 66.7% belongs to rural and 33.3% were urban area.

Data presented in figure 4 shows: 40.0% were illiterate,33.3% were primary and secondary,23.3% were higher secondary, none were diploma ,3.3% were graduation and none were above graduation.

Data presented in figure 5 shows: 30.0% were illiterate, 56.7% were having primary and secondary education,13.3% were Having higher secondary education, none were having diploma, graduation and above graduation.

Data presented in figure 6 shows: 36.7% were private

employee,40.0% were govt. employee,10.0% were self-employee, 13.3% were farmer, none were labourer, none were unemployed

Data presented in figure 7 shows: none were private employee,6.7% were govt. employee, none were self-employee and 93.3% were house maker.

Data presented in figure 8 shows: 16.7% were joint family,83.3% were nuclear family, none were extended family.

Data presented in figure 9 shows:16.7% were having less than 20000 monthly incomes,50.0% were having 20-40000,33.3% were having above

40000 monthly incomes.

Data presented in figure 10 shows: 3.3% were having 10-13 years of age of menarche and 96.7% were having 13-16 years of age of menarche.

Data presented in figure 11 shows: none were having 0-3 days of duration of menses,90.0% were having 3-5 days and 10.0% were having 5- 7 days of duration of menses.

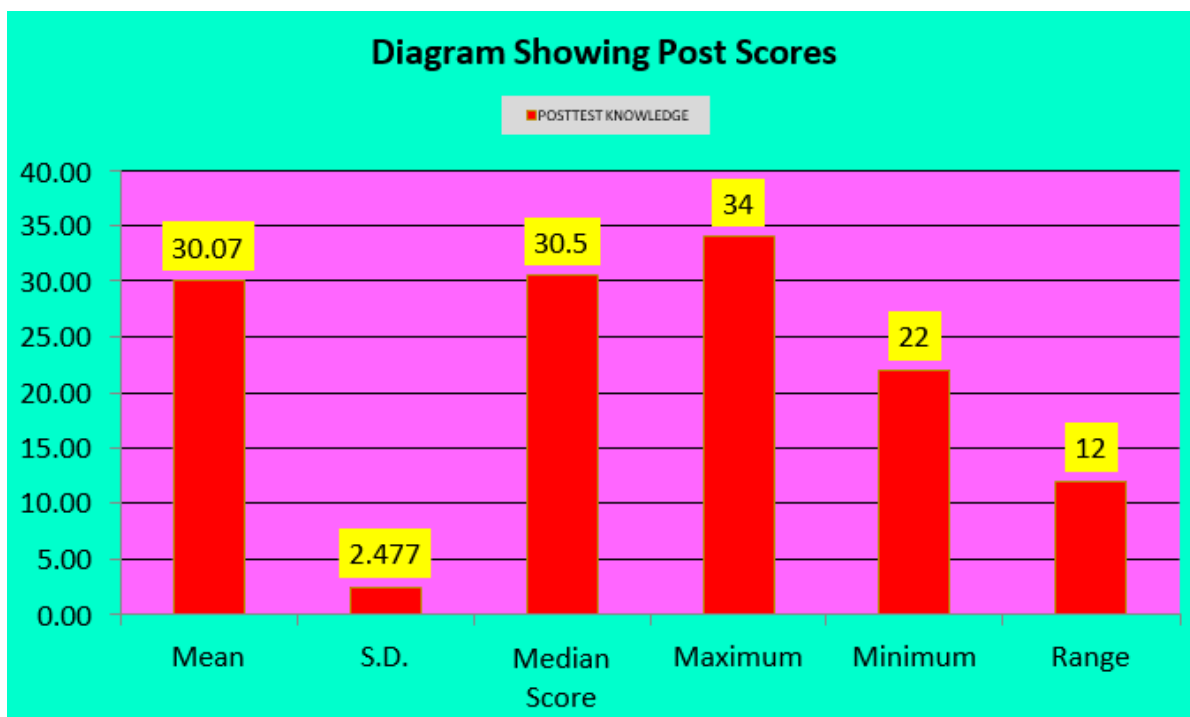
Data presented in table 2 and figure 12 shows: 93.3% were below average, 6.7% were average and 0% were good.

Figure 13 table 3: shows that mean in pretest were 13.97 and standard deviation were 3.253, median score is 13.5, range is 13 and mean% is 37.7.

Figure 14 and table 4 shows: None were below average,13.3% were having average and 86.7% were having good knowledge.

**Table 5: Descriptive statistics of post-test level of knowledge (N=30)**

Descriptive Statistics	Mean	S.D.	Median Score	Maximum	Minimum	Range	Mean%
Post-test Knowledge	30.07	2.477	30.5	34	22	12	81.30
	Maximum=	37	Minimum=	0			



**Figure 15: Bar diagram representing descriptive statistics of post-test level of knowledge.**

**Table 6: Comparison between pre-test and post-test knowledge score of study subjects regarding anemia among adolescent girls**

Paired T-test	Mean±S.D.	Mean%	Range	Mean Diff.	Paired T-test	P-value	Table value at 0.05
Pre-test Knowledge	13.97±3.253	37.70	8-21	16.100	21.57 *Sig	<0.001	2.05
Post-test Knowledge	30.07±2.477	81.30	22-34				

Significance Level 0.05, Maximum=37 Minimum=0.

Figure 16 table 5 shows: Mean in post-test knowledge score is (30.07). Table 6 shows: Mean pretest knowledge score was 37.70 and post-test knowledge score was 81.30.

**Table 7: Comparison of frequency & percentage distribution of pre-test and post-test level of knowledge score**

Criteria Measure of Knowledge Score	Pre-test f (%)	Post-test f (%)
Score Level (N= 30)		
Below Average. (0-18)	28 (93.3%)	0 (0%)
Average. (19-27)	2 (6.7%)	4 (13.3%)
Good. (28-37)	0 (0%)	26 (86.7%)
Maximum Score=37 Minimum Score=0		

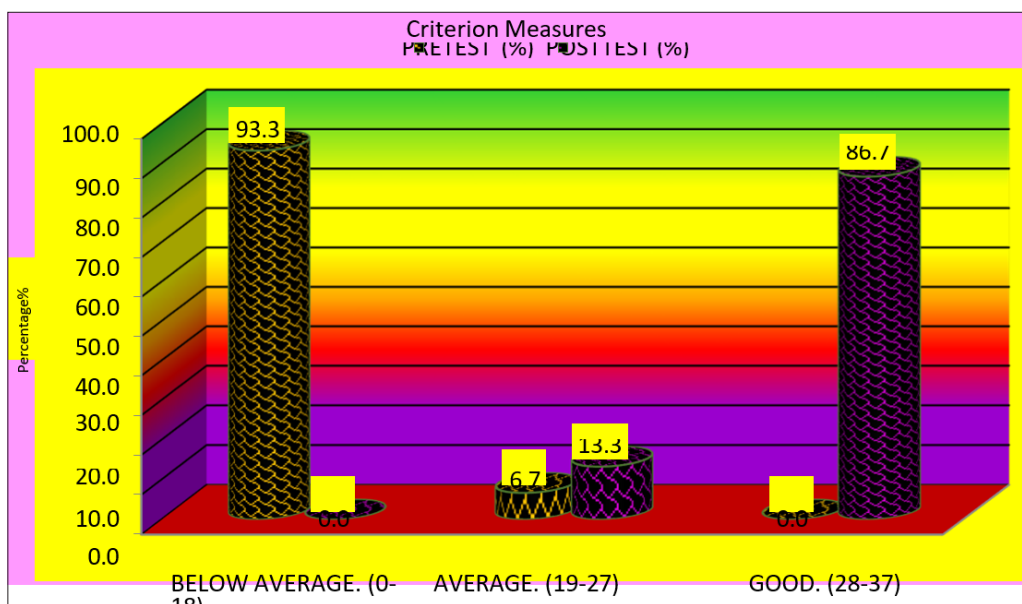


Figure 16

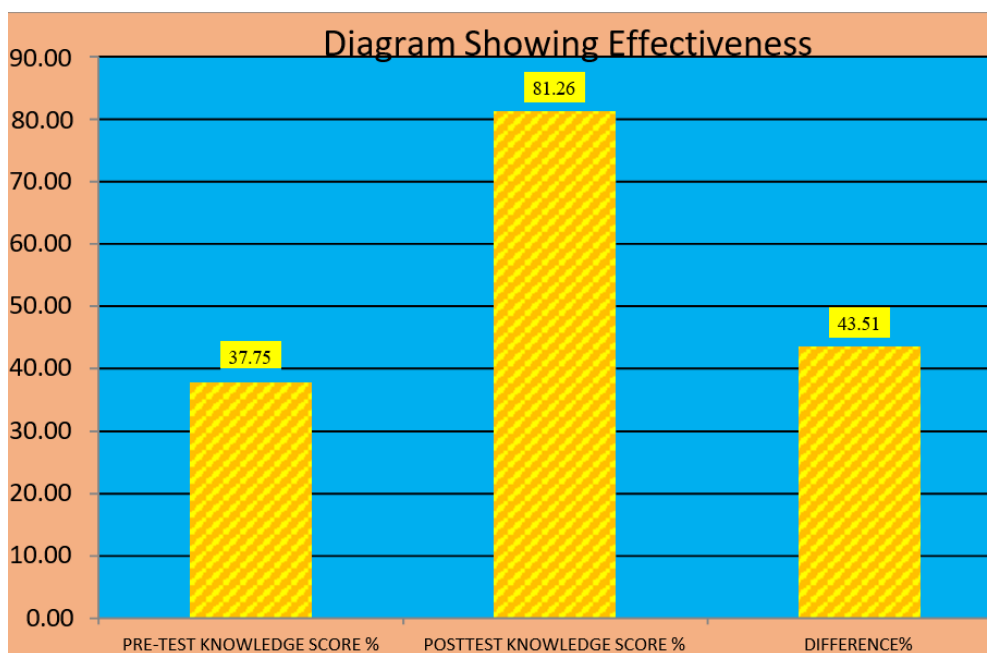


Figure 17: Bar diagram representing comparison of pre-test and post-test level of knowledge representing effectiveness

**Table 8: Comparison of descriptive statistics of pretest and post-test Scores of knowledges**

<b>Diagram Showing Individual Score Gain (Effectiveness)</b>						
Mean %	Pre-test Knowledge	Post-test Knowledge	Difference	Pre-test Knowledge Score %	Post-test Knowledge Score %	Difference%
Average	13.97	30.07	16.10	37.75	81.26	43.51

**Table 9: Association between pre-test knowledge score of study subjects with selected socio-demographic variables**

Variables	Opts	Good	AVERAGE	BELOW AVERAGE	Chi Test	P Value	Df	Table Value	Result
<b>Age</b>	13-15 Years		2	23	0.429	0.513	1	3.841	Non Significant
	16-19 Years		0	5					
<b>Religion</b>	Muslim		2	28	NA				
	Hindu		0	0					
	Sikh		0	0					
	Other		0	0					
<b>Residence</b>	Rural		1	19	0.268	0.605	1	3.841	Non-Significant
	Urban		1	9					
<b>Education of father</b>	Illiterate		1	11	1.492	0.684	3	7.815	Non-Significant
	Primary and Secondary		0	10					
	Higher Secondary		1	6					
	Diploma		0	0					
	Graduation		0	1					
	Above Graduation		0	0					
<b>Education of mother</b>	Illiterate		0	9	2.820	0.244	2	5.991	Non-Significant
	Primary and Secondary		1	16					
	Higher Secondary		1	3					
	Diploma		0	0					

	Graduation		0	0					
	Above Graduation		0	0					
<b>Father's Occupation</b>	Private employee		2	9	3.701	0.296	3	7.815	Non-Significant
	Govt. employee		0	12					
	Self-Employee		0	3					
	Farmer		0	4					
	Labourer		0	0					
	Unemployed		0	0					
<b>Mothers occupation</b>	Private employee		0	0	0.153	0.696	1	3.841	Non-Significant
	Govt. employee		0	2					
	Self-Employee		0	0					
	House Maker		2	26					
<b>Type of family</b>	Joint Family		0	5	0.429	0.513	1	3.841	Non-Significant
	Nuclear Family		2	23					
	Extended Family		0	0					
<b>Monthly income</b>	Less than Rs. 20,000		1	4	2.143	0.343	2	5.991	Non-Significant
	Rs.20,000-40000		1	14					
	Above Rs. 40,000		0	10					
<b>Age of menarche</b>	10-13 Years		0	1	0.074	0.786	1	3.841	Non-Significant
	13-16 Years		2	27					
<b>Duration of menses</b>	0-3 Days		0	0	0.238	0.626	1	3.841	Non-Significant
	3-5 Days		2	25					
	5-7 Days		0	3					

Table 9 shows: There is no significant association of pre-test knowledge score with selected demographic variables.

## 5. Discussion

The study was conducted to assess the effectiveness of structured teaching program on knowledge



regarding prevention of anemia among adolescent girls at spring buds' school Budgam. The study was conducted using pre-experimental research design and subjects were selected by the purposive sampling method. A self-structured questionnaire was used. The response was analysed through descriptive statistics (Chi-square). The discussion of result was arranged according to the study objectives: The first objective was to assess the pre-test knowledge score regarding prevention of anemia in adolescent girls in selected school of Budgam. The findings of the study revealed that mean level of knowledge score regarding prevention of anemia among adolescent girls in selected school was  $13.9 \pm 3.253$  with mean percentage 37.70. The second objective was to assess the post-test knowledge score regarding prevention of anemia among adolescent girls in selected school. The findings of the study revealed that mean level of knowledge regarding prevention of anemia in adolescent girls in selected school was  $30.07 \pm 2.477$  with mean percentage. The third objective was to compare pre-test and post-test knowledge scores regarding prevention of anemia among adolescent girls. The findings of the study revealed that the mean pre-test knowledge score was  $13.97 \pm 3.253$  and mean posttest knowledge score regarding prevention of anemia was  $30.07 \pm 2.477$  and the calculated mean difference is 16.100.

The fourth objective was to find out association of pre-test knowledge score regarding prevention of anemia among adolescent girls with their selected demographic variables [Age, Religion, Residence, Monthly income, Father's education, Mother's education, Father's occupation, Mother's occupation, Type of family, Age of menarche, Duration of menses]. The findings of the study revealed that there were no statistically significant association between the pretest knowledge scores of study subjects and selected demographic variables.

## 6. Conclusion

Anemia is a major public health problem among adolescents. Based on the findings of the study, the following conclusions were drawn. Pre-test

findings showed that the majority of the subjects had inadequate knowledge it may be due to lack of previous exposure about prevention of anemia. Special importance should be given for developing corrective measures against nutritional anemia among adolescents. School based interventions among school going adolescent girls. There was an evident increase in the knowledge after the administration of Structured teaching program regarding prevention of anemia among adolescent girls. Thus, it was proved that STP was an effective method for providing knowledge regarding prevention of anemia among adolescent girls. Regular awareness program about prevention of anemia should be helpful among school going adolescents.

**7. Conflict of Interest:** None

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