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# Study to Assess the Knowledge Level of Adolescent Girls Regarding Anaemia and Its Prevention in Selected Community Area of Mehrauli, Delhi

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## ABSTRACT

Anaemia is a global public health affecting human health as well as social and economic development. It is more prevalent in adolescent females. It is preventable and treatable. The most common cause recognized is iron deficiency. It is one of the major health concerns with prevalence of 59.1% (NFHS 2019-2021) among adolescent girls. The research was conducted in the year 2023, November on 50 adolescent girls were taken as sample using random sampling technique in selected community area Mehrauli, Delhi. Research design used in the study was descriptive research design & data was obtained through simple random sampling technique with the help of structured questionnaire for accessing the level of knowledge regarding anaemia and its prevention. The finding of the study indicates that 46.48% girls were having average knowledge score and subjects were deficit of knowledge regarding anaemia and its prevention. The calculated chi-square value between the level of knowledge and demographic variables was not statistically significant as evident from $p < 0.05$ value.

***Key words:*** *Knowledge, Anaemia and its prevention, Adolescent girls, Community Area.*

## INTRODUCTION

According to the World Health Organization (WHO), Anaemia is defined as haemoglobin (Hb) levels <12.0 g/dL in women. It is a condition in which the number of red blood cells or their oxygen carrying capacity is insufficient to meet the body's physiological requirements. Anaemia is associated with impairment in oxygen transport affecting and individual's physical and mental well-being[1].

## CLASSIFICATION OF ANAEMIA

| Population | Non Anaemic | Mild Anaemia | Moderate Anaemia | Severe Anaemia |
|---|---|---|---|---|
| 6 - 59 months of age | ≥ 11 | 10-10.9 | 7-9.9 | <7 |
| | | | | |
| 5 - 11 years of age | ≥ 11.5 | 11-11.4 | 8-10.9 | <8 |
| | | | | |
| 12-14 years of age | ≥ 12 | 11-11.9 | 8-10.9 | <8 |
| | | | | |
| Non - Pregnant Women (≥ 15 years ) | ≥ 12 | 11-11.9 | 8-10.9 | <8 |
| | | | | |
| Pregnant women | ≥ 11 | 10-10.9 | 7-9.9 | <7 |

Anaemia is a major global public health problem that particularly affects young children, adolescent girls, pregnant and postpartum women. Girls are at a high risk of anaemia and malnutrition, out of which Iron deficiency account for about 50% of anaemia in school children and among women of reproductive age group (15-49 years) and 80% in children 2 - 5 years of age. Other nutritional deficiency beside Iron deficiency and Vitamin B12 folate, Vitamin A can cause anaemia all though the magnitude of their contribution is unclear. Infectious diseases in particular malaria, helminth infections, tuberculosis and hemoglobinopathies are other important contributory causes to the high prevalence of anaemia. Anaemia is the indicator of both poor nutrition and health. WHO estimates that 30% of women from 15 to 49 years of age worldwide are affected by anaemia which can affect their school performances, causes behavioural disturbance and affects reproductively in adult life and overall quality of life in general[2].

Iron deficiency occurs when the iron absorbency is not sufficient to meet the body's needs. This may be due to inadequate iron intake, poor absorption of iron, enhanced need of iron, and from chronic blood loss. Long-term iron deficiency leads to Iron-deficiency anaemia or nutritional anaemia. The prevalence of anaemia in India in adolescent girls is high due to poor dietary intake, low availability of iron, and chronic blood loss due to hookworm infestation and malaria and inadequate adolescent care services[3].

Although various programmes have been initiated by Government of India where the supplements are provided to meet the daily requirements of the vulnerable population. However, Recommended Dietary Allowances (RDA) for micronutrients is not yet met through diet or supplements. It is mandatory that proper and sustained dietary and behavioural changes should be made to alleviate micronutrients malnutrition[4].

**KEY FACTS (WORLDWIDE)**

- Anaemia is major public health concern, mainly affecting young children, pregnant and postpartum women, and menstruating adolescent girls and women.
- Low- and lower-middle income countries bear the greatest burden of anaemia, particularly affecting populations living in rural settings, in poorer households and who have received no formal education.
- Globally, it is estimated that 40% of all children aged 6–59 months, 37% of pregnant women and 30% of women 15–49 years of age are affected by anaemia.
- Anaemia caused 50 million years of healthy life lost due to disability in 2019. The largest causes were dietary iron deficiency, thalassaemia and sickle cell trait.

Anaemia is associated with poor cognitive and motor development in children, and work capacity in adults, influencing country economic development. Failure to reduce anaemia may result in millions of women experiencing impaired health and quality of life, and may impair children's development and learning. Anaemia is an indicator of both poor nutrition and poor health[7]. In 2019, global anaemia prevalence was 29.9% in women of reproductive age, equivalent to over half a billion women aged 15-49 years. Since 2000, the global prevalence of anaemia in women of reproductive age has been stagnant, while the prevalence of anaemia in pregnant women has decreased slightly[6].

## NATIONAL STATISTICS

According to International Institute for Population Sciences (2022) Anaemia control programmes in India are hampered by a lack of representative evidence on anaemia prevalence, burden and associated factors for adolescents. India is home to 253 million adolescents 10–19 years of age, among the largest cohorts globally. Limited nationally representative nutrition survey data exist for this age group. National Family Health Surveys (NFHS) cover only the 15to 19years age group and limited nutrition indicators. From 2005~2006 to 2019~2021, NFHS (National Family Health Survey) estimates indicate that anaemia prevalence among Indian adolescents aged 15~19 years has slightly increased (girls: 55.8% to 59.1%. There are nutritional and non-nutritional causes of anaemia: micronutrient deficiencies and genetic blood disorders, including haemoglobinopathies, inflammation, infectious diseases and other physiological conditions such as menstruation. Proximate factors included dietary factors, micronutrient deficiencies and the presence of genes for haemoglobinopathies[5].

## DELHI STATE STATISTICS

Delhi adolescent population is estimated to stand at more than 5.7crores, yet adolescents remain largely neglected, difficult-to-measure and hard-to-reach. Population in which the needs of adolescent girls are often ignored. In October 2019, Adolescent girls age 15-19 years who are anaemic in New Delhi were found to be 51.6%. Anaemia was higher in girls (39.6%, 48.7 million) than boys (17.6%, 23.7 million). Statistics revealed that anaemia was highly prevalent among adolescent girls. Among anaemic girls, majority had mild anaemia. Factors like vegetarian diet, underweight, deworming and presence of pallor were found to be associated with anaemia. There is need to conduct T-3 camps at regular interval in all schools to curb the problem of adolescent anaemia[8].

## MATERIAL AND METHODS

Under the Materials and Methods, The Research Approach chosen for the study was Quantitative Approach. The Research Design chosen for the study was Survey Design. The Dependent Variables selected for the study were the knowledge of adolescent girls and the independent Variable for the study was Anaemia and its Prevention. The Pilot Study was done on 10 Adolescent girls Adolescent girls living in selected community area of Mehrauli and the final Study was done on 50 Adolescent girls living in selected community area of Mehrauli. The rationale for selecting this setting was: Administrative approval, Cooperation, Availability of adequate samples and Approachable location of selected community area. The Population selected for the study were the adolescent girls living in selected community area of Mehrauli. The Sample size for the study were 50 Adolescent girls living in selected community area of Mehrauli. The Sampling Technique for the study was Purposive Sampling. The Sampling Criteria involves all the Adolescent girls (13-17 years) living in selected community area of Mehrauli and were willing to participate. The Data Collection Technique for the study was Questioning and the data collection tool for the study was Questionnaire.

## OBSERVATION AND RESULTS

This chapter deals with the analysis and interpretation of data collected from the responses of 50 adolescent girls in selected community area of Mehrauli, Delhi with the help of structured questionnaire. The purpose of the research project was to assess knowledge of adolescent girls regarding anaemia and its prevention in selected community area of Mehrauli, Delhi.

Analysis and interpretation of the data are organized under the following sections:

- **Section A:** Demographic Characteristics of Subjects
- **Section B:** Mean, Standard Deviation, Range of knowledge scores of adolescent girls regarding anaemia and its prevention.
- **Section C:** Association between Knowledge Mean scores and selected demographic variables.

## SECTION A

**Table 1-Frequency and Percentage distribution of sample characteristics (N=50)**

| Sr. No. | DEMOGRAPHIC VARIABLES | | DEMOGRAPHIC VARIABLES | FREQUENCY | % |
|---|---|---|---|---|---|
| 1) | **Religion** | a. | Hindu | **44** | **88%** |
| | | b. | Muslim | **6** | **12%** |
| | | c. | Christian | **0** | **0%** |
| | | d. | Sikh | **0** | **0%** |
| 2) | **Dietary Habits** | a. | Vegetarian | **18** | **36%** |
| | | b. | Eggetarian | **3** | **6%** |
| | | c. | Non-Vegetarian | **29** | **58%** |
| | | d. | Vegan | **0** | **0%** |
| 3) | **Parents' Education** | a. | No Formal Education | **7** | **14%** |
| | | b. | Primary | **7** | **14%** |
| | | c. | Secondary | **22** | **44%** |
| | | d. | Senior Secondary | **5** | **10%** |
| | | e. | Graduate and above | **9** | **18%** |
| 4) | **Parent's Occupation** | a. | Govt. Job | **2** | **4%** |
| | | b. | Private Job | **33** | **66%** |
| | | c. | Retired | **1** | **2%** |
| | | d. | Self Employed | **14** | **28%** |
| 5) | **Monthly Income** | a. | Below Rs. 5000 | **7** | **14%** |
| | | b. | Rs. 5000-10,000 | **16** | **32%** |
| | | c. | Rs. 11,000-15,000 | **17** | **34%** |
| | | d. | Above 15,000 | **10** | **20%** |
| 6) | **No of Siblings** | a. | No Siblings | **0** | **0%** |
| | | b. | One | **6** | **12%** |
| | | c. | Two | **28** | **56%** |
| | | d. | More Than Two | **16** | **32%** |

Data represented in **Table 1** shows that

- **88%** adolescent girls belonged to **Hindu** Religion where as **12%**belonged to **Muslim**.
- **58%** adolescent girls had **non-vegetarian** whereas**36%**had **Vegetarian** dietary habits**.**
- **44%** adolescent girls had their **Parent's Education as Secondary** whereas **18%** had **Graduation and above.**
- **66%** adolescent girls had their **Parent's Occupation as Private Job**whereas**28%** had **Self-employed.**
- **34%** adolescent girls had their Family's **Monthly Income** between **Rs. 11,000 – 15,000** where as **32%** had between **Rs. 5,000 – 10,000**.
- **56%** adolescent girls had **2 Siblings** and **32%**had **More than 2 siblings.**

## SECTION B

**Table 2: Mean, Standard Deviation, Range of knowledge scores of Adolescent girls regarding Anaemia and its prevention**

| COMPONENT | MAX. SCORE | RANGE | MEAN | SD |
|---|---|---|---|---|
| Scores (K) | **25** | **18-6 = 12** | **11.64** | **2.93** |

**Table 2 - shows the Mean Knowledge Score is 11.64 and SD2.93.**

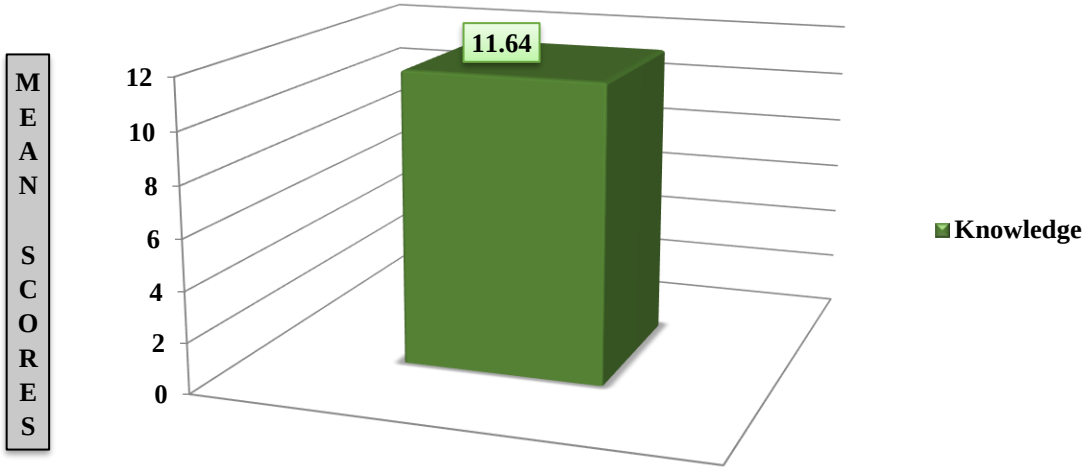


**Figure 1: Represents the Mean of Knowledge Scores of Adolescent girls.**

## SECTION C

## Significance Between Knowledge mean Scores and Selected Demographic Variables

### DEMOGRAPHIC VARIABLE – RELIGION

| | | | | |
|---|---|---|---|---|
| **RELIGION** | a. | **Hindu** | 44 | 88% |
| | b. | **Muslim** | 6 | 12% |
| | c. | **Christian** | 0 | 0% |
| | d. | **Sikh** | 0 | 0% |

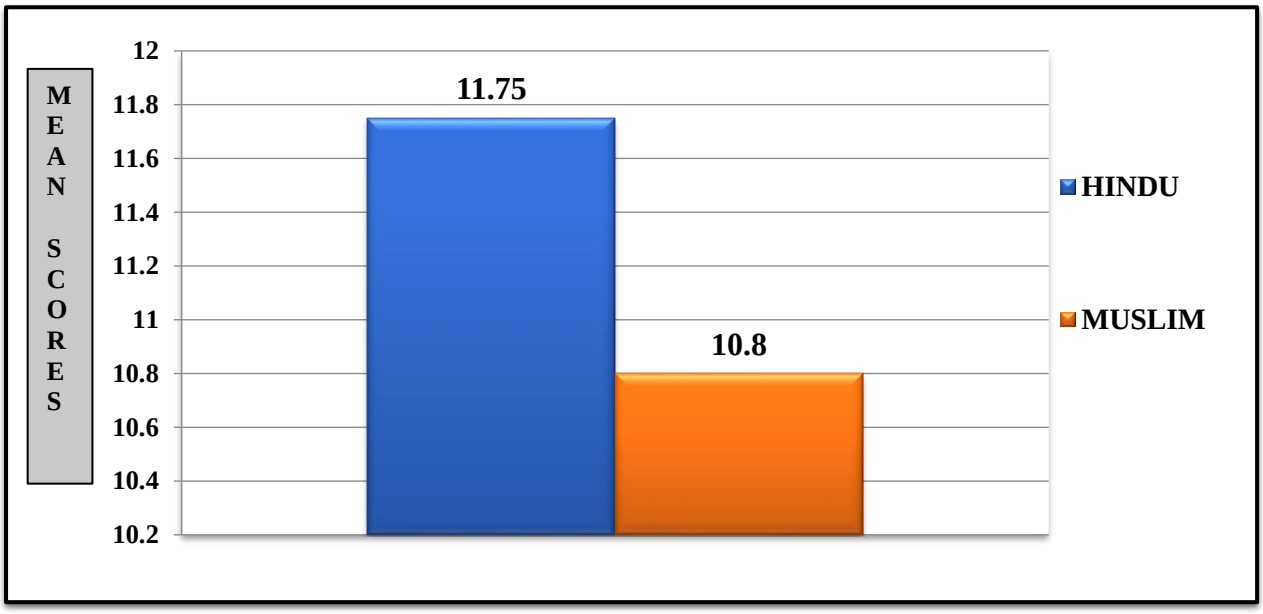


**Figure 2: Represents the Mean of Knowledge Scores of Study Subjects with Religion**

### DEMOGRAPHIC VARIABLE – DIETARY HABITS

| | | | | |
|---|---|---|---|---|
| **DIETARY HABITS** | a. | **Vegetarian** | 18 | 36% |
| | b. | **Eggetarian** | 3 | 6% |
| | c. | **Non-Vegetarian** | 29 | 58% |
| | d. | **Vegan** | 0 | 0% |

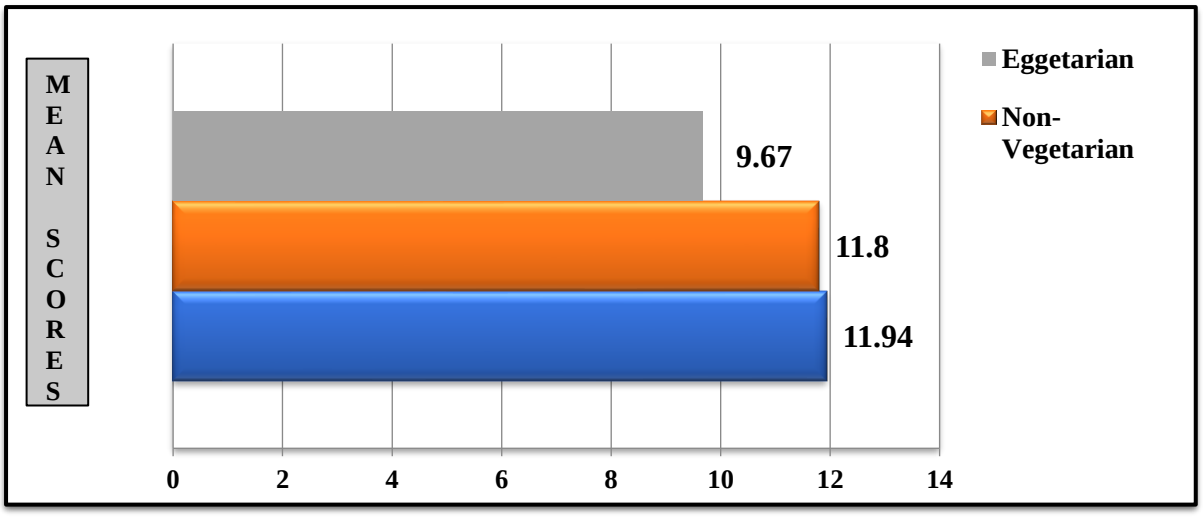


**Figure 3: Represents the Mean of Knowledge Scores of Study Subjects with Dietary Habits**

## DEMOGRAPHIC VARIABLE – PARENT's EDUCATION

| | | | | |
|---|---|---|---|---|
| **PARENT's EDUCATION** | a. | **No Formal Education** | 7 | 14% |
| | b. | **Primary** | 7 | 14% |
| | c. | **Secondary** | 22 | 44% |
| | d. | **Senior Secondary** | 5 | 10% |
| | e. | **Graduate and above** | 9 | 18% |

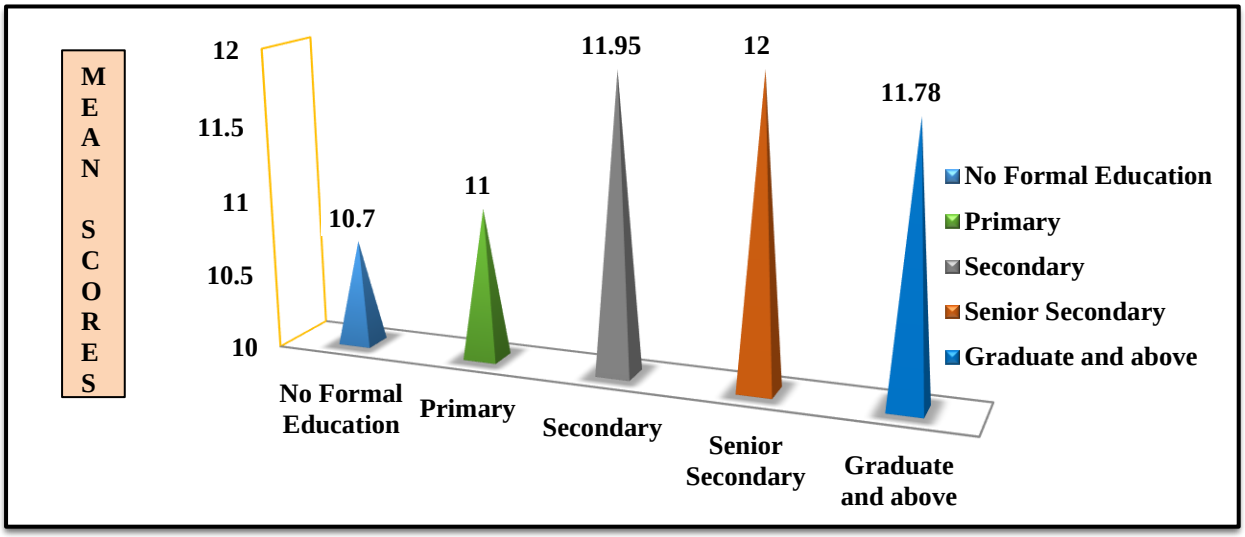


**Figure 4: Represents the Mean of Knowledge Scores of Study Subjects with Parent's Education**

## DEMOGRAPHIC VARIABLE – PARENT's OCCUPATION

| | | | | |
|---|---|---|---|---|
| **PARENT's OCCUPATION** | a. | **Govt. Job** | 2 | 4% |
| | b. | **Private Job** | 33 | 66% |
| | c. | **Retired** | 1 | 2% |
| | d. | **Self Employed** | 14 | 28% |

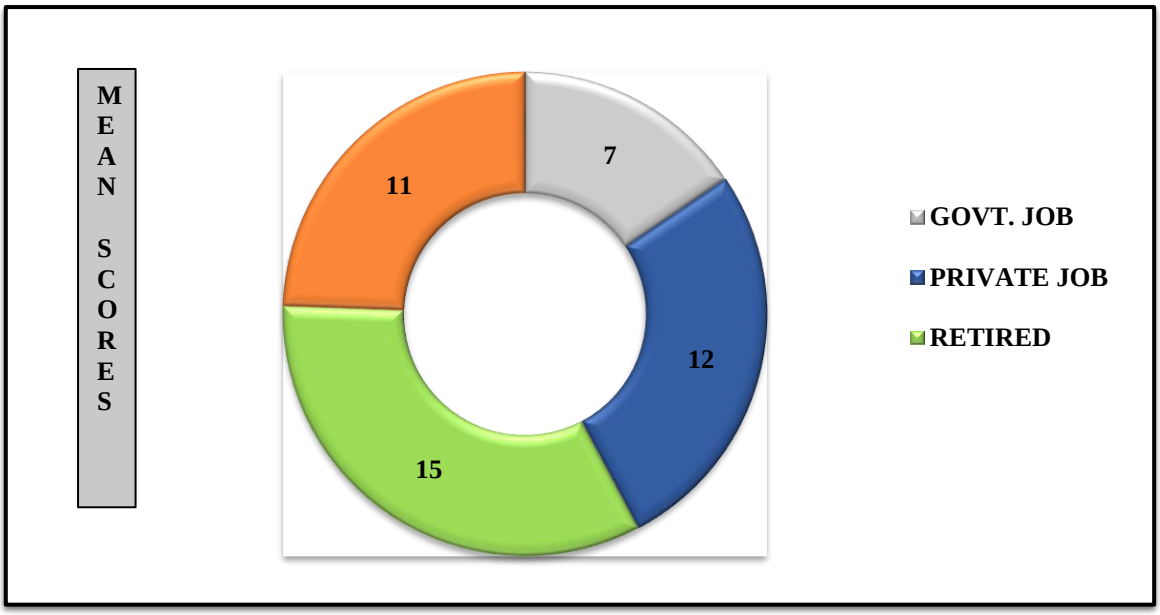


**Figure 5: Represents the Mean of Knowledge Scores of Study Subjects with Parent's Occupation**

## DEMOGRAPHIC VARIABLE – MONTHLY INCOME

| | | | | |
|---|---|---|---|---|
| **MONTHLY INCOME** | | **Below Rs. 5000** | 7 | 14% |
| | | **Rs. 5000-10,000** | 16 | 32% |
| | | **Rs. 11,000-15,000** | 17 | 34% |
| | | **Above 15,000** | 10 | 20% |

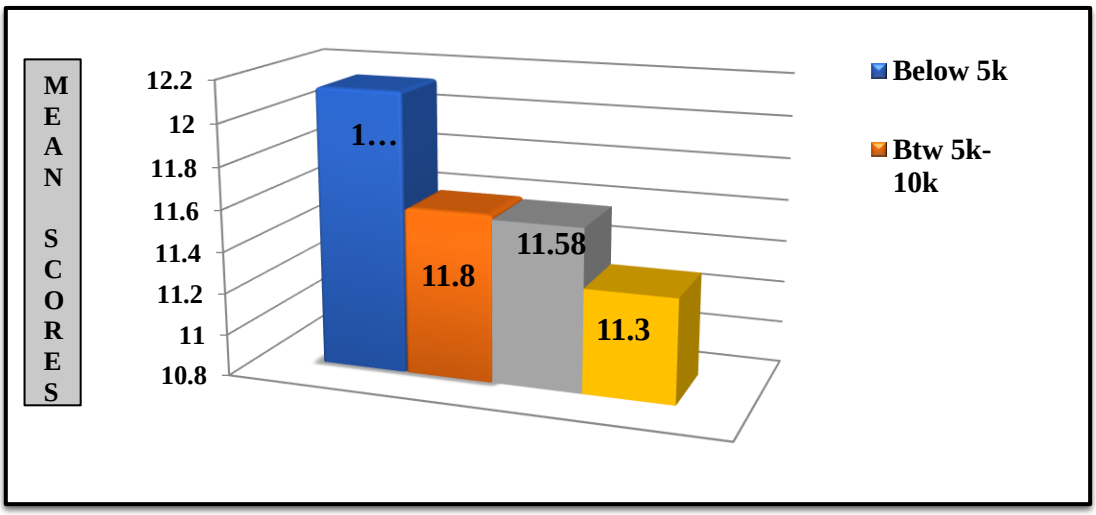


**Figure 6: Represents the Mean of Knowledge Scores of Study Subjects with Monthly Income**

## DEMOGRAPHIC VARIABLE – PARENT's EDUCATION

| | | | | |
|---|---|---|---|---|
| **NO OF SIBLINGS** | a. | **No Siblings** | 0 | 0% |
| | b. | **One** | 6 | 12% |
| | c. | **Two** | 28 | 56% |
| | d. | **More Than Two** | 16 | 32% |

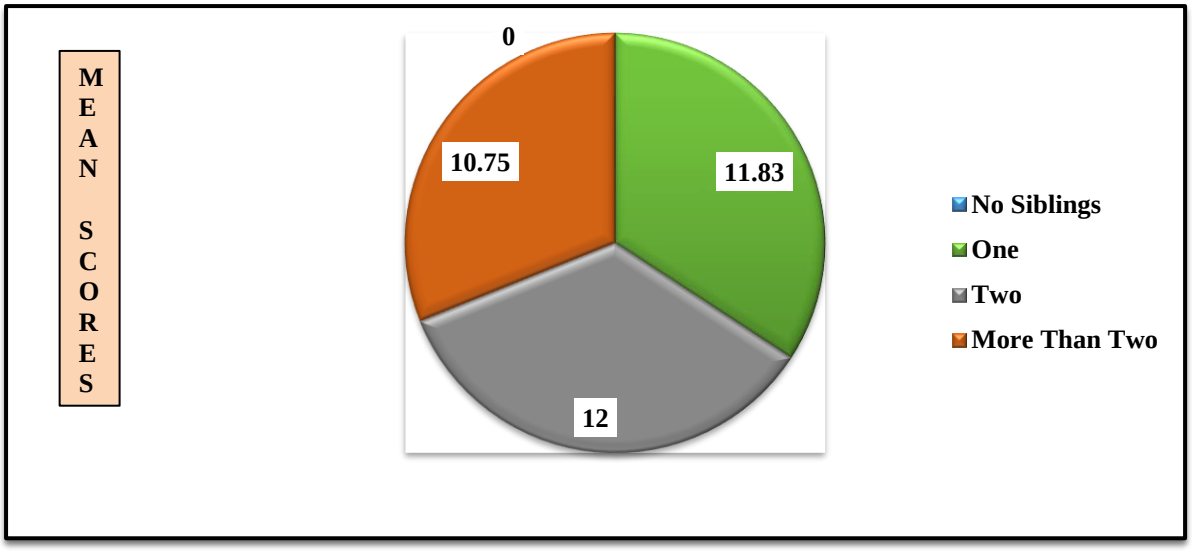


**Figure 7: Represents the Mean of Knowledge Scores of Study Subjects with No. of Siblings.**

**TABLE 3: Mean and Chi Square of Knowledge Scores Regarding Anaemia and Its Prevention According to Selected Demographic Variables**

| A. RELIGION | Frequency | Knowledge Scores | Mean (K) | $\chi^2$ | Df |
|---|---|---|---|---|---|
| a) Hindu | 44 | 516 | 11.7 | 0.04 (Non-Significant) | 3 |
| b) Muslim | 6 | 65 | 10.8 | | |
| c) Sikh | 0 | 0 | 0 | | |
| d) Christian | 0 | 0 | 0 | | |
| **B. DIETARY HABITS** | | | | | |
| a) Vegetarian | 18 | 215 | 11.94 | 2.24 (Non-Significant) | 3 |
| b) Non-Vegetarian | 29 | 337 | 11.6 | | |
| c) Eggetarian | 3 | 29 | 9.67 | | |
| d) Vegan | 0 | 0 | 0 | | |
| **C. PARENT's OCCUPATION** | | | | | |
| a) Govt. Job | 2 | 14 | 7 | 3.16 (Non-Significant) | 3 |
| b) Private Job | 33 | 398 | 12 | | |
| c) Self-Employed | 14 | 154 | 11 | | |
| d) Retired | 1 | 15 | 15 | | |
| **D. PARENT's EDUCATION** | | | | | |
| a) No formal Education | 7 | 75 | 10.7 | 2.89 (Non-Significant) | 4 |
| b) Primary | 7 | 77 | 11 | | |
| c) Secondary | 22 | 263 | 11.95 | | |
| d) Senior Secondary | 5 | 60 | 12 | | |
| e) Graduation &Above | 9 | 106 | 11.7 | | |
| **E. MONTHLY INCOME** | | | | | |
| a) Below 5k | 7 | 85 | 12.14 | 2.96 (Non-Significant) | 3 |
| b) 5k – 10k | 16 | 186 | 11.6 | | |
| c) 11k – 15k | 17 | 197 | 11.58 | | |
| d) >15k | 10 | 113 | 11.3 | | |
| **F. NUMBER OF SIBLINGS** | | | | | |
| a) No Sibling | 0 | 0 | 0 | 2.86 (Non-Significant) | 3 |
| b) 1 | 6 | 71 | 11.8 | | |
| c) 2 | 28 | 338 | 12 | | |
| d) >2 | 16 | 172 | 10.75 | | |

**S= Significant at p<0.05 level**

**Table 3** depicts that the tabled $\chi^2$ value for 3 degree and 4 degree of freedom were 7.8 and 9.4 respectively at p<0.05 level of significance and the calculated '$\chi^2$' value is less than the tabled value among all the selected demographic variables and

knowledge scores of adolescent girls regarding anemia and its prevention. The difference was found to be statistically **non-significant in all the cases**. So, it can be concluded that –

→ Religion had no significant relationship with the knowledge scores of adolescent girls regarding anaemia and its prevention.

→ Dietary Habits had no significant relationship with the knowledge scores of adolescent girls regarding anaemia and its prevention.

→ Parent's Occupation no had significant relationship with the knowledge scores of adolescent girls regarding anaemia and its prevention.

→ Parent's Education had no significant relationship with the knowledge scores of adolescent girls regarding anaemia and its prevention.

→ Monthly Income had no significant relationship with the knowledge scores of adolescent girls regarding anaemia and its prevention.

→ Number of Siblings had no significant relationship with the knowledge scores of adolescent girls regarding anaemia and its prevention.

## SUMMARY AND CONCLUSION

The present study was conducted with the aim to assess the knowledge of adolescent girls regarding anaemia and its prevention in selected community area of Mehrauli, Delhi.

**Objectives of the study were:**

- To assess the knowledge level of adolescent girls regarding anaemia and its prevention in selected area of Mehrauli, Delhi.
- To find the association between knowledge level and selected demographic variables of adolescent girls regarding anaemia and its prevention in selected community area of Mehrauli, Delhi.

**Major findings of the study were:**

→ 88% adolescent girls belonged to Hindu Religion where as 12%belonged to Muslim.

→ 58% adolescent girls had non-vegetarian whereas 36%had Vegetarian dietary habits.

→ 44% adolescent girls had their Parent's Education as Secondary whereas 18% had Graduation and above.

→ 66% adolescent girls had their Parent's Occupation as Private Jobwhereas28% had Self-employed.

→ 34% adolescent girls had their Family's Monthly Income between Rs. 11,000 – 15,000 where as 32% had between Rs. 5,000 – 10,000.

→ 56% adolescent girls had 2 Siblings and 32%had More than 2 siblings.

→ Mean Knowledge Score is 11.64 and SD 2.93.

→ The difference was found to be statistically non-significant in all the cases.

The present study was conducted to assess the knowledge of adolescent girls regarding Anaemia and its Prevention in Selected Community area of Mehrauli, Delhi. Survey research design was used in the study using purposive sampling technique and sample size was 50. Data was collected by structured questionnaire regarding knowledge of adolescent girls regarding anaemia and its prevention. Literature related to prevalence, knowledge and risk factors of anaemia was retrieved. The tool was prepared and pretested for validity and reliability. Pilot

study was conducted on 10 adolescent girls to check feasibility and practicability of the study in selected community area of Mehrauli, Delhi from 29.11.2023 to 02.12.2023. Final study was carried out in selected community area of Mehrauli, Delhi in the month of November and December 2023. Descriptive and inferential statistics were employed to analyze the data.

The following conclusions were made on the basis of findings of the study:

- It was found that Average knowledge score was 46.48%.
- Study subjects were deficit of knowledge regarding anaemia and its prevention.

### *Declaration by Authors*

**Ethical Approval:** Taken From Research Committee

**Acknowledgement:** None

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

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