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Awareness: Treatment and Prevention of Anemia among Higher Primary School Girls

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Abstract--- Introduction: *Among school-aged children, anemia is considerably known to be a global public health problem. Awareness about anemia at this age group enhances children's learning potential in schools, increases their fitness and work capacity.*

Objective: *To assess the knowledge regarding treatment and prevention of anemia among higher primary school girls between urban and rural schools.*

Methodology: *A descriptive comparative study was conducted among 450 (urban) and 450 (rural) school girls at higher primary schools, Belgaum district, Karnataka. Stratified random sampling technique was used to select the school girl children. A closed ended structured knowledge questionnaire was designed to assess the knowledge.*

Results: *Majority of 410 (91.1%) participants had poor knowledge, 36 (8.0%) had average knowledge and only 4 (0.9%) had good knowledge in urban, whereas in rural higher primary school 348 (77.3%), 100 (22.2%) and 2 (0.4%) had poor, average and good knowledge respectively. The mean knowledge score was 8.46 in urban was higher as compared to mean knowledge score of 6.54 in rural higher primary school girl children. Further, the knowledge score of urban school children was associated with their age, class, mother education and family income (p value <0.05). Moreover, in rural school, there was no significant association was found between knowledge scores and type of diet, mothers' occupation, religion, type family, number of siblings of participants (p value >0.05).*

Conclusion: *Current study showed majority of school girls had poor knowledge regarding anemia both in urban and rural. Educational intervention with creative innovations for awareness regarding prevention of anemia is required to overcome this issue.*

Keywords--- *Anemia, Awareness, Association, Compares, Children, Schools, Girls, Knowledge, Rural and Urban.*

I. INTRODUCTION

At the start of adolescence, the iron deficiency prevalence & subsequent anemia intensifies because of growth there is increase in nutritional requirements which gets worsened due to occurrence of physical and physiological changes.[1] In human life cycle, adolescence is a vulnerable period for the development of nutritional anemia, which has been constantly neglected by public health programs. Due to various reasons, girls are more likely to be a victim.[2]

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As a result, wide range of outcomes of anemia has serious implications in adolescence, & almost all consequences which are functional of iron deficit are sturdily associated to anemia severity. Due to anemia one may have lesser infection fighting resistance, impaired growth in physical & mental development, lower physical fitness, less working capacity & lesser performance in school. [1]

To reduce the anemia burden & deficiency of iron, new interventions, cost-effective anemia prevention & strategies were documented well and have the power for their planned interventions. [1] However, it's important, if these adolescent children could be empowered with the knowledge regarding strategies, the degree and causes of anemia in adolescence to prevent anemia so that the ongoing program would make a more powerful impact in reducing the disease burden.

II. MATERIALS AND METHODS

A descriptive comparative research study was conducted to assess and compare the level of knowledge regarding treatment and prevention of anemia among 450 urban and 450 rural girls in 7 Urban and 6 Rural higher primary schools in Belgaum. School girls who were studying in VI, VII and VIII standards and present in the school at the time of data collections.

Out of 129 urban higher primary schools, 7 were selected and out of 659 rural higher primary schools, 6 were selected randomly. Among 7 Urban schools 226 students (girls) were studying in 6^{th} standard, 370 in 7^{th} and 401 in 8^{th} standard. Using the stratified random sampling method according to different classes, picked 102 school girl children (samples) in the 6^{th} standard, 167 samples in 7^{th} standard and 181 samples in 8^{th} standard proportionately. Further, using the method of simple random sampling, girls from each class were selected who were fulfilling the sampling criteria. The same sampling procedure was used for selecting samples from the rural area. A closed ended structured knowledge questionnaire was prepared to collect the necessary data from the samples.

Before collecting the data prior permission was obtained from the Health and Family Welfare Officer, Belgaum, Block education officer and the Principals of selected schools. Keeping in mind the ethical aspect of research, consent form and tool (related to parent's data) was sent along with the child to home to get the parents signature (consent). Tool was distributed among the selected samples, with an instruction to complete and return them. The completed questionnaires were collected after 25-30 minutes.

Information's related to their parents was filled by their parents, which was sent to home along with child and were assured the anonymity and confidentiality of the information provided by them. Soon after the data collection completion, important information's regarding treatment and prevention of anemia was delivered to all the participants. Descriptive statistics: Frequency distribution, percentage, mean, was used to assess the demographic variables. Inferential statistics: Unpaired t-test was used to study the knowledge scores difference between the urban and rural higher primary school girls.

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III. FINDINGS

I. Description of Demographic Characteristics of Urban and Rural School Girl Children

- In Urban schools, out of 450, 180 (40.00%) school children were 13 years of age, 132 (29.3%) were 14 years, 126 (28.0%) were 12 years, 7 (1.6%) were 11 years and remaining only 5(1.1%) were 15 years. Almost similar was observed in rural area.
- In urban schools, 181 (40.2%) participants were belongs class VIII, 167 (37.1%) were class VII and remaining 102(22.7%) participants were class VI. The same was observed in rural area.
- In urban area, out of 450, more than 85% participants belongs to urban residence and in rural area almost all the participants belongs to rural residence.
- In urban schools, more than 50% participants had mixed dietary habit, 186 (41.30%) are vegetarian, whereas, around 70.00% participants are vegetarian, 143 (34%) had mixed food habit in rural.
- Majority 91.1% fathers of participants qualified with secondary, under graduate and pre-university education in urban, whereas in rural area about 91.3% were studied primary, secondary and pre-university but no one has done post-graduation.
- In urban area, around 50% fathers were self-employed, 148(32.9%) were working in private sector and 84(18.7%) fathers were government employee and none them were unemployed. In rural area around 85% of fathers were self-employed, 51(11.3%) were working private sector, 15(3.3%) were in government sector and only 3 fathers were unemployed.
- In urban area, more than 80% mothers were housewives, 53 (11.8%) were working in private sector and 22 (4.9%) mothers were government employee. In rural area almost all the mothers were housewives.
- Out of 450 participants in urban area majority them belongs to Hindu religion, followed by 82 (18.2%) belongs to Muslim and 42 (9.3%) belongs to Chirstian and in rural area more than 80% participants belongs to Hindu religion 51 (11.3%) belongs to Muslim and only 6 belongs to Chirstian.
- In urban area majority of participants belongs to nuclear family whereas in rural area majority participants belongs to joint family.
- Regarding family income, in urban area 182 (40.4%) participants has more than 15000 rupees and remaining all are less than 15000 rupees. In rural area only 24 (06%) has more than 15000 rupees and remaining all 423 (94%) less than 15000 rupees.
- In urban area, out of 450, around 50% participants had only one sibling, 120 (26.7%) had two siblings, 71 (15.8%) had no siblings and 51 (11.3%) participants had three and more siblings. In case of rural area, 159 (35.3%) participants had two siblings, 148 (32.9%) had three and more siblings, 136 (30.2%) had only one sibling and only 7 (1.6%) participants had no siblings.

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II. Analysis of Level of Knowledge Regarding Treatment and Prevention of Anemia in Urban and Rural and Urban Schools

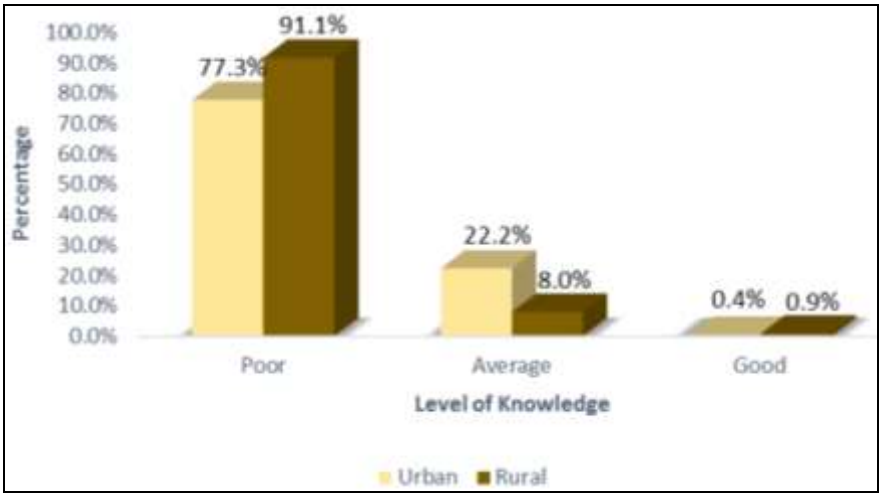

Figure 1: Distribution of study participants according to level of knowledge in Urban and Rural school

Majority of 758 (84.2%) participants had poor knowledge of anemia both in urban and rural area. 22.2% and 8.0% participants had average knowledge about anemia in urban and rural area respectively.

Section B: Area wise analysis of knowledge scores.

Table 1: Area-wise comparison of knowledge score between urban and rural n_1=450; n_2=450

Sr. No.	***Area***	***Mean±SD***		***Mean Difference***
		Urban	**Rural**	
1.	General information about blood and Anemia	2.46±1.00	2.53±1.03	0.76
2.	Risk factors and Causes of Anemia	0.63±0.72	0.88±0.80	0.25
3.	Clinical features and Diagnosis of Anemia	2.05±1.17	1.32±1.06	0.72
4.	Treatment and Prevention of Anemia	4.12±2.10	2.98±1.53	1.14
	Total	**8.46±2.89**	**6.54±2.76**	**1.92**

Part III: Comparison of Level of Knowledge Regarding Treatment and Prevention of Anemia between Urban and Rural Higher Primary School Girls

Table 2: Comparison of level of knowledge regarding treatment and prevention of anemia between urban and rural higher primary school girls.

n_1=450; n_2=450

Schools (Areas)	***Mean***	***Std. Deviation***	***Mean difference***	***Df***	***t value***
Urban	8.46	2.89	1.92	898	10.201
Rural	6.54	2.76			

t (898) = 1.96, p<0.05

Part IV: Association between Knowledge Concerning Treatment & Anemia Prevention & Selected Demographic Variables of Higher Primary School Girls in Urban And Rural Schools

Section A: Association between knowledge and selected demographic variables of girls in Urban Higher Primary Schools.

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In relation to the age, class studying, mother education and family income, the calculated chi-square value and Fisher-Exact test value is greater than table value Hence the null hypothesis is rejected at 5% significance level. Therefore, concludes a significant association between age class studying, mother education and family income and knowledge score (p value<0.05).

The calculated value of Fisher-Exact test and chi-square test regarding type of diet, residence, source of information, Father's education, Father & Mothers' occupation, religion, type of family and number of siblings are less compared to table value. Hence the null hypothesis is not excluded at 5% significance level. Therefore, the results of Fisher-Exact test show no significant association between type of diet residence, source of information, Father's education, Father & Mothers' occupation, religion, type of family and number of siblings and knowledge score (p value >0.05).

Section B: Association between knowledge regarding treatment and prevention of anemia and selected demographic variables of girls in Rural Higher Primary Schools

The same result was observed as seen in urban area in all the demographic characteristics. The calculated value of Fisher-Exact test and chi-square is greater compared to the table value. Hence the null hypothesis is excluded at 5% significance level. Therefore, the results of Chi-Square test for rural schools show that there is significant association between Age, Residence, father education, family income of participants, Class, Previous source of Information, mother education, father occupation of participants and knowledge score (p value <0.05).

The calculated value for Fisher-Exact test and chi-square is less compared to table value. Hence the null hypothesis is not excluded at 5% significance level. Therefore, the results of Chi-Square of test reveals that there is no association between mother occupation, number of siblings of participants, type of diet, religion, type family of participants and knowledge score (p value >0.05).

IV. DISCUSSION

It is considered that anemia is considerably associated with the educational status of adolescent girls and also their mothers. In the present study, mother's of participants in urban area was up to secondary (39.8%), primary (24.7%) and pre-university (20%) education, whereas mother's of participants in rural area was up to primary (44%) and secondary education (42%).

A study conducted by Choi et. al., where children with more educated mothers were significantly less likely to develop iron deficiency anemia than those who were with less educated mothers; this group consumed more protein and iron from animal sources than did the children of less educated mothers.[3]

Level of knowledge regarding anemia was very poor in study participants of both in urban and rural area. But compared to rural area study participants, urban area study participants were having average knowledge about anemia. Similar kind of findings was reported in the study conducted by Chandrasekhar M et. al., 2016, that majority of adolescent girl's knowledge regarding prevention of iron deficiency anemia is nearly average and they opined that there is a necessity to improve the knowledge in rural adolescent girls.[4] In another study, Divya D et al, 2017, reported that majority of adolescent girls (57%) were having inadequate knowledge, more than 1/4th (36%) of

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adolescent girls were having moderate knowledge and few (7%) participants having adequate knowledge regarding the haemoglobin levels and the anemia.[5]

Association of level of knowledge was compared with the study parameters among study participants of urban area. The results revealed that there is a significant association between age of the participants and the knowledge score. This shows that as the age increases the knowledge regarding the anemia was also increased and this same association was also observed in participant's classes, mothers education and family income as the education of parents and the family income plays an important role and will influence on diet also.

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