A Descriptive Study to Assess the Knowledge and Prevalence of Nutritional Anemia among Adolescent Girls 14–18 Years in a Selected Educational Institution at Mangalore

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Abstract

Aim: The aim of this study to identify the knowledge and prevalence of nutritional anemia among adolescent girls 14–18 years.

Materials and Methods: The investigator has adopted a descriptive survey approach to find out the knowledge and prevalence of nutritional anemia among adolescent girls. The sample comprised 60 adolescent girls between the age group of 14–18 years. Sample was selected using nonprobability, convenient sampling technique was used. Data were collected multifactor knowledge questionnaire. Data were analyzed using descriptive and inferential statistics. In that Chi-square test for association of knowledge and prevalence of anemia with their selected demographic variables.

Results: The results of this study showed that, majority of the subjects (73%) had moderate knowledge of anemia, 22% had poor knowledge, and only 5% of them had good knowledge of anemia. The prevalence of anemia in adolescent girls was 56% with mild anemia 27%, moderate 17% had severe anemia. Investigator found the positive correlation between the knowledge scores and Hb level, that is, r = 0.342 and negative correlation between the Hb level and the BMI level. The value was found to be −0.0868. There is a no association between the prevalence of anemia and demographic variables and also there is a no association between knowledge on anemia and demographic variables.

Conclusion: The findings were concluded that majority of respondents had moderate knowledge related to anemia and the prevalence of anemia in girls was mild were as there is positive correlation between the knowledge level and the level of Hb.

Keywords: Adolescent girls, knowledge, nutritional anemia, prevalence

INTRODUCTION

Adolescence is an important time in the life of an individual. It is a time of major physical changes including growth spurt in which the size and shape of the body changes. During adolescence there is significant psychological as well as behavioral development, putting great stress on young people and those around them.[1]

Many adolescent girls have a significant fear of obesity which makes them have abnormal eating attitudes, and behaviors that are consistent with sub-clinical eating disorders.[2]

In human development adolescence is an intense period of physical and mental metamorphosis. Genetic codes set upper limit of optimum growth, so also the environment in which adolescent thrives can help or hinder realization of that goal. Diet of Indian adolescents is inadequate in iron, protein, calcium, and overall calories.[1]

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Gender-based discrimination has impact on woman's health and longevity. It manifests in selective nutritional neglect of girls, differential investment on healthcare and educational opportunity. Young girls who grow poorly become stunted women and are likely to give rise to LBW babies.[3]

Overall age-specific death rate of adolescents is lower than that of other age groups. It is lowest in 10–14 years followed by 15–19. Only 7% seek hospital visits. Although boys and girls commonly suffer from malnutrition and communicable diseases, accidents, and mental illness, boys do not face additional demands due to menstruation and pregnancy.[2]

In India, adolescents account for 25–30% of the total population. They form a large growing segment of the population and they represent a major potential human resources for the overall development of the nation.[3]

Nearly 27% of adolescents in developing country are anemic. ICRW studies have documented high rates in India (55%) and Nepal (42%). This higher prevalence in adolescents is due to poor iron status contributed by pubertal growth spurt, less intake due to poverty and body weight concerns and heavy blood loss. The onset of menarche makes the adolescent girls to become more vulnerable and highly susceptible to anemia.[4]

Nutritional anemia is one of the most frequently observed deficiencies throughout the world among the woman of reproductive age-group. Higher prevalence is observed in developing countries. Nutritional iron status of adolescent girls is a matter of great concern since these girls enter reproductive life soon after attainment of menarche. The pre-pregnancy anemia status of adolescents is crucial and has long-term intergenerational consequences.[3]

A study on nutritional status of adolescent girls of urban slums and the impact of IEC on their nutritional knowledge and practices was conducted in 2002. 2500 adolescent girls registered slums located in twin cities of Hyderabad and Secunderabad. Iron deficiency anemia was found to be the most common nutritional problem observed in them. They found that the knowledge of adolescent girls was poor. The IEC intervention resulted in improvement of nutritional knowledge.[5]

Objectives
The objectives are as follows:
1. To determine the knowledge of adolescent girls of 14–18 years regarding nutritional anemia.
2. To identify the prevalence of nutritional anemia among adolescent girls of age group 14–18 years.
3. To associate the demographic data with knowledge of adolescent girls regarding nutritional anemia.
4. To assess the co-relationship between knowledge and prevalence of nutritional anemia among adolescent girls of 14–18 years.

Research hypothesis
H1: There will be significant association between knowledge scores and level of nutritional anemia among adolescent girls as measure by hemoglobin test using Sahli's hemoglobin meter.

H2: There will be significant association between knowledge scores and prevalence of nutritional anemia with the selected demographic variables.

MATERIALS AND METHODS
Research approach
The research method adopted for the present study is descriptive survey approach.

Research design
In the present study, the investigator selected the descriptive survey design, keeping in the view of objectives of the study.

Setting of the study
"The present study was conducted in St. Agnes Pre-university College at Mangalore."

Population
The population of the targeted population is adolescent girls in the college aged between 14 and 18 years.

Sample and sampling technique
In the present study, non-probability convenient sampling technique use by the investigator.

Sample size
Total sample size for 60 adolescent girls aged between 14 and 18 years who met the inclusion criteria were selected for the present study.

Sampling criteria
Inclusion criteria
The following criteria were included in the study:
- Students registered in the selected college enrolled for the year 2006–07.
- Students who gave consent.

Exclusion criteria
The following criteria were excluded from the study:
- Adolescent girls who were already on treatment for anemia.
- Girls with any medical conditions like hemophilia.

Description of the tool
The final draft of the tool comprised of three sections.
- Section A – Baseline Pro forma (ten items)
  It included identification data such as code number, age, type of family, number educational status of the subject and parents, occupation of parents, type of diet, monthly family income, and availability of information regarding anemia.
- Section B – Schedule for collecting information on knowledge
  It included the following areas Knowledge about anemia – 21 items

- Section C – Assessment of prevalence of anemia. Biochemical assessment
  - Sahli's method has been used to assess hemoglobin level.
  - Stool examination for ova and cyst.
- Anthropometry
  - Height and weight
  - Physical Examination
  - General and Systemic

Statistics
Descriptive statistics
Frequency and percentage distribution are used to analyze the demographic data.

Inferential statistics
Chi-square test used to assess the association of knowledge and prevalence with their demographic variables.

RESULTS
The data were entered into master sheet for tabulation and statistical processing the obtained data were analyzed, organized, and presented under the following headings:

Section I: Baseline pro forma which includes age, education of the subject, parent's educational status, parent's occupation, type of family, occupation, type of diet, monthly family income, and source of information about anemia.

Section II: Prevalence of anemia which is categorized into different grades of anemia.

Section III: Correlation between knowledge and prevalence of anemia.

Section IV: Association between knowledge and prevalence of anemia and selected demographic variables such as age, type of the family, parents' educational status, family income, and diet pattern area of residence.

Section I: Distribution of respondents according to socio-demographic variables of nursing professionals of selected hospitals in Mumbai
Table 1 depicts that, majority of 71% were in the age group of 16–17 years. All students belonged to 2 years PUC with Art subject, 27% of the fathers had completed their primary education. Most (38%) of the mothers have completed their high school education that 43.4% of the fathers and 35.85% of mothers were employed. Thirty-seven percent of the families had an income between Rs. 3001 and 5000. Majority of the subjects (72%) belonged to nuclear family and 27% belonged to the joint families and 2% to extended families. Majority of the subjects (93%) have been consuming non-vegetarian food and 7% consumed vegetarian diet. Majority of the subjects (93%) were from urban area and 17% were from rural area. Thirty percent of the students gained information from text books, 25% gained information from health personnel. Twenty-seven percent of the students

gained information from media and 10% from relatives and 6% from friends [Table 1].

Section II: Knowledge on anemia
Table 2 shows that majority of the subjects (73%) had moderate knowledge of anemia, 22% had poor knowledge, and only 5% of them had good knowledge of anemia [Table 2].

Table 3, it is evident that the prevalence of anemia in adolescent girls was 56% with mild anemia 27%, moderate 17. Nobody had severe anemia [Table 3].

Section III: Correlation between knowledge and prevalence of anemia
Table 4 shows that, correlation between knowledge scores and Hb values was 0.342. Values are correlated at $P < 0.01$ level. So as the knowledge level of the students rises, the prevalence of anemia decreases. The relationship between Hb values of the sample and BMI had slight negative correlation. The value was found to be −0.0868 [Table 4].

Section IV: Association between anemia and selected variables
H_2: There will be significant association between prevalence of nutritional anemia with the selected demographic variables at 0.05 level.

Data presented in Table 5 show that all the calculated Chi-square values are less than the tabled Chi-square value at 0.05 level of significance. Hence, there is a no association between the prevalence of anemia and the selected demographic variables [Table 5].

H_2: There will be significant association between knowledge scores on nutritional anemia with the selected demographic variables at 0.05 level.

Data presented in Table 6 show that all the calculated chi-square values are less than the tabled chi-square value at 0.05 level of significance. Hence, there is a no association between knowledge on anemia and the selected demographic variables [Table 6].

DISCUSSION
Radhamohan conducted a descriptive study to assess the knowledge and prevalence of nutritional anemia among adolescent girls of 14–18 years. It shows that the subjects have overall knowledge of 49.6%. Subject had average knowledge in meaning and incidence, causes, signs and symptoms, diagnostic measures, and prevention whereas in treatment area they had poor knowledge. The prevalence of anemia was 44% with mild 27% and moderate 17% and no cases of severe anemia were found. There was no significant association between knowledge and prevalence of anemia and selected demographic variables at 0.05 level of significance. The results of the study showed that the adolescent girls possess average knowledge on anemia. The Hb values improve with the increase in the knowledge scores. Hence, prevalence decreases

with increase in knowledge. Hence, programs to increase knowledge on anemia can help to decrease the prevalence of anemia.[6]

Parveen *et al*. conducted the study to assess the prevalence of anemia and identify dietary practices among adolescent girls in

selected school revels that 66% of the adolescents were anemic; out of which 31% were mild anemic, 25% moderate, and 10% were severely anemic. There was a significant relationship between anemic statuses of the sample with their frequency of eating junk food. A pamphlet on prevention and management

Table 1: Distribution of subjects according to demographic variables (*n*=60)

Variables	Frequency	Percentage
Age (in years)		
15–6	9	15
16–17	43	71
17 and above	8	14
Education level PUC with group opted		
Arts	60	100
Educational status of the father		
Illiterate	2	3
Primary	16	27
High School	13	21
Pre-university	11	18
Graduation and any other	13	21
Educational status of the mother		
Primary	12	20
High School	23	38
Pre-university	10	17
Graduation and any other	3	5
Father's occupation		
Daily wages	13	21
Employed	23	38
Self-employed	15	25
Unemployed	2	4
Mother's occupation		
Daily wages	11	19
Employed	19	32
Self-employed	8	14
Unemployed	15	25
Income		
Below 1000	6	10
1001–3000	22	37
3001–5000	10	16
5001 and above	22	37
Type of family		
Nuclear	43	72
Joint	16	26
Extended	1	2
Food pattern		
Vegetarian	4	7
Non-vegetarian	56	93
Area of residence		
Urban	50	83
Rural	10	17
Source of information		
Textbooks	21	35
Health personnel	17	29
Friends	4	7
Relatives	7	12
Media	19	32

Table 2: Distribution of subjects according to knowledge grades (*n*=60)

S. No.	Knowledge Grade	f	%
1.	Good (15 and above)	3	5
2.	Moderate (8-14)	44	73
3.	Poor (below 8)	13	22

Table 3: Distribution of subjects according to grades of anemia (*n*=60)

S. No.	Grades of Anemia	Frequency	Percentage
1.	Normal (≥12 g/dl)	34	56
2.	Mild (10–12 g/dl)	16	27
3.	Moderate (8–10 g/dl)	10	17
4.	Severe (<8 g/dl)	0	0
	Total		100

Table 4: Correlation between knowledge and Hb level and BMI level

S. No.	Content	*r* value
1.	Knowledge score versus Hb value	0.34
2.	Hb value versus BMI	−0.0868

Table 5: Association between prevalence of anemia and demographic variables

Variables	Non anemic	Anemic	χ^2	Significance
Age in years				
14–16	4	5	0.572	NS
16–17	18	25		
17 and above	4	4		
Father education				
Illiterate and primary	11	7	0.067	NS
High school and above	23	17		
Mothers education				
Illiterate	8	5	5.109	NS
High school	9	13		
PUC and graduation	17	6		
Income in rupees				
Below 3000	15	13	0.204	NS
3001 and above	19	13		
Food pattern				
Vegetarian	1	3	0.641	NS
Non-vegetarian	33	23		

Table 6: Association of knowledge with selected demographic variables

Variables	Non anemic	Anemic	χ^2	Significance
Father's education				
Illiterate and primary	8	10	0.553	NS
High school and above	22	18		
Mother's education				
Illiterate to high school	21	15	0.624	NS
PUC and above	11	12		
Income in rupees				
Below 3000	20	18	0.020	NS
3001 and above	12	10		
Type of family				
Nuclear	25	18	1.408	NS
Joint and extended	7	10		
Area of residence				
Urban	25	25	0.270	NS
Rural	3	6		

of anemia among adolescent was developed and disseminated to the adolescent girls.[7]

Chandrakumari *et al.* conducted the study on prevalence of anemia among adolescent girls in a rural area of Tamil Nadu shows that overall prevalence of anemia was found to be 48.63% (*n* = 124). The majority of the anemic girls (55.64%, *n* = 69) were having mild degree of anemia. Among 255 girls, 188 (73.73%) were from the early adolescent age group (10–14 years). Prevalence of anemia (52.24%) was high among the late adolescents and those belonging to low socio-economic class.[8]

Conclusion

The findings were concluded that majority of respondents had moderate knowledge related to anemia and the prevalence of anemia in girls was mild as there is positive correlation between the knowledge level and the level of Hb.

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