



KNOWLEDGE LEVEL REGARDING ANEMIA AMONG ADOLESCENT GIRLS IN DHARWAD, KARNATAKA

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ABSTRACT

Anemia is the most common nutrient deficiency caused due to deficiency of iron, commonly found in adolescent girls and women. A study on knowledge level regarding anemia among adolescent girls in Dharwad, Karnataka through assessment of the knowledge, attitude and practice among the reproductive age group' was undertaken. A questionnaire was prepared, consisting general information, knowledge level, practices followed and frequency of consumption of foods rich in iron. The government school in the village of Narendra, near Dharwad District of Karnataka State was selected for the study. The adolescent girls (N=60) studying in high school were selected for the survey. Nutritional knowledge regarding anemia was imparted to the participants. Pre and post knowledge test were compared to study impact of nutrition education. Adolescent girls belonged to age group of 14 to 16 years. Family occupation was agriculture 33 (55%) and non-agriculture 27 (45%). Significant increase was observed in knowledge level of adolescent girls from 26.50 (44.80%) in pre-test to 53.00 (87.86%) post-test with t – value of 8.68. No significant difference was observed in practices followed. Green leafy vegetables, other vegetables, milk and milk products were consumed on daily basis. Fruits, germinated grains and fermented foods were consumed on weekly basis. Majority of them that is nearly 70 % of adolescent girls were vegetarians and did not consume meat. Egg was consumed on a weekly or monthly basis. Among nuts, groundnut was commonly consumed. There was no much difference observed in frequency of food consumption between pre-test and post-test.

KEY WORDS: Anemia, Iron, deficiency, adolescent



INTRODUCTION

The word 'Anemia' has its origin from a Greek word meaning 'without blood'. Anemia is caused by quantitative or qualitative deficiency of hemoglobin or both and indicates the status of poor nutrition and poor health. Anemia as a condition in which the hemoglobin content of blood is lower than normal because of deficiency of one or more essential nutrients regardless of the cause of such deficiency. Iron deficiency is the most prevalent cause for anemia the world over and is affecting one out of every three inhabitants. The number of anemic people worldwide to be staggering two billion and that approximately 50 per cent of all anemia can be attributed to iron deficiency. Studies conducted in India have also reported nutritional anemia especially during the critical period of growth and development. Anemia is one among the leading cause of maternal deaths in India. Apart from the risk to the mother it is also responsible for increased incidence of premature births, low birth weight babies and perinatal mortality (Gautham *et al.*, 2004). Moreover it has been reported that more than three quarters of Indian children under the age of three were anemic. It has also been observed that there was no significant difference between rural and urban children. Unfortunately women and children are more risk prone to anemia than men. Anemia is a major global problem affecting 20 - 70 percent of the population in various countries. In India, it is an important public health problem affecting people from all walks of life (Thirumani devi and Uma 2005).

Iron deficiency anemia is a major contributory cause of lowered resistance to infection, poor cognitive development, retardation of physical and mental development, fatigue, lowered physical activity, poor mental concentration and productivity in preschool children. Iron deficiency and anemia steals vitality from the young and the old and threatens the health of women especially pregnant women. Women of reproductive age need more iron than men. The super imposed requirements related to reproduction, menstruation, pregnancy and lactation urge the need for increased requirement of iron for women of reproductive age. Hence the study on knowledge level regarding anemia among adolescent girls in Dharwad, Karnataka through assessment of the knowledge, attitude and practice among the reproductive age group' was undertaken.

MATERIALS AND METHODS

Development of Questionnaire: The questionnaire was prepared, consisting information regarding general information, knowledge level regarding anemia, practices followed and frequency of

consumption of foods rich in iron. In general information questions like name, age, family size, family members, education, occupation and income were asked. Knowledge level questions included general information and causes of anemia, sources, supplements and symptoms. Practice question included cleanliness, hygiene practice and also consumption of iron/folic acid supplements. Frequency of consumption of foods such as green leafy vegetables, other vegetables, fruits, meat, egg, nuts etc were noted. Great care was taken to see that the questions in the questionnaire were unambiguous, clear, complete and comprehensive. The questionnaire was prepared in conformity with the objective of the study.

Location of the study: The government school in the village of Narendra, near Dharwad District of Karnataka State was selected for the study.

Sample selection: The adolescent school children studying in high school were selected for the survey. The sample size was 60.

Method of data collection: The 60 participants were asked to fill the questionnaire. They were asked to describe their personal details and general information. The participants were asked to tick Yes/No for knowledge and practice questions whereas for frequency of consumption they were asked to tick under daily, twice a week, weekly, fortnightly and monthly. Nutritional knowledge regarding anemia was imparted to the participants through power point presentation. The post knowledge test was taken using the same questionnaire. Pre and post knowledge test were compared to study impact of nutrition education.

Statistical Analysis

Frequency and percentage was calculated for the data collected. Paired t-test was used to compare the pre and post-test. Significance level was fixed at 5 per cent. The data were analysed using MS-Excel and SPSS ver.16.0.

RESULTS

Table 1 depicts socio-demographic profile of adolescent girls studying government school in Narendra Village, Dharwad District. The girls belonged to the age group of 14-16 years. Family size of all the adolescent girls was small which consisted of 3-6 members. With respect to the occupation of the head of the family, agriculture was the main occupation among 33 (55%) families whereas 27 (45%) families were non agriculturist. According to Aggarwal scale for income classification, the families of all adolescent girls in Narendra belonged to low income group with annual income less than Rs. 1,74,665/-.

The results on impact of nutrition education on knowledge level of adolescent girls are presented in



table 2. Knowledge level questions were divided into three sub groups based on general information and causes of anemia, iron sources and supplements and symptoms of anemia. The mean frequency values and percentage for general information and causes before education was 24.78 (41.30 %) and that after education was 54.11 (90.19%) with *t* – value of 5.70. Pre and post-test values for sources and supplements were 28.20 (47.00%) and 51.20 (85.33%) respectively with *t* – value of 4.92. Pre and post-test values for symptoms were 27.67 (46.11%) and 52.83 (88.06%) respectively with *t* – value of 4.24. The mean frequency values and percentage for overall (total) knowledge for pre test was 26.50 (44.80%) and that for post test was 53.00 (87.86%) with *t* – value of 8.68. The results were significant at 5 per cent level of significance. The nutrition education regarding anemia had any significant impact on knowledge level of school going adolescent girls by increasing their knowledge level regarding anemia.

The results on impact of nutrition education on health practices followed by adolescent girls are presented in table 3 and appendix II. The questions

regarding cleanliness, hygiene, health food and iron/folic acid supplements were asked. The mean for pre test was 49 with 81.66 per cent while that for post test was 51 with 85 per cent. *t* – value at 5 per cent level of significance was 1.80. There was no significant difference observed among pre and post test group. Hence the nutrition education did not have any significant impact on practices followed by school going adolescent girls.

Table 4 depicts frequency of food consumption among adolescent girls. From the table we can see that majority of the girls consume green leafy vegetables, other vegetables, milk and milk products on daily basis whereas fruits, germinated grains and fermented foods are consumed on weekly basis. Majority of them that is nearly 70 per cent of adolescent girls did not consume meat. Egg was preferred more on a weekly or monthly basis. Among nuts, groundnut was commonly consumed but majority of them did not consume nuts at all. Not much difference observed in frequency of food consumption between pre-test and post-test.

Table 1 Socio-Demographic profile of adolescent girls

Sl No	Demographic profile	
1	Age	14-16 years
2	Family size	Small family (3-6 members)
3	Occupation of family head	
	Agriculture	33(55%)
	Non agriculture	27(45%)
4	Family Income (annual)	Low (<Rs.1,74,665)

**Table 2 Impact of nutrition education regarding anaemia on knowledge level of adolescent girls
N=60**

Sl. No	Knowledge level	Pre-test	Post-test	<i>t</i> – value @ 5%
1	General information and causes	24.78 (41.30 %)	54.11 (90.19%)	5.70*
2	Sources and supplements	28.20 (47.00%)	51.20 (85.33%)	4.92*
3	Symptoms	27.67 (46.11%)	52.83 (88.06%)	4.24*
	Total	26.50 (44.80%)	53.00 (87.86%)	8.68*

***Significant
Mean (Percentage)**



Table 3 Impact of nutrition education on health practices followed by adolescent girls
N=60

	Pre-test	Post-test	t - value @ 5%
Practices followed	49 (81.66%)	51 (85.00%)	1.80 ^{NS}

Mean (Percentage)

NS - Non significant

DISCUSSION

According to Table 1, socio-demographic profile of adolescent girls reveals that girls belonged to the age group of 14-16 years. Family consisted of 3-6 members. Agriculture was the main occupation of head of the family that is 33 (55%) families, this may be due to the village been surrounded by agriculture land. Whereas 27 (45%) families were non agriculturist. According to Aggarwal scale for income classification, the families belonged to low income group with annual income less than Rs. 1,74,665/-. Low income may be due to agriculture as occupation and lack of efficient returns from the yield. Other occupation included daily wage labour, driver and carpenter etc. which also does not yield more income.

The results on impact of nutrition education on knowledge level of adolescent girls are presented in table 2. From the pre test it was clear that adolescent girls of government school in Narendra had lack of knowledge regarding anemia, general information and causes of anemia, iron sources and supplements and symptoms of anemia. Similar results were reported by Angadi and Ranjitha (2016) in adolescent girls in urban slums and Pareek and Hafiz (2015) among adolescent girls. Lack of knowledge may be due to lack of nutrition education at school, lack of awareness regarding anemia, lack of information provided as to why they should consume iron/folic acid supplements, lack of health care centres and low socio-economic status of the family. Hence the nutrition education regarding anemia had an significant affect on increasing knowledge level of adolescent girls from 44.80 per cent before intervention to 87.86 per cent after intervention.

The results on impact of nutrition education on health practices followed by adolescent girls are presented in table 3 shows that the nutrition education did not have any significant impact on practices followed. The is because majority of the girls that is 81.66 per cent were already following cleanliness and hygiene practice and were consuming iron rich foods like green leafy vegetables and also iron/folic acid supplements. Hence, though after imparting knowledge the percentage of girls following the practices were increased to 85 but there was no significant difference observed.

From table 4(see Appendix), consumption of green leafy vegetables, other vegetables, milk and milk products on daily basis may be due to low cost, easy availability and agriculture as the occupation where as consumption of fruits on weekly and monthly basis maybe due to lack of health awareness, cost factor and availability of fruits nearby. Majority of girls do not consume meat, maybe due to religious and cultural factor. Very less consumption of eggs, groundnut or no consumption of other dry fruits and nuts may be due to low income of the family. The frequency of food consumption before and after test did not differ much.

Mid day meal was provided at school and all the girls consumed mid day meal. The main food items were rice and *sambar*, *bisibelebath* with *khara shev*, egg occasionally, *uppittu* and *sheera* sometimes. None of the girls carry lunch box to school.

SUMMARY

- Adolescent girls selected for study belonged to age group of 14 to 16 years.
- All the adolescent girls had small family consisting of 3 to 6 members.
- Occupation of the family was agriculture 33 (55%) in and non agriculture in 27 (45%).
- Majority of them belonged to low income group.
- Significant increase was observed in knowledge level of adolescent girls from 26.50 (44.80%) in pre-test to 53.00 (87.86%) post test with *t*-value of 8.68.
- No significant difference was observed in practices followed.
- Green leafy vegetables, other vegetables, milk and milk products were consumed on daily basis. Fruits, germinated grains and fermented foods were consumed on weekly basis.
- Majority of them that is nearly 70 % of adolescent girls were vegetarians and did not consume meat. Egg was consumed on a weekly or monthly basis.
- Among nuts, groundnut was commonly consumed. Other dry fruits and nuts were not consumed by adolescent girls.



- There was no much difference observed in frequency of food consumption between pre test and post test.

CONCLUSION

Anemia is most common among adolescent girls. From this study it is clear that the girls had lack of knowledge and awareness regarding anemia, its causes and symptoms and treatment. Hence the nutrition education imparted increased the knowledge level significantly. Therefore for the prevention and cure of anemia and to reduce the burden of anemia on health, there is an increased need to create awareness and impart knowledge regarding anemia among adolescent girls.

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APPENDIX

Table 4 Frequency of food consumption among young adolescent girls

Sl No	Food Group	DAILY		TWICE A WEEK		WEEKLY		FORTNIGHT		MONTHLY		NEVER	
		Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	pre	post	pre	post
1	Green leafy vegetables	36 (60.00%)	38 (63.33%)	8 (13.33%)	13 (21.67%)	16 (26.67%)	9 (15.00%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2	Other vegetables	47 (78.33%)	44 (73.33%)	5 (8.33%)	8 (13.33%)	6 (10.00%)	6 (10.00%)	2 (3.33%)	2 (3.33%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
3	Yellow colored fruits	6 (10.00%)	6 (10.00%)	2 (3.33%)	11 (18.33%)	44 (73.33%)	37 (61.67%)	2 (3.33%)	3 (5.00%)	6 (10.00%)	3 (5.00%)	0 (0%)	0 (0%)
4	Amla and citrus fruits	4 (6.67%)	4 (6.67%)	2 (3.33%)	2 (3.33%)	41 (68.33%)	43 (71.67%)	4 (6.67%)	4 (6.67%)	9 (15.00%)	7 (11.67%)	0 (0%)	0 (0%)
5	Milk and milk products	48 (80.00%)	48 (80.00%)	4 (6.67%)	6 (10.00%)	7 (11.67%)	5 (8.33%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1.67%)	1 (1.67%)
6	Animal foods	0 (0%)	0 (0%)	3 (5.00%)	3 (5.00%)	0 (0%)	0 (0%)	3 (5.00%)	6 (10.00%)	13 (21.67%)	10 (16.67%)	41 (68.33%)	41 (68.33%)
7	Egg	5 (8.33%)	5 (8.33%)	3 (5.00%)	3 (5.00%)	17 (28.33%)	19 (31.67%)	4 (6.67%)	7 (11.67%)	20 (33.33%)	15 (25.00%)	11 (18.83%)	11 (18.83%)
8	Germinated grains	7 (11.67%)	7 (11.67%)	9 (15.00%)	17 (28.33%)	37 (61.67%)	30 (50.00%)	3 (5.00%)	6 (10.00%)	3 (5.00%)	0 (0%)	1 (1.67%)	0 (0%)
9	Fermented products	0 (0%)	0 (0%)	8 (13.33%)	13 (21.67%)	42 (70.00%)	42 (70.00%)	4 (6.67%)	1 (1.67%)	6 (10.00%)	4 (6.67%)	0 (0%)	0 (0%)
10	Nuts	14 (23.33%)	14 (23.33%)	4 (6.67%)	4 (6.67%)	12 (20.00%)	12 (20.00%)	4 (6.67%)	7 (11.67%)	8 (13.33%)	13 (21.67%)	18 (30.00%)	10 (16.67%)

Mean (Frequency)