A Study on Anemia Related Knowledge Among Adolescent Girls

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Abstract: To determine the nutritional knowledge among adolescent girls the study was undertaken on 100 adolescent junior college students of Hyderabad. A questionnaire has been developed to collect the demographic profile of the subjects, food habits of the subjects and food-frequency questionnaire (FFQ) was used. Most of the subjects were within the age range of 15-17yrs, living in nuclear family, having non vegetarian food habits and belong to middle income group. The mean height and weight of the subjects was156.4±5.98cm and 46.2±8.28 kg. 63% of the subjects were normal and 33% subjects were underweight. Most of the subjects were having faulty food habits; 60% of subjects eat out once a week followed by23% subjects eat out twice a week and most of them preferred to eat fast foods and carbonated beverages. Only 25% of the subjects were having good knowledge about anemia. The results show that the nutrition education intervention is required for the adolescent girls to create awareness and to disseminate the knowledge related to the prevention and control of anemia.

Keywords: Anemia, Food Frequency, Food Habits, Nutritional Knowledge

1. Introduction

Anemia is a condition in which the number of red blood cells and consequently their oxygen-carrying capacity is insufficient to meet all the body's physiologic needs which are vary with a person's age, gender, altitude, smoking and different stages of pregnancy. Iron deficiency is thought to be the most common cause of anemia globally, but some other nutritional deficiencies (including folate, vitamin B_{12} and vitamin A), acute and chronic inflammation, parasitic infections, and inherited or acquired disorders can cause anemia (4). Anemia is estimated to contribute to more than 115,000 maternal deaths and 591,000 perinatal deaths globally per year (6). Anemia is very high (ranging between 80~90%) in preschool children, adolescent girls pregnant and lactating women (11,12). There are about 1.2 billion adolescents in the world, which is equal to 1/5th of the world's population and their numbers are increasing. Out of these, 5 million adolescents are living in developing countries (International Letters of Natural Sciences 2 (2015) 24-32 -25-. Out of 1 billion total Indian populations, 21% are adolescents (10). The world's adolescent population is facing a series of serious nutritional challenges which are not only affecting their growth and development but also their livelihood as adults. Yet, adolescents remain a largely neglected, difficult- to- measure and hard -to-reach population, in which the needs of adolescent girls in particular, are often ignored (5). The commonest causes of anemia in developing countries, particularly among the most vulnerable groups (pregnant women and preschool age children), are nutritional disorders and infections (7). Although various programmes have been initiated by sovereign government where the supplements are provided to meet the protein and calorie requirements of the vulnerable population. However, Recommended Dietary Allowances (RDA) for micronutrients is not met through diet or supplements. It is mandatory that proper and sustained dietary and behavioral changes should be made to alleviate micronutrient malnutrition. For the development of intervention programme there is a need to assess the existing knowledge level of subjects therefore, the present study has been conducted to assess the nutritional status and anemia related knowledge of the adolescent girls.

2. Methodology

Hundred college going girls from junior college

Hyderabad was selected randomly to assess their nutritional status and anemia related knowledge and awareness. A structured questionnaire developed to assess their demographic profile, food habits of the subjects Food frequency questionnaire (FFQ) was used to collect the food intake related information. Anemia related knowledge and awareness was assessed by using a pretested questionnaire. Height and weight of the subjects was measured by the standardized methods. The data has been analyzed by suitable statistical methods.

3. Results

In the study subjects more than fifty per cent of the subjects were in the age range of 14-16 years, 87% were living in nuclear family, most of them were non vegetarian and belongs to middle income group (table 1). The table 2 shows that the average height of the subjects was 156.4±5.98 average weight was 46.2±8.28 and average BMI 19.5 kg/m^2. The nutritional status of the subject has been assessed by the help of WHO cut offs on percentile basis. It was found that 63% of the subjects were normal, 33% underweight, 3% subjects were overweight and 1% subject was obese.

The table 3 shows that 56% of subjects take 3 meals per day and 39% subjects take 2 meals per day. More than 50% of the subjects having habit of eating out once a week and 23% subjects eat out twice a week followed by 7% eating thrice a week.

The FFQ of the subjects shows that 100% of subjects were consuming rice daily and 25% were consuming other cereals daily. Only 29% of the subjects were consuming pulses daily.18% of the subjects were consuming green leafy vegetables daily. Very few subjects (5%) were consuming fruits daily rest of them were consuming once or twice in a week or even once or twice in month. Almost 40% of the subjects were consuming non vegetarian items once or twice in month, though they are non-vegetarian. Milk consumption was very less among the adolescents only 13 % were consuming milk daily. All the subjects were consuming fats and sugars daily. Other food items like ice-cream, chocolates, carbonated beverages, soft drinks, fruit juices, potato chips, samosa, burger and cake were consumed daily by 40 subjects, 20% were consumed2-3 times a week followed by26% subjects were consumed weekly once. (table 3,4)

In anemia related knowledge assessment, only one forth (25%) subjects were having good knowledge about anemia and 36% were having fair knowledge and rest of them were having poor knowledge about anemia. More than 50% of the girls having knowledge about the definition of anemia, haemoglobin, common symptoms of anemia and they know about the causes of anemia. Only 30% of girls know about the sources of anemia. Very few girls know about the normal haemoglobin levels and the consequences of anemia. They don't know about the serious consequences of untreated anemia. Only 17% girls know about the anemia prophylaxis programme which is running in India. The electronic media and press media were the major source of information among the adolescent girls.

Table 1. Demographic profile of the subjects.

S.no.	Variable	Frequency n=100)
1.	Age	Percentage
	14-16	85
	16-18	15
2.	Family income	
	10,000	44
	15,000	14
	20,000	15
	>25,000	27
3.	No. of Family members	
	2	3
	4	35
	5	40
	>10	22
4.	Family type	
	Joint	13
	Nuclear	87

Table 2. Anthropometric measurements of the subjects.

S.no.	Variables	Mean ±SD
1.	Measurements	
	Height	156.4±5.98
	Weight	46.2±8.28
	BMI	19.5±2.7
2.	Nutritional status	Frequency percentage
	Underweight	33
	Normal	63
	Overweight	3
	obese	1

Table 3. Food habits of the subject.

S.no.	Variable	Frequency Percentage
1.	Meal pattern	
	1	2
	2	39
	3	56
	More than 3	3
2.	Eating out	Frequency Percentage
	Yes	91
	No	9
3.	Frequency of eating out	
	Once a week	60
	Twice a week	23
	Thrice a week	7
	More than thrice	6
4.	Types of snacks	Frequency Percentage
	Burgers,Pizzas,Creams	14
	Chips, Fried items	48
	Sweets, Ice creams	19
	Any other	14
	Tea, coffee	40
	Soft/energy drinks	17
	Fruit juices, squashes	42
	Carbonated drinks	40
	Milk shakes	42

Table 4. *Food Frequency of the subjects*

Food item	Daily	2-3 Times in a week	Weekly once	Monthly once	Rarely	Not at all
Cereal	100	0	0	0	0	0
Rice	28	13	15	17	10	17
Other cereals	5	15	22	22	13	23
Pulses	29	23	22	14	6	6
Green leafy vegetables	18	22	22	18	10	10
Roots and tubers	24	19	13	20	9	15
Other vegetables	6	16	22	30	13	13
Fruits	5	19	29	16	12	19
Meat,poultry& fish	13	20	20	15	14	18
Milk and milk products	13	16	16	18	14	23
Fats and oils	95	3	2	0	0	0
Sugars	10	19	26	18	10	17

Table 5. *Anemia related knowledge among subjects.*

S.no.	Questions	Frequency percentage of correct answers
1	What is anemia?	60
2	What is hemoglobin?	75
3	Which of the blood cell when decreased causes anemia?	69
4	Which mineral deficiency in the body causes anemia?	63
5	In anemic female, the hemoglobin is?	11
6	What is laboratory test to diagnose anemia?	10
7	Heavy blood loss due to menstruation can cause anemia	72
8	Do anemic adolescent girls have weakness,	69
9	Do anemic girls become breathless easily?	73
10	Are anemic girls more prone to repeated infections?	45
11	Will anemic girls suffer from lack of concentration?	69
12	Do anemic girls have pale eyes, pale tongue and pale nails?	73
13	Can Anemia be prevented?	60
14	Can regular exercise prevent anemia?	48
15	Can anemia be treated by iron tablets?	69
16	What are the sources of Iron	30
17	Avoiding consumption of tea, coffee after food can improve absorption of iron. Is this true	45
18	Inclusion of Vitamin C helps in iron absorption?	59
19	Is severe anemia life threatening?	34
20	If severe anemia not treated on time, needs blood transfusion?	57
21	Do you have any knowledge about Anemia prophylaxis Programme?	17

Table 6. *Source of Information.*

S.no.	Source of Information	Frequency
1	Electronic media	35%
2	Press media	20%
3	Teacher or school	12%
4	Family	10%
5	Hospital and clinic	8%

4. Discussion

The evaluation of the respondent's knowledge level was done using a questionnaire comprised of total 40 questions, 8 questions based on Socio-demographic data, 21 on anemia knowledge and 11 on food habits. Among the source of information on anemia reported by respondents were electronic media (35%), Press media (20%), teacher or school (12%), family (10%) and hospital or clinic (8%). A similar type of study on adolescents in 8 secondary schools in Malaysia, source of information on anemia reported by respondents were electronic media (51%), health provider (31%), peer (27%), mass media (20%), teacher or school (18%), family (15%) and hospital or clinic (11%) (8). Poor nutrition, early childbearing & reproductive health complications compound the difficulties of physical development in young girls in India. Most girls are not adequately aware of their increased nutritional needs for growth (especially increasing their food intake to meet calorie demands of pubertal growth); resulting in girls being underweight & of short stature. Their current nutritional status will decide the wellbeing of the present as well as the future generations. The general meal pattern showed that majority of subjects consumed 3 major meals, breakfast, lunch and dinner. Poor health habit is also one of the reasons of nutritional anemia. Only 56% of the subjects were seen to consume 3 meals a day, and out of which 39% subjects were not taking their breakfast. Similar study done by (2, 19,14) also revealed inadequate intake of these food groups in adolescents. The requirement for iron increases during the adolescence for girls due to rapid growth and menstrual losses. Green leafy vegetables are good sources of iron and calcium. Iron content is high in spinach. It is easily available and inexpensive source of many other nutrients other than iron. Consumption of tea is observed to be high among all the age group of girls in our study. Majority of them consumed tea in the evening and 40%

of girls took tea with breakfast higher intake of tea and its consumption along with the meals hinder iron absorption in the body and could be the reason for low haemoglobin levels in the subjects. This thus, necessitates the need to organize awareness programs offering counselling to adolescent girls. Moreover, educating girls in schools and colleges, about the importance of regular and healthy meals and the seriousness of good health, could help in lowering the prevalence of anemia in less developed cities.

5. Conclusion

There is need to include iron rich food in the diet of adolescents. Grams, maize, Mustard leaf, powder milk and red meat has high iron component so at least once in a week girls should eat iron rich food to get recommended iron per day to gain normal body mass index. Students are taking food twice a day, they can increase food intake thrice a day so from this at least adolescents will be able to get 18 mg/day iron. Iron pot use for cooking, will also increase iron in the diet. Social marketing is one of the ways to create awareness of anemia and demand for supply of the health services from the government side. Counseling can be done to empower adolescents to make understand the importance of precaution measures to avoid anemia in adulthood. Training program should be organized to make people aware about fortification of food as well as importance of iron for adolescents. To start health education sessions with more focus on specific issues and information on anemia, general information, such as the adverse effects of drinking tea with meals in reducing the absorption of iron and about the side effects of misuse or overuse of iron pills especially those women who don't follow a doctor's prescription and health instructions. To plan for these types of awareness program, information about basic health parameter about iron deficiency anemia in women and children is needed, and how they have changed over time.

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Contribution

PP took the lead for planning and design, provided guidance on data collection and analysis of the data, and wrote the manuscript. AH collected the data, contributed to the study planning and writing of the manuscript.

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