DIETARY INTAKE OF IRON RICH FOOD AND AWARENESS ON IRON DEFICIENCY ANAEMIA AMONG FEMALE STUDENTS IN RAWALPINDI

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ABSTRACT

Objective: To assess the awareness and intake of iron rich diet amongst college girls with a particular focus on the knowledge about the iron deficiency anaemia.

Materials and Methods: A cross sectional survey was conducted in Government College for Women Rawalpindi, during September – December 2010. One hundred and thirty five students of intermediate level aged 17-19 years were selected through convenient sampling technique. The sample size was calculated by WHO-sample size calculator, keeping 95% CI, $p<0.05$ statistically significant, anticipated population proportion of iron deficiency anaemia 35% and absolute precision at 0.08.

Results: The awareness about iron rich diet and iron deficiency anaemia was satisfactory (86%), while poor intake of iron rich diet amongst adolescent college girls (52%) was found. About 65% of the participants had knowledge about the causes of iron deficiency anaemia (IDA); while 72% and 80% knew about the prevention and treatment of IDA respectively.

Conclusions: Results indicate the gap between knowledge and practices about IDA; it highlights the need of an effective health promotional programme to raise awareness about the significance of iron in young female diet and to highlight the consequences when it is absent.

Keywords*:* Iron rich diet, Iron deficiency anaemia, Nutritional awareness in adolescent girls.

INTRODUCTION

A balanced diet has a pivotal role throughout the life. However adolescence is a crucial period of life where nutrition is of paramount importance as certain nutritional deficiencies may influence the future health; it is considered the best time to intervene for their physical and mental development[1]. Iron deficiency anaemia (IDA), is considered to contribute to death and disability as a risk factor for maternal and perinatal mortality, and also through its direct contributions to cognitive impairment, decreased work productivity, and death from severe anaemia. On average, globally, 50% of the anaemia is assumed to be attributable to iron deficiency. Children having IDA show low IQ and poor cognitive performance in school[2-3] and in young adolescent girls it causes reduced physical, mental capacity, diminished concentration in work and negatively affect educational performance[4]. Amongst childbearing women iron deficiency increases the risk of maternal mortality, low birth weight, prematurity and perinatal mortality[5,6].

IDA is the commonest nutritional problem affecting 3.5 billion people around the world[7], the most affected groups are pregnant women (48%) and 5-14 year old children (46%). Preschool children (39%) are also a high- risk group[7]. Iron deficiency is most common among groups of low socioeconomic status and in large families[8,9]. Literacy levels particularly of mothers has got direct effect on the prevalence of anaemia in preschool children[10].

The majority of the population in Pakistan is comprised of children and women of child bearing age (15-49 years) who are disproportionately affected by iron deficiency[11-12]. A prevalence of 45% of iron deficiency anaemia in Pakistan shows the lack of preventive and promotional public health measures[13]. It has been found that overall, more than one fifth of women in Pakistan suffer from IDA[14] and more affected

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between the age groups 17-30 years, which also poses a major threat to their future safe motherhood[15,16].

Although there is general awareness regarding this persisting public health problem in the country as evident by several national and international surveys[17], the work on awareness and intake of iron rich diet amongst adolescent girls is scanty and needs attention.

The present study aimed at assessing the awareness about iron rich food in young adolescent college girls, with a particular focus on knowledge about iron deficiency anaemia. Findings of this study could be crucial to formulate the appropriate health promotion programs to tackle nutritional problems among adolescent girls.

MATERIAL AND METHODS

This cross-sectional descriptive study was conducted in Govt. College for Women, Rawalpindi during September – December 2010. A sample size of 135 was calculated through WHO-sample size calculator by keeping 95% CI, $p<0.05$ statistically significant, anticipated population proportion of IDA 35% and absolute precision at 0.08. One hundred and thirty five intermediate level female students, aged 17-19 years were selected through convenient sampling, 63 students from F.Sc and 72 from FA groups. Informed consent was taken from the participants and assurance of confidentiality was given.

Data was collected through pre-tested structured questionnaire. The student's personal data, family history, socio-economic status, mother and father education, occupation, family size, student's dietary intake of iron rich diet and knowledge about anaemia were recorded. Food consumption of the students was assessed using a 24-hour recall method.

Data was analyzed in SPSS version 16. Descriptive statistics were taken out on demographic profile and correlation test was performed to determine the association between students' knowledge and awareness about iron rich diet and anaemia and parent's education. p value <0.05 was considered statistically significant.

RESULTS

Majority (45%) of the girls were 18 years old, 30% were 19 years old and 25% were 17 years old; 63% of the participants' fathers were university graduates, whereas only 37% of their mothers had graduation degree. Forty six percent of the participants came from medium-sized family (3-4 members); detailed demographic characteristics are shown in table-1.

Table-1: Demographic characteristics of the participants.

Variables	Percentage (%)
Age of students	
17 years	25
18 years	45
19 years	30
Discipline of the students	
Science group	47
Arts groups	53
Father's education	
Graduate	63
Metric	25
Under-metric	12
Mother's education	
Graduate	37
Metric	30
Under-metric	33
Father's occupation	
Government job	35
Private business/job	65
Number of family members	
1-2	15
3-4	46
>5	39
Housing	
Rented	60
own	40

Fruits were highly popular among the girls, being consumed at least 4 times in the week by

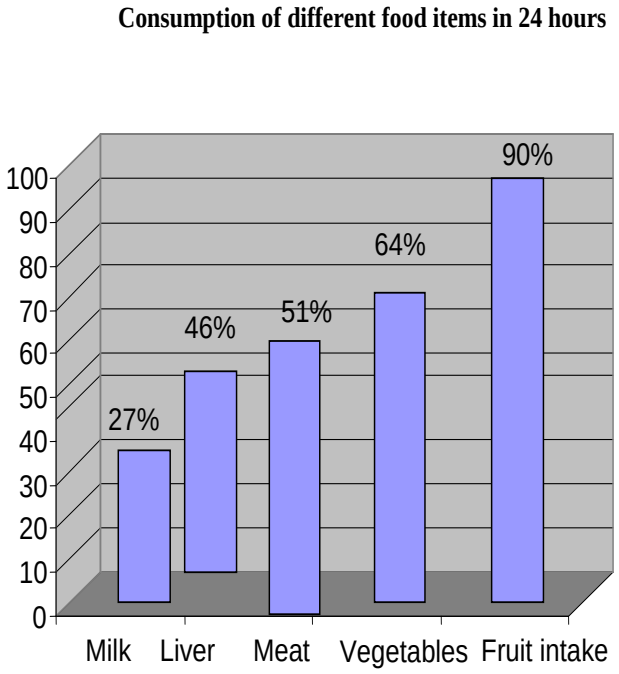

Figure-1: Consumption of different food item in 24 hours

the significant proportion of the participants (90%). Most of the fruits consumed were seasonal apple, banana, guava and orange. The largest proportion of energy (67%) was obtained from carbohydrates, followed by protein (18%) and fats (15%). Figure-1 shows the consumption of different food items in 24 hours.

A significant positive correlation was found (r= 0.70, p<0.001) between the knowledge of iron rich-diet in science group students as compared to arts group. Parents education and awareness about IDA and iron rich diet of students were also positively correlated (r=0.62, p<0.001). It shows that if parents particularly mother, are educated it does affect the dietary pattern and healthy life style of the children.

The results show lack of knowledge about the iron-rich food amongst participants as majority (91%) reported egg and milk are good sources of iron, 88% said fruits and vegetables, 86% said pulses and legumes, 72% fish, 88% liver and 60% stated meat is the good source of iron. When the participants asked about intake of iron rich food, 90% reported about the intake of fruits, 78% green leafy vegetables, 48% liver, 62% fish, 54% meat and 74% egg and milk. These results show knowledge about iron rich food is not reflected in the practice.

Majority (86%) of the participants had knowledge of IDA. Among those who were aware of IDA, 37% themselves were anemic and rest's (49%), siblings, friends or relatives had IDA, which provides them the knowledge and awareness about IDA.

The participants who knew about the causes of IDA mentioned that the inadequate intake of liver (86%), fish (72%), meat (57%), vegetables (88%), and fruits (76%) are the main reasons. About 72% participants said that IDA can be prevented and 21% had no idea about prevention; while 7% said that IDA cannot be prevented.

DISCUSSION

The most severe consequence of iron depletion is iron deficiency anaemia (IDA), and it is still considered the most common nutrition deficiency worldwide and it is shown by research that Iron deficiency is most common among groups of low socioeconomic status[3,15,16]. Data of present study collectively indicates that majority of the participants belonged to the families of middle socio-economic status.

Awareness about iron rich diet was satisfactory amongst the college girls especially the science group but the knowledge and awareness was not reflected in the practice as significant percentage of the girls were not taking iron rich diet.

Data was collected on parent's education in this study and shows that the girls whose mother's were educated were more inclined and motivated to take care of their diet as compared to others as significant correlation was found amongst parents education and intake of iron rich food in the present study, it is evidence based

that Literacy level particularly of mothers has got direct effect on the diet and prevalence of anaemia in children[16,17].

There were some misconceptions amongst the girls about certain food items to be iron-rich like milk and egg. This highlights the importance of having health education and awareness raising campaigns regarding the iron rich diet and its importance especially for females in their reproductive age group. Previous studies show that daily iron intake of Pakistani population is according to the RDA, but its bioavailability is low due to food composition habits[5,7].

This is evident that lack of awareness about iron rich diet and IDA are major public health problems which need to be prioritized and tackled seriously. Effective measures should be undertaken to improve the nutritional status and reduce the prevalence of iron deficiency anaemia in women of child bearing age (15-49 years). Appropriate strategies, commitments from all relevant stake holders and health education interventions at the grass root level should be the way forward.

CONCLUSION

Awareness regarding iron rich diet and IDA was satisfactory amongst the college girls and directly linked with the educational and social status of the girls. Although gap between awareness and practices have been highlighted by this study; which indicates the need of an effective health promotional programme to raise awareness about the importance of iron in young female diet. Iron fortification in frequently consumed food item is recommended.

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