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Original Research Article

Pattern of knowledge and consumption of iron among teachers of reproductive age group in Jammu region: a cross sectional study

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ABSTRACT

Background: Iron deficiency is caused by a persisting imbalance between a person's dietary intake and body's physiological demand of iron. A catch hold of these causes needs to be undertaken to break the intergenerational cycle of anaemia as well as recurrent infections associated with it. Objectives was to assess knowledge and consumption of iron among teachers in the reproductive age group.
Methods: 110 school teachers were selected from selected government and private schools (primary/middle/ secondary/higher secondary) by simple random sampling technique. Teacher's knowledge and consumption of iron consumption and associated factors was studied using a pre- tested; self- administered questionnaire.
Results: 58.3% teachers were in the 30-39 year age group. Maximum were married 85.45%, 61.81% were post-graduates and 42.72% were in higher-secondary schools. 60.90% had a family income of >Rs 30000. 70.90% believed foods are the best source of iron. 57.27%, 53.63% believed menstruation effects body source of iron. 80.90% and 85.45% believed that iron has a role in pregnancy and iron rich foods and tablets are sufficient to maintain its body stores.
Conclusions: IEC activities needs to be conducted among different strata of population so that the intake of iron could be increased and associated factors effecting its intake and absorption could be taken care of.

Keywords: Iron, IEC activities, WHO

INTRODUCTION

Iron is an essential nutrient for humans, and as a cofactor for several enzymes it participates in many metabolic processes essential for sustaining life including oxygen transport, deoxyribonucleic acid (DNA) synthesis, and electron transport.[1] In healthy humans, the body iron input is generated by gastrointestinal absorption of dietary iron. Despite iron's plenteousness on earth, iron deficiency is extremely common in humans, and is the most prevalent cause of anaemia worldwide. Body iron losses are composed of basal (obligatory) losses, which are quite similar in men and women.[2] In addition, women in the reproductive age have considerable physiological iron losses associated with menstruations, and pregnancies.[3-5] The iron requirement is significantly increased during pregnancy due to increased iron utilization by the developing foetus and placenta, as well as blood volume expansion.[6] Both iron deficiency and iron overload will affect body functions in negative ways and impair quality of life and survival.[7,8]

According to the World Health Organization approximately half of the 1.62 billion cases of anaemia worldwide are due to iron deficiency, one of the leading risk factors for disability and death worldwide. It can be caused by a low dietary intake of iron, poor iron absorption, or excessive blood loss.[9] Dietary iron

bioavailability is low in populations consuming monotonous plant-based diets. The high predominance of iron deficiency in the developing world has health and economic consequences, including poor pregnancy outcome, impaired school performance, and decreased productivity.[10]

Iron is present in foods in two forms, as non heme iron, which is present in both plant foods and animal tissues, and heme iron, which comes from hemoglobin and myoglobin in animal source foods. Heme iron is highly absorbed and its bioavailability is relatively unaffected by dietary factors. Nonheme iron is the main form of dietary iron has a lower rate of absorption, depending on the balance between iron absorption inhibitors (phytates, tannins, calcium and phosphate) and iron absorption enhancers (ascorbic and citric acids, cysteine -containing peptides and ethanol)present in the diet.[11] Further, meat, fish, and seafood all increase the absorption of nonhemeiron.[12]

This study aims to assess the knowledge and understanding of dietary iron consumption practices of the school teachers.

METHODS

It was a cross- sectional study conducted for a period of three months i.e. September to November 2019.

Ethical considerations

Aims, objectives and purpose of the study were explained to the teachers. Subsequent to this, they were asked to participate in the study. Teacher's knowledge and consumption regarding iron consumption and associated factors was studied using a pre- tested; self- administered questionnaire after obtaining verbal informed consent from them.

Study population

School teachers from selected government and private schools, in Jammu district, Jammu and Kashmir.

Sample size

The sample size was calculated using Open Epi Info software. Based on 50% expected proportion of the awareness of iron, 95% CI, and allowable error of 20, non-response rate of 10, estimated sample (n) came out to be 110.

Sampling method

Office of the Chief Educational Officer (CEO), Jammu was approached and briefed about the purpose of the study. Thereafter, list of schools falling under Jammu municipal corporation (JMC) was obtained from the office.

A total of 15 schools (primary/middle/secondary/higher secondary) were selected using simple random sampling technique. A separate list of the selected schools was prepared their respective principals were approached till the desired sample size was reached. Thereafter, they were explained about the purpose as well as the procedure of the study. Assurance that confidentiality of the study participants i.e. teachers at every step shall be maintained was also given.

Teachers, at different educational levels, who were present on the day of their respective school visit, were made part of the study. All the teachers were approached individually and briefed about the study. After seeking informed verbal consent, questionnaires were distributed among them during the lunch break.

Study tool

The questionnaire consisted of socio- demographic information of the participants e.g. age, gender, income, marital status etc. Data collection tool was self-administered questionnaire after extensive literature research. The questionnaire was developed according to our cultural setup. It included variables knowledge and consumption of iron; assessed through various relevant questions in each section. Question format in both the sections was closed ended and no open-ended question was included.

Inclusion criteria

Women of reproductive age group ≤49 years of age.

Exclusion criteria

Pregnant women, Females with congenital/chromosomal deformities, women over 49 years of age, those on leaves.

The data were collected in excel and presented in numbers and percentages.

RESULTS

As shown in Table 1, more than half (58.3%) of the teachers were in the 30-39 year age group. Maximum percentage of the study participants were married (85.45%), maximum were post- graduates (61.81%) and majority were teachers in higher-secondary schools (42.72%). 60.90% of the teachers had a family income of >Rs. 30000.

Table 2 depicts pattern of knowledge regarding iron consumption among study participants. As per table, 70.90% were of the view that foods are the best source of iron. 57.27%, 53.63% believed that menstruation effects body source of iron. Iron has a role in pregnancy was stated by 80.90% and 85.45% of the study participants were of the view that iron rich foods and tablets are sufficient to maintain body stores of iron.

Table 1: Socio-demographic characteristics.

Socio-demographic characteristics	N (%)
Age (years)	
<30	26 (28.6)
30-39	53 (58.3)
40-49	31 (34.1)
Marital status	
Married	94 (85.45)
Unmarried	1 (14.54)
Educational level	
Graduate	42 (38.18)
Postgraduate	68 (61.81)
School type	
Primary	26 (23.63)
Secondary	37 (37)
Higher Secondary	47 (42.72)
Family income (Rs.)	
<20000	17 (15.45)
20000-30000	26 (23.63)
>30000	67 (60.90)

Table 2: Pattern of knowledge regarding iron.

	N (%)
Foods are the best source of iron	78 (70.90)
Menstruation effects body stores of iron	63 (57.27)
Injury or bleeding effects body stores of iron	59 (53.63)
There is a role of iron in pregnancy	89 (80.90)
Taking iron rich food and tablets are sufficient	94 (85.45)

Table 3 depicts iron consumption practices among teachers. 33.63% were currently taking iron while 74.54% of the individuals had taken iron in the past. 48.64 were taking iron daily while 51.35% were taking weekly dose of iron. A large number of study participants (62.72%) were taking iron with milk.

Table 3: Pattern of iron consumption practices.

	N (%)
Currently taking iron	37 (33.63)
Had taken iron in the past	82 (74.54)
Frequency of consumption of iron	
Daily	18 (48.64)
Weekly	19 (51.35)
Monthly	-
Take iron with milk	69 (62.72)
Take iron with calcium supplements	31 (28.18)
Walk bare foot	28 (25.45)
Consumption of tea/coffee daily	96 (87.27)

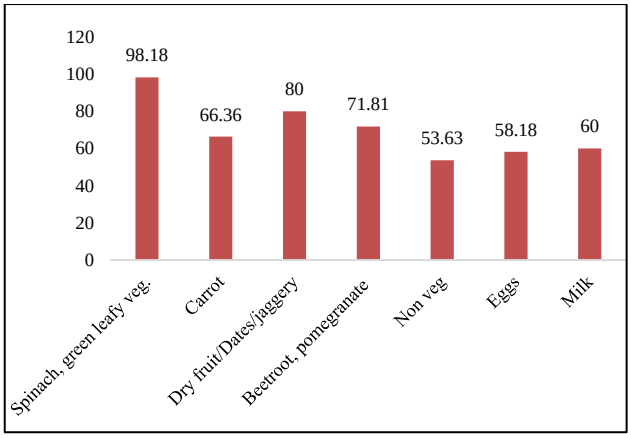

Figure 1: Distribution of participants according to the consumption of source of iron.

Figure 1 shows the distribution of participants according to the consumption of source of iron. Maximum participants (98.18%) believed that spinach and green leafy vegetables are the best source of iron, while only 53.63% were of the view that non vegetarian diet is a good source of iron.

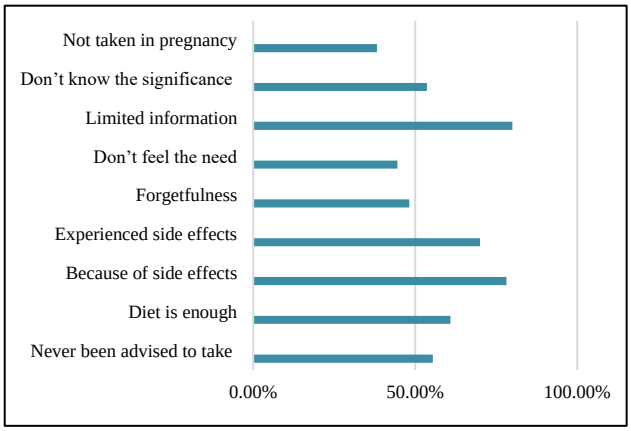

Figure 2: Barriers related to Iron consumption.

Figure 2 depicts barriers related to iron consumption, wherein limited information was the biggest barrier followed by its related side effects.

DISCUSSION

This study was conducted to assess the knowledge and intake of iron among teachers in the reproductive age group as this is an educated cohort and teachers have command over the budding students to mould them into a more aware group, making them the incharge of their own health and well-being.

70.90% believed that foods were the best source of iron but only 53.63% were of the view that non-vegetarian source of food was rich in iron which is in line with other studies.[13] 98.18% believed that green leafy vegetables are a good source of iron. Similar findings have been

reported by others as well.[14] 74% of the women had taken iron in the past which is quite high as reported by others.[15] Intake of tea in our study was 71% in line with that reported by few.[16] Major barrier between iron intake and the woman was reported to be limited information which is in contradiction to some studies where main reason reported was forgetfulness.[14]

Strength and limitations

Strength of the study was its uniqueness as the study group is teachers, the educated and impactful section of the society.

This study is not free from limitations which include-small sample size, all the teachers have been selected from the urban area, it would be interesting to assess the knowledge and intake among the rural area teachers as well.

CONCLUSION

As iron deficiency leading to anaemia is an intergenerational cycle and is passed on to the newborns as legacies and awareness motivates behavioural changes, so, awareness should be generated through appropriate nutritional counselling during Out-patient and antenatal visits and through media as well.

Targeted estimation of hemoglobin levels in adolescent girls and women in reproductive age group, intensive counselling and motivation of women to consume Iron and ensuring adequate supply to them would help in reducing the incidence of anaemia and recurrent infections among women.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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