

Awareness of Iron Deficiency Anemia among women of Reproductive age in Hubei Province, China

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Iron deficiency anemia (IDA) occurs when iron deficiency is sufficiently severe to diminish erythropoiesis and causes the development of anemia.

Iron deficiency is the most prevalent single deficiency state in the world. "IDA is currently estimated to affect more than 500 million people" around the world.¹The main cause of high prevalence of iron deficiency is nutritional inadequacy owing to low socioeconomic conditions. Women bear the main burden of iron deficiency as it is more common among premenopausal women. According to a survey done in Lahore, Pakistan "66% of the pregnant women were anemic. Anemia was more common in women with lesser education, low socioeconomic group and increasing parity. Iron deficiency anemia was found in 72.7% of anemic women".²Iron deficiency caused solely by diet is uncommon in adults in countries where meat is an important part of the diet. This occurs despite consumption of a diet that contains an equivalent amount of total dietary iron because heme iron is absorbed better from the diet than nonheme iron. Freshness of food plays a major role too. "The inconsistency in concentration of metal ions at various rotting stages, perhaps, is due to different rotten products, with varied absorbency at different states of decay".³ In certain geographic areas, intestinal parasites, particularly hookworm, worsen the iron deficiency because of blood loss from the gastrointestinal tract.^{4,5}

It is important economically, because IDA diminishes the capability of individuals in peripheral countryside living areas of rapidly developing countries like China, India and Pakistan to perform physical labor as their source of income, and it diminishes both growth and learning in children.

The aim of this study was to assess the level of knowledge about awareness, causation, prevention and to some extent the treatment of IDA among women of reproductive ages so as to make a formulation about the success of various healthcare awareness programs started by the government in the provincial capital of Hubei, Wuhan and its adjacent countryside areas with combined population of over 100 million on average.

2. Materials and Methods

A cross sectional study was conducted in the peripheral areas of Wuhan for a period of 1 year from January 2009 till December 2009. Seven villages were surveyed in collaboration with the medical-paramedical staff of primary and secondary Health care centers. A total of 385 Ladies were selected randomly. Target group was women of reproductive age, physically healthier and aged 18 to 45 years without considering marital status. Women with any previous record of medical, surgical or gynecological problems were excluded from the study. The survey was done with a face to face interview by going door to door in the village. The questions were appropriately translated in Chinese. Informed verbal consent was taken from the women. All the information was kept confidential. Survey instrument was a self designed pretested open-ended questionnaire, created according to relevant literature on Iron Deficiency Anemia and modified with a total of 24 questions. The first section of questions included information on age, marital status, and number of children. The second section was regarding general knowledge about iron.

The women were asked if they knew what Iron is, if they were aware of the fact that their diet contained iron and if they had an idea about Iron Deficiency Anemia. All these questions had yes or no options. The third section had questions concerned about their personal habits and if they were aware of which foods had high iron content. The last section consisted of questions regarding iron supplements, asking if women had ever used them.

The data entry was considered valid if the error rate was less than 0.3 percent. The final data was converted to SPSS (version 10.0) for analysis. Descriptive analysis was conducted by calculating means and proportions for continuous and discrete data entry. The ethical approval of the study was obtained from the department of Community Health Sciences, at Tongji medical College, Wuhan, China.

3. Results

We surveyed 385 participants for our study. The characteristics of study sample are shown in Table-1. The largest proportions of the study population were in the 25-35 years of age interval (41.3%, 159n). Regarding the awareness of Iron Deficiency Anemia, 77.9% (300n) of the women were aware of the term IDA, with the highest being in the age group 25-35 with an 88.1% majority. The women that were employed, 100% were aware of IDA as compared to the homemakers. Among homemakers 76.1% of which knew about IDA (table-1).

Table 1: Awareness of Iron deficiency Anemia in different age groups (n=385)

Age	IDA aware no. (%)	IDA non-aware no. (%)
18-25	67 (56.3%)	52 (43.7%)
25-35	140 (88.1%)	19 (11.9%)
35-45	93 (86.9%)	14 (13.1%)
Marital Status		
Married	205 (72.2%)	79 (27.8%)
Unmarried	95 (94.05%)	6 (5.95%)
Occupation		
Employed	29 (100%)	0 (0%)
Unemployed	271 (76.1%)	85 (23.9%)

Among all the age groups, 53.8% women knew that their diet contains iron (fig.-1) and 63.9% of women thought that women needed more iron than men.

Although Women with children stated that 100% of them had felt weakness and fatigue during pregnancy, but only 59.9% of these married women were aware of the fact that pregnant women needed an increased intake of iron, and a similar percentage (59.9%) of married women knew breast-feeding required greater iron intake.

Among women in the community taking iron tablets, 61.3% found them to be beneficial; the remaining 38.7% did not feel that Iron supplementation improved their health in any significant way. It was seen that of the women taking regular iron supplements, 58.1% took the tablets with food, 98.2% of them thought that iron tablets should be taken with milk or water (Table -2*) and only 29.7% thought that the tablets should be taken with orange juice to get best results.

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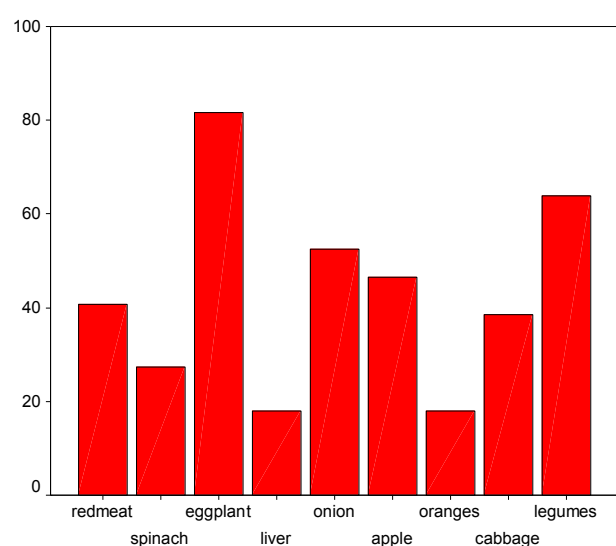


Figure 1: Showing frequency of awareness concerning iron content in different foods

66.5% of the women with children had taken iron tablets at some point in their lives and most of the population was willing to take iron supplements.

Women with knowledge about IDA, 50.9% knew that different foods contain iron, 49.1% did not know food contained iron and 42.7% had some knowledge that worm infestation can be a cause of iron deficiency.

Table 2: showing responses to what iron tablets should be taken with

Variable	Yes no. (%)	No no. (%)
Bread	42 (10.9%)	343 (89.1%)
Tea	185 (48.1%)	200 (51.9%)
Orange	122 (31.7%)	263 (68.3%)
Water	367* (95.3%)	18 (14.7%)
Yogurts	29 (7.5%)	356 (92.5%)
Rice	99 (25.7%)	286 (74.3%)
Milk	370* (96.1%)	15 (3.9%)

We found that the only half of the women surveyed knew that their diet contains iron. It was seen that majority of these women were employed or young and unmarried.

Most of the sampling population was aware of the condition IDA. The unmarried group had more knowledge about it and education plays the major role. The unmarried young women were also the group that was employed. Two thirds of the married women knew that pregnant women required a greater amount of iron in their diet for the wellbeing of the mother and fetus and also during the period of lactation. The women realize that breast feeding increases the demand of nutrients for the mother and the nursing infant.

Almost half of the women interviewed were aware that worm infestation can cause weakness and fatigue which are symptoms of iron deficiency anemia. Many of the women may have experienced this, have been told about it or had visits to antenatal clinics.

4. Discussion

Our study clearly reflected that the women in the community of Wuhan, China are aware of some of the effects caused by iron deficiency. They seemed to have a good idea about the importance of iron for maintaining good health and also in pregnancy. Since the predominant age group of our sample was between 25-35 years, but this is not entirely accurate as many older women refused to tell their age due to the conservative culture seen in the community.

The married women in the community are better informed regarding the importance of iron and the need to take iron supplements during pregnancy. The unmarried group is also informed but to a lesser degree. Married women are informed because of antenatal clinic visits and the Lady Health Visitors counseling. Their personal experience of feeling tired and the difference felt after the iron supplements has proved to them the importance of iron. Unmarried women are aware of this as most of them are much younger and many were employed. Employment has increased their awareness and education plays a major role. Education seems to be critical in awareness regarding IDA. Although the survey did not include the level of education instead employment is a good indicator for the importance of education.²

The majority age groups (25-35), were the women who were employed and had the highest knowledge about this condition, showing that education plays a role in the awareness of iron deficiency anemia.⁵ Lady Health Visitors also play a vital role in creating the awareness of the importance of foods rich in iron.⁶

“In 1993, the World Health Organization (WHO) instituted its Safe Motherhood Initiative with a goal of reducing the number of maternal deaths by half before the year 2000. A key component was to eradicate anemia in pregnancy, focusing on the greater risk in younger women. In 1997, WHO convened a regional consultation of experts to address malnutrition issues among adolescent girls in South-East Asia. Among the recommendations for action was a need for the development of assessment, advocacy, prevention, and control initiatives, in most countries, to reduce anemia in adolescent girls.

As an outcome, WHO training programs for adolescent nutrition have been initiated. In 1999, a special symposium entitled ‘Improving Adolescent Iron Status before Childbearing’ was convened in Washington DC. The conclusions of this group were that many girls are already anemic by the time they become pregnant (16–55%), and that pregnancy is too short a period of time in which to reduce pre-existing anemia, especially when many women do not seek prenatal care until the second or third trimester. Thus, they concluded that emphasis needs to be placed on pre-pregnancy programs to increase body iron stores”.⁶

Maternal health care centers and regular antenatal care visits really play a major role in creating awareness regarding IDA and other women gender problems. Media also have a key influence on the awareness regarding iron in the diet and also in informing which foods are rich in iron.⁷

5. Conclusion

Majority of the women population are realizing the importance of iron supplements in their diet, but still there are a number of women who do not see any benefits of taking iron supplements which could be due to their high cost, the lack of education and counseling given by elders in the community and health practitioners. Another reason for this could be that these women often expect to have immediate results after taking the iron supplements but find that it takes months before any significant changes can be felt, so lack of compliance can have led to this finding in our survey. Also a large number of the population is not willing to take iron supplements. This could be attributed to many causes such as cultural beliefs, lack of trust in health care practitioners and lack of counseling by the medical personnel

But, overall, the level of knowledge and healthy life style information is gradually rising day by day, reflected by the fact that the women of modern society realize that they need to have adequate intake of food and take more care of their diet to ensure the growth of the baby⁸. There is increased awareness due to the media as well.⁹

“The burden of iron deficiency can be reduced by taking a more holistic approach that would include promotion of healthy weaning practices and use of appropriate complementary foods, together with improving the nutritional value of such foods. There is an increasing body of peer-reviewed literature to support the contention that “micronutrient Sprinkles” is an effective strategy to improve the nutritional value of home-prepared complementary foods and thus to reduce the burden of iron deficiency among children”.¹⁰ “Decrease of vitamin C level is related to the changes of initial stages of iron metabolism and its further absorption”.¹¹

Finally, Iron deficiency can be overcome by directing the financial resources to the vulnerable segments of population and enhancing their access to iron-rich foods”.¹²

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