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An Assessment of Dietary Practices of Reproductive Age Group Women based on Their Hb Status in Jamnagar City, Gujarat, India.

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ABSTRACT

Iron deficiency is the most common aetiology of anaemia worldwide and India too. Although iron deficiency anaemia (IDA) can occur at any age, women from reproductive age group are particularly vulnerable to develop IDA due to increased nutritional demand during Pregnancy and faulty dietary practices.

Aims & Objectives of the study are to determine the frequency and nutritional risk factor of iron deficiency anaemia through the dietary practices and to gather knowledge about the dietary habits and to review appropriate target groups for iron deficiency and anaemia assessment. Two hundred females of childbearing age were included in the study; 100 with no previous pregnancy and remaining 100 with at least one prior history of pregnancy. Pre-tested semi-structured Proforma was used. Data collected with the use of a validated, questionnaire about demographic and socioeconomic and the different variables of dietary practices. This descriptive, cross-sectional study was conducted from October 2012 to January 2013 at guru govind singh hospital, tertiary hospital, attached to medical college, Jamnagar, Gujarat, India. Data entry & analysis is done using M.S.Excel & SPSS. Out of them 134(67%) patients were found to be having iron deficiency anaemia in various age groups. Results also showed that dietary habit of patients was one of the major causative factors leading to iron deficiency anaemia. To overcome iron deficiency anaemia a thorough and comprehensive strategy is required, i.e., educating the subjects to consume food rich in iron, community based program, monitoring severely anaemic cases and their treatment.

KEYWORDS: Nutrition, Iron deficiency anaemia, Child bearing age

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INTRODUCTION

An estimated 2000 million people suffer from anaemia making it the world's most common nutritional disorder.[1] It is a common cause of maternal morbidity as well as mortality.[2]The most common cause of anaemia in the world is iron deficiency.

The diagnosis of iron deficiency anaemia (IDA) is usually indicated firstly by appropriate history (e.g., anaemia in a menstruating woman), and secondly, confirmed by such basic diagnostic tests as Hb estimation and RBC count. Worldwide, the most common method of screening individuals or populations for iron deficiency involves determining the prevalence of anaemia by measuring blood haemoglobin. Risk for iron deficiency is a function of iron loss, iron intake, iron absorption, and physiological demand.

Women of child bearing are especially at high risk for iron deficiency. The iron deficiency can lead not only to anaemia but to decreased work capacity; abnormal neuro-transmitter function and altered immunological and inflammatory defenses.[3]

Iron deficiency at any time in life may disrupt metabolic processes and subsequently change cognitive and behavioural functioning. Women of reproductive age are among those most vulnerable to iron deficiency and may be at high risk for cognitive alterations due to iron deficiency.[4]

World Health Organization (WHO) report on maternal health and safe motherhood program reveals an alarming rate of anaemia among pregnant women in developing countries, like India.

A cycle of deteriorating health from pregnancy to pregnancy occurs when these women are unable to replace blood loss during child birth and their anaemia became exacerbated by the demand of breast feeding.

Anaemia may be a result of insufficient iron intake in the diet (due to either consumption of food with insufficient iron or limited dietary iron availability and to blood loss caused by parasitic infection. Hookworm intensity was significantly associated with haemoglobin level; for each 1,000 egg increase, haemoglobin was reduced by 2.4 g/L. Living in different ecological zones, eating <1 serving of meat/week, and farming were significantly associated with anaemia in women and children. Other risk factors in women included having >3 children and having a child<24 months old.[5]

All these risk factors are influenced by social factors and the more important factors are poverty and illiteracy. There are multiple pathways through which social factors influence health.[6]

Asian diets appeared to differ in containing meat less often as a source of iron, while pulses and chapattis provided more phytate and fiber. It is suggested that dietary intakes of phytate and fiber are important in reducing iron absorption.[7]

Iron-deficiency anaemia has particular negative consequences on women in their childbearing years, and its prevention is a high priority in most health systems. Nutritional education can improve knowledge of healthy nutrition and lifestyle choices. Focused nutritional education using available resources and correcting current dietary habits in a vulnerable group of young women may result in dietary changes that can ultimately improve iron intake.[8]

PATIENTS AND METHODS

Two hundred non-pregnant females of child bearing age (Between 15–45 years) were included in the study. Non probability, purposive sampling technique was used. One hundred females had no history of pregnancy while the remaining hundred had prior history of at least one pregnancy.

A questionnaire was used to collect the demographic and socioeconomic information including age, place of residence, education levels, total family members, type and duration of employment, and approximate monthly income. Information of dietary habits (green leafy vegetables, quantity of meat consumed each week, use of tea, chapatti and pulses), maternal and menstruation history (menarche, age at first conception, parity, inter-pregnant interval, history of any blood loss), too.

Patients with haemoglobin less than 11.0 mg/dl were included in the study. Patients already taking iron supplement were excluded from the study. This was followed by thorough clinical examination to record any abnormal finding. Laboratory work done in pathological laboratory included haemoglobin (Hb) estimation, RBC count. Data entry & analysis is done using M.S.Excel & SPSS.

Discrete variables such as age groups, history of pregnancy, education level, risk factors for IDA, and food habits were presented as frequency or percentages. Chi-square test was used to analyse the significant difference between IDA and non IDA women in relation with history and no history of pregnancy, and $p<0.05$ was considered as statistically significant value.

RESULTS & DISCUSSION

A total of 200 patients with sign and symptoms of anaemia were recruited. 100 patients had no previous history of pregnancy while the other 100 had at least one prior pregnancy.

Out of these, 134 (67%) patients were found to be having iron deficiency anaemia (IDA) (Table-2). Amongst the patients with IDA, 59 (44.02%) females belonged to age group 15–24 years while 35(26.12%) were between the age of 25–34 years, and the rest of the 40 (29.85%) patients were above the age of 35 years.

In these 134 patients, 88 (65.6%) patients were had a history of pregnancy. 22 (24.71%) females had their first pregnancy before the age of 20 years, 40 (68.96%) females were multipara and in 32 (62.06%) of these patients the inter-pregnancy interval was less than one year ,56 (34.4%) patients had IDA with

no history of pregnancy. Dietary history revealed that 75 (84.26%) patients were having more than 2 cups of tea per day. (Table-2).In many cases more than one cause of IDA was found.

Table 1: Sociodemographic profile of participants

	Number(n=200)
Age group	
15-24	89(44.5%)
25-34	56(28%)
>=35	55(%)
Residence	
Urban	110(%)
Rural	90(%)
Education	
Illiterate	53(%)
Primary	82(%)
Secondary	43(%)
Higher Secondary	14(%)
Graduate & above	8(%)
Occupation	
Housewife	146(%)
Service	1(%)
Labror	25(%)
Farmer	10(%)
Others	18(%)
Social class	
Upper	29(%)
Middle	59(%)
Lower	112(%)
Religion	
Hindu	172(%)
Muslim	28(%)

Table-2: table shows that there is a statistically significant difference b/w pregnant and non pregnant woman with iron deficiency

	IDA	No IDA	*p-value*
History of Pregnancy (n=100)	88 (65.6%)	12 (18.8%)	<0.001
No Pregnancy(n=100)	56 (34.4%)	44 (66.6%)	<0.001
Total	134	66	

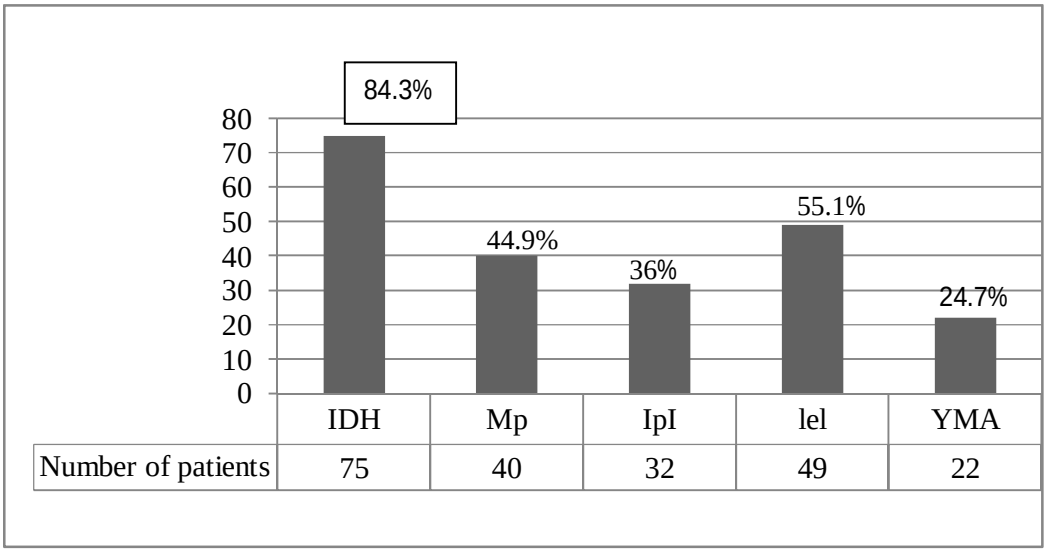

Figure-1: risk factors for iron deficiency anaemia

Key: IDH=Improper Dietary Habit, Mp=Multipara, IpI=Inter-pregnancy Interval < one year, LEL=Low Education Level, YMA=Young Maternal Age

Table-3: food habits of study population

Type of Menu		Number (n=200)
Breakfast	Chapatti, tea	128(64%)
	Bread, Tea	28(14%)
	Bread, Tea, egg	11(5.5%)
	Others	33(16.5%)
Lunch	Chapatti, Pulses	132(66%)
	Chapatti, Vegetables	26(13%)
	Chapatti, Egg, vegetables	16(8%)
	Others	26(13%)
Dinner	Chapatti, vegetables	114(57%)
	Chapatti, Cooked meat	20(10%)
	Chapatti, tea	40(20%)
	Rice, Pulses(Khichdi)	18(9%)
	Others	8(4%)

Despite global recognition, iron deficiency anaemia is still a major health problem especially in developing countries like India. The prevalence seems to be increasing. Study indicates the prevalence of iron deficiency anaemia at 67% in the study population. This study shows similar prevalence figures for IDA and therefore reinforces the view that IDA is big problem and needs to be dealt with on priority basis.

Table-4: dietary patterns

	Number(n=200)
Major meals per day	
One	56(28%)
Two	116(58%)
Three or more	28(14%)
Type of food they eat	
Vegetarian	168(84%)
Non-vegetarian	42(21%)
Fresh Food	18693(%)
Preserved Food	14(7%)
Method of cooking of vegs	
Open pan	5(2.5%)
Closed	195(97.5%)
Hand washing before cooking	
Water only	125(62.5%)
Water+Soap	75(37.5%)
Frequency of green leafy vegetables	
Regular	82(41%)
Occasional	102(51%)
Never	16(8%)
Frequency of Fruit	
Regular	60(30%)
Occasional	108(54%)
Never	32(16%)

Socio-economical problems, lack of reproductive health education, dietary habits and lifestyle are the major causes of iron deficiency anaemia. Because of extended families and large number of dependents the nutritional requirement and caloric needs are difficult to meet. Poverty in India is widespread, with the nation estimated to have a third of the world's poor. In 2010, the World Bank reported that 32.7% of the total Indian people fall below the international poverty line of US$ 1.25 per day (PPP) while 68.7% live on less than US$ 2 per day.[9]

Most of the patients belonged to low socio-economic class with lack of proper education, employment and a low quality lifestyle and diet. In such conditions it was very difficult for them to fulfil their daily iron/nutritional requirements.

Patients suffering from IDA were young and had history of one or more pregnancy. The patients with IDA were from the low socio-economic group, it was revealed during research that most of them could not afford to buy high quality food that is rich in iron and other proteins and that most of them were having mostly vegetables, tea and chapatti which are relatively economical.

India falls in the category where use of simple chapaati and tea is very common. These food servings contain phytase and tenin which inhibit absorption of iron. Iron deficiency anaemia is frequently observed in women from south-Asia region because of vegetative diet.[12]Another study has also revealed that food rich in proteins like beef, chicken and fish are very expensive in our country and due to low income the daily wages labourers in India are unable to purchase it.

The study reveals that animal proteins, leafy un-cooked vegetable and yellow fruits are not present in the food of the poverty-stricken population. Therefore the people are prone to malnutrition and iron deficiency anemia.[10] The preventive weekly iron-folate supplementation of women during their reproductive life, whose efficacy is recognised, and offers a promising alternative; its impact in terms of public health is under current evaluation.

Iron fortification has many advantages over iron supplementation. Fortification of salt with iron has been accepted by the govt. of India as a public health approach to reduce prevalence of anaemia. Due to poverty, most of the patients with IDA cannot afford quality food let alone supplementary medications. Therefore only a government effort through availability of subsidised medications may solve the problem.

CONCLUSION

Asian diet differ from the western diet in that they containing meat less often as a source of iron, while pulses and chapattis provide more phytate and fiber.

We speculate that the main reasons for IDA are a combination of a higher parity and a less common use of iron supplementation in pregnancy in the Indian group and a higher content of phytate in the Indian diet.

Culturally sensitive intervention research, which addresses application of Iron deficiency anaemia education principles, temporary supplementation, and adequate income for dietary modification and long-term iron supplementation to prevent Iron deficiency anaemia, is warranted. The implementation of national nutrition plans including the control of iron deficiency as one of the priorities and the participation of the public health and education sectors, food industries, the community and the media should contribute to the success of the interventions and to the control of iron deficiency. There is now need for the development of clear policy guidelines based on these simple and integrated interventions.

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