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ORIGINAL ARTICLE

PREVALENCE OF ANEMIA AND ITS SOCIO-DEMOGRAPHIC DETERMINANTS IN PREGNANT WOMEN AT A TERTIARY CARE HOSPITAL IN JAIPUR, RAJASTHAN

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ABSTRACT: AIM: Prevalence of anemia and its socio-demographic determinants in pregnant women at a tertiary care hospital in Jaipur, Rajasthan. **MATERIALS AND METHODS:** All the pregnant women aged 25 to 35 years, registered at antenatal clinic at Department of Obstetrics and Gynaecology, Mahatma Gandhi Medical College, Jaipur were included. A predesigned and pre tested questionnaire was used to elicit the information. Various possible causes of anaemia were considered. Data was entered on Microsoft Access and was analysed using the statistical software SPSS version 11.5 for windows vista. Chi square test was used for finding the association between degree of anaemia and various factors. p value less than 0.05 was considered to be statistically significant and p value less than 0.001 was considered to be highly significant. **CONCLUSION:** Prevalence of anaemia in pregnant women is still quiet high (70%), as also found in various other studies done in India. The existing health care resources should be reinforced strictly, with mandatory supply of IFA tablets to adolescent girls & pregnant women, food fortification along with correction of other nutritional deficiencies and timely interventions for reducing the burden of malaria, & other infectious diseases. Unfavourable socio demographic factors are the major barriers to the efforts in place for the prevention of anaemia during pregnancy. Socio-economic status, literacy of women & awareness related to health concerns are the major determinants that contribute to the problem of anaemia. Therefore public health education/information on reproductive health are important health care measures to be undertaken at the community level, taking care of the fact that the health care should be provided during the important years of adolescence, before marriage & child bearing. Also it is high time for realisation that health system should focus on various factors that contribute to the occurrence of anaemia & include them as an important indicator in the national health care policy.
KEYWORDS: Anaemia, Pregnancy, Endemicity.

INTRODUCTION: The prevalence of anaemia in India is among the highest in the world, being higher among pregnant woman and preschool children.

Anaemia in pregnancy is an important public health problem worldwide. WHO estimates that more than half of pregnant women in the World have a haemoglobin level indicative of anaemia (<11.0gldl), the prevalence may however be as high as 56 or 61% in developing countries. Women often become anaemic during pregnancy because of demand for iron and other vitamins is increased due to physiological burden of pregnancy. The inability to meet the required level for these substances either as a result of dietary deficiencies or infection give rise to anaemia.

Anaemia ranges from mild, moderate to severe and the WHO pegs the haemoglobin level for each of these types of anaemia in pregnancy at 10.0-10.9g/dl (mild anaemia) 7-9.9 g/dl (moderate

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anaemia) and <7g/dl (severe anaemia) . Prevalence of anaemia can be as high as 61% in developing countries with a high incidence and severity occurring among primi gravidae living in malaria endemic areas.

Inadequate iron & folate intake in diet, because of low fruits & vegetables intake and poor bioavailability of dietary iron from the fibre, phytate rich Indian diet are the major factors responsible for the high prevalence. Chronic blood loss because of endemicity of various infections like malaria and helminthic infections and increased requirement during pregnancy, are the contributing factors.

In India, anaemia is directly or indirectly responsible for a high maternal & perinatal morbidity & mortality. Maternal anaemia is associated with poor intra uterine growth and increased risk of preterm birth and low birth weight rates.

Pregnancy is not just a matter of waiting to give birth but a joyful and a fulfilling period in a woman's life. It can also be one of the experiences of misery and suffering when complications or adverse circumstances compromise the pregnancy, causing ill health or even death.[1] Favourable pregnancy outcomes occur (30-45%) less often in anaemic mothers and their infants have less than one and a half of normal iron reserves.[2]

Early detection and effective management of anaemia in pregnancy can contribute substantially to reduce adverse maternal and foetal outcome.

National Nutritional Anaemia prophylaxis programme (NNAPP) was initiated in 1970 during fourth five year plan with the aim to reduce the prevalence of anaemia to 25 percent.[3] Subsequent evaluations have shown no changes in the situation. Since 1992, the daily dosage of elemental iron for prophylaxis and therapy has been increased to 100 mg and 200 mg, respectively under child survival and safe motherhood programme.

According to WHO estimates, up to 56% of all women living in developing countries are anaemic. In response to WHO report five major surveys have been done in India, National Family Health Survey (NFHS) 2 and 3, District Level Household Survey (DLHS) 2, Indian Council of Medical Research (ICMR) Micronutrient Survey and Micronutrient Survey conducted by National Nutrition Monitoring Bureau (NNMB). NNMB, DLHS & ICMR surveys showed that over 70 per cent of pregnant women and adolescent girls in the country were anaemic. Most of these studies were done in south east states of the India and the anaemia in pregnancy is not well studied in this part of the country. The management & control of anaemia in pregnancy is enhanced by the availability of local prevalence statistics, which is however not adequately provided for Rajasthan. Therefore, this study was done of providing prevalence statistics of anemia in pregnancy here in city of Jaipur (Rajasthan).

MATERIAL AND METHODS: It was a cross sectional, hospital based study.

Period of study: The period of study was from 1st November 2014 to 31st December 2014.

Sampling technique & Study area: All the pregnant women attending the antenatal clinic of the Department of Obstetrics and Gynaecology, Mahatma Gandhi Medical College, were included. Each respondent was explained, the purpose of the study, prior to the administration of tools of data collection and informed consent was obtained. The confidentiality of the information was assured. Due approval was taken from college authorities before conducting the study.

Sample size: Sample size was calculated by the formula:

$n = z_\alpha^2 \times p \times q / d^2$ n = sample size.

z = statistic at α level of significance i.e. 1.96.

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p = expected prevalence.
q = 100-p.
d = absolute error.

According to NFHS-3, the prevalence of anemia among pregnant women is 57%. Thus p is 57.
q calculated comes out to be 43.

Taking 2.5 % as absolute error, sample size comes out to be 1506.5 (1510). (In project plan approval, we had taken absolute error as 3%, which was reduced to 2.5% and therefore sample size came out to be 1510).

Inclusion Criteria: All the pregnant women aged 25 to 35 years, registered at antenatal clinic at Department of Obstetrics and Gynaecology, Mahatma Gandhi Medical College, Jaipur were included.

Exclusion Criteria: All the pregnant women with,
Chronic infections,
Haemoglobinopathies,
Chronic diseases,
Multiple pregnancies,
Obesity,
Diabetes.
All patients with above diseases have chronic blood lose therefore are prone to anaemia and therefore excluded from the study.

- Those women, who were non cooperative or who refused to provide the necessary information, were not included in the study.

A predesigned and pre tested questionnaire was used to elicit the information on following key elements: (Data on socio-demographic characteristics, nutritional status and dietary intake, obstetrics and medical history were collected, other than the details of anaemic status)

- Name & CR No. of hospital and residence : For identification of patient
- Age
  Maternal age less than 17 years or more than 35 years poses an increased risk for adverse pregnancy outcome in terms of maternal anaemia and poor foetal outcome.
- Age at marriage
  Early marriage and child bearing causes and increased requirement for haemoglobin in the already growing period of age.
- Per capita income & socio-economic status (SES):
  Prasad's classification (1961) based on the per capita monthly income and later modified in 1968 and 1970, will be used. In order to offset inflationary trends, All India Whole Price Index (AIWPI) will be taken into consideration by using a hypothetical value 0.53 to create a multiplication factors as follows:

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The multiplication factor = Value of AIWPI x 0.53.
In the next step Prasad's income limits will be multiplied by the multiplication factor.
241.27 x 0.53 = 127.8

The proposed classification for this period is given in Table below:

Proposed Social Classification for The Year 2013.

Socioeconomic class	Per capita monthly income limits (Rs)	
	Prasad's classification (1961)	Modified proposed classification for 2013
I	100 & Above	12800 & above
II	50-99	6400 to 12799
III	30-49	3840 to 6399
IV	15-29	1920 to 3839
V	Below 15	Less than 1920

- **Religion:** Hindus by tradition are vegetarian and therefore are anaemic as they consume diet poor in iron.
- **Type of Family (Nuclear/Joint):** To know the distribution of resources and the number of family members around to take care of the patient.
- **Education:** Education of patient, her partners and of family members reflects the knowledge of nutrition and its values and requirement and needs during pregnancy. Also, if the patient is anaemic, they can understand the management requirements.
- **Occupation:** Of self and husband is to be known in relation to occupation hazards.
- **Dietary Habits (Vegetarian/ non vegetarian):** Vegetarian diet as such is poor in iron and has high contents of substances which reduce its absorption.
- **Alcohol/Tobacco Smoking:** Alcohol can cause anaemia by several mechanisms e.g. Gastro intestinal blood loss due to oesophageal varices, peptic ulcer, folate deficiency and sideroblastic anaemia.
- **Residential Area- rural/urban:** In relation to availability of resources for diet and suppliments.
- **Past Medical and Surgical History:** Chronic diseases can cause anaemia e.g. connective tissue disease, malignancy, thyroid disorders, addison's disease and history of any surgery e.g. previous stomach or small bowel surgery can cause vitamin B12 deficiency, therefore such patients are excluded from the study.
- **History of Blood Transfusion/Any Medication:** E.g. aspirin, anti-inflammatory medications, corticosteroids and warfarin all increase the risk of blood loss from the gastrointestinal tract and thus iron deficiency anaemia, phenytoin and methotrexate can reduce folate, chloramphenicol, anti-cancer drugs, suplhonamides can cause bone marrow failure.
- **Obstetrics History:** LMP to calculate the period of gestation, to know the period left for requirement and method of iron replenishment needed. Gravidity in relation to previous births and abortions, as patients with high parity are usually more anaemic and need better care.

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- **Interval between Previous & Index Pregnancy:** Patient with short interval between present and previous pregnancies are generally found to be anaemic as the time given for built up for nutritional status is less.
- **Significant History in Previous Pregnancy:** Any medical or surgical complication in previous pregnancy and birth will be reflected in the present state eg., any history of headache, chest pain, abdominal pain, vomiting, shaking, visual disturbance or pre-eclampsia.
- **Symptoms of Anaemia:** Shortness of breath, palpitations, chest pain, fastigue/tiredness or headache or some unusual ones like decreased appetite and weight loss, indigestion and change in bowel habits.
- **Symptoms Showing Blood Loss during Pregnancy:** History of hookworm infestation or malaria in past or history of heavy and prolonged menstrual bleeding, history of haemorrhoids, peptic ulceration.
- Iron and folic acid supplementation etc.
- **Family History:** Family history of thalassemia or coeliac disease or sickle cell anaemia in family. Such patients with significant family history are also excluded from the study.
- **Ever Diagnosed with Anaemia before**: If previously had anaemia than history of treatment given and wether the patient had desired effect or not.
- **BMI:** Their BMI will be recorded, taking weight and height.
- **Haemoglobin Levels:** Haemoglobin level will be estimated by auto analyser. Anaemia will be classified according to WHO criteria. Haemoglobin concentration of less than 11.0 gm/dl will be considered as an indication of anaemia. Haemoglobin concentration of 10.0-10.9 gm/dl, 7.0-10.0 gm/dl and less than 7 gm/dl will be considered as mild, moderate and severe anaemia respectively.
- **PBF:** Done in each patient for detailed morphology and parasitic infestations.

Data Analysis: Data is entered on Microsoft Access and is analysed using the statistical software SPSS version 11.5 for windows vista. Chi square test is used for finding the association between degree of anaemia and various factors. p value less than 0.05 is considered to be statistically significant and p value less than 0.001 is considered to be highly significant.

OBSERVATIONS AND RESULTS:

Variables	Normal n (%)	Anaemia				Total
		Mild n(%)	Moderate n(%)	Severe n(%)	Total Anaemic Patients	
No. of pts.	460	768	230	52	1050	1510
Percentage	30.46	50.86	15.23	3.44	69.54	100

Table 1 : Prevalence of Anaemia

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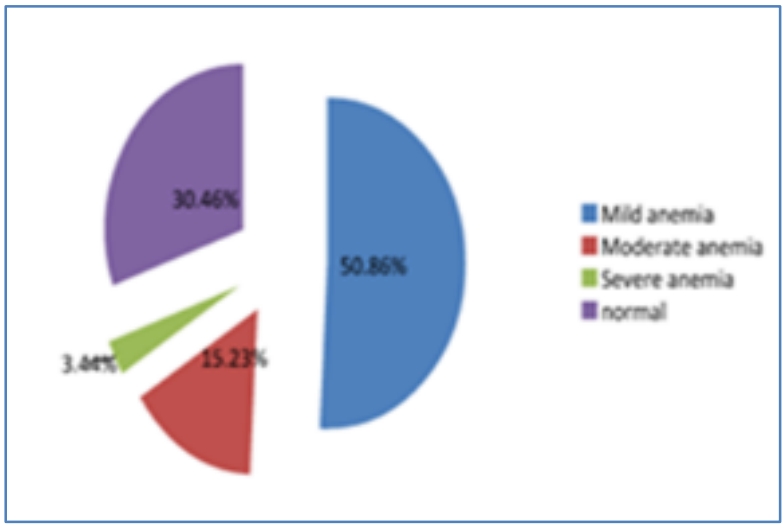

Fig. 1

Variables	Normal n(%)	Anaemia			Total	X^2(df)	p value
		Mild n(%)	Moderate n(%)	Severe n(%)			
	Age						
<20	15(3.26)	237(30.86)	72(31.30)	7(13.46)	331(21.92)	212(6)	0.000
20-24 yrs	162(35.22)	453(58.98)	89(38.69)	9(17.31)	89(5.89)		
25-29 yrs	203(44.13)	65(8.46)	36(15.65)	13(25)	317(20.99)		
>30 yrs	80(17.39)	13(1.69)	33(14.35)	23(42.23)	149(9.86)		
Total	**460**	**768**	**230**	**52**	**1510**		
Age at marriage							
<18	88(19.13)	11(1.43)	185(80.43)	16(30.77)	300(19.86)	866(4)	0.000
18-30 yrs	302(65.65)	739(96.22)	12(5.22)	18(34.62)	1071(70.92)		
>30 yrs	70(15.22)	18(2.34)	33(14.35)	18(34.62)	139(9.20)		
Total	460	768	230	52	1510		
Type of family							
Nuclear	203(44.13)	454(59.11)	32(13.91)	21(40.38)	710(47.01)	146(2)	0.000
Joint	257(55.86)	314(40.88)	198(42.60)	31(59.61)	800(52.98)		
Total	**460**	**768**	**230**	**52**	**1510**		

Table 2: Baseline Characteristics

The present study included a total 1510 pregnant women. Out of which 30% were found to be non-anaemic. The prevalence of anaemia was therefore 70%, out of which 51% were mildly anaemic, 15% had moderate & 3% had severe anaemia.

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Table shows that in patients 20-24 yrs. the anaemia was generally mild (59%) while in patients who were pregnant before 20 yrs or after 30 yrs, the prevalence of moderate and severe anaemia increases (31% and 42%). Age of patient while pregnant had a significant impact on the degree of anaemia.

Out of the total patients who were non anaemic, 71% were in appropriate age of marriage (18-30 yrs). Out of total of mildly anaemic, majority fell in this group (96%).

The table shows a significant correlation between the type of family and degree of anaemia, as it is evident that 60% of mild anaemia was present nuclear family while 60% of severe anaemia was there in joint family.

Residence							
Rural	293 (63.70)	252 (32.81)	114 (49.57)	39 (75)	698 (46.22)	51.6 (2)	0.000
Urban	167 (36.30)	516 (67.19)	116 (50.43)	13 (25)	812 (53.77)		
Total	460	768	230	52	1510		
Educational Status							
Illiterate	27 (5.87)	9 (1.17)	3 (1.30)	6 (11.54)	45 (2.98)	155 (14)	0.000
Literate	433 (94.13)	759 (98.83)	227 (98.70)	46 (88.46)	1465 (97.02)		
Primary	45 (09.78)	100 (13.02)	20 (08.70)	2 (03.85)	167 (11.05)		
Middle	98 (21.30)	314 (40.89)	29 (12.61)	22 (42.31)	463 (30.66)		
High school	50 (10.87)	202 (26.30)	72 (31.30)	8 (15.38)	332 (21.98)		
Sr secondary	151 (32.83)	85 (11.07)	70 (30.43)	12 (23.08)	318 (21.05)		
Graduate	101 (21.96)	40 (05.21)	34 (14.78)	1 (01.92)	176 (11.65)		
Post graduate	15 (03.26)	18 (02.34)	2 (0.87)	1 (01.92)	36 (2.38)		
Total	460	768	230	52	1510		
Social Class							
I	23 (5)	12 (1.56)	2 (0.87)	2 (3.85)	39 (2.58)	86.7 (8)	0.000
II	46 (10)	106 (13.80)	64 (27.83)	8 (15.38)	224 (14.83)		
III	201 (43.70)	428 (55.73)	67 (29.13)	20 (38.46)	716 (47.41)		
IV	103 (22.39)	162 (21.09)	92 (40)	20 (38.46)	377 (24.96)		
V	87 (18.91)	60 (7.81)	5 (2.17)	2 (3.85)	154 (10.19)		
Total	460	768	230	52	1510		
Dietary Habits							
Vegetarian	267 (58.04)	714 (92.97)	212 (92.17)	48 (92.31)	1241 (82.18)	0.183 (2)	0.912
Non vegetarian	193 (41.96)	54 (7.03)	18 (7.83)	4 (7.69)	269 (17.81)		
Total	**460**	**768**	**230**	**52**	**1510**		

Table 3: Demographic Characteristics

Same implies to the residential area, which the patient belongs to. In urban population majority belonged to mild anaemia 67% while out of total patients of severe anaemia majority (75%) resided in rural area.

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Education status also has a significant correlation with a degree of anaemia, majority of total mildly anaemic patients were literate (99%). The prevalence of severe anaemia was found to be very less in patients who were literate to the level of graduation and post-graduation (2% each).

For all three grades of anaemia, class III, IV and V, bears the maximum of patients taken collectively, in mild anaemia - 82%, moderate - 85% and severe - 70%. Though the percentage was found to be less in class V also, in general, class I and II patients were found to be less anaemic. Social classes were taken as per modified B G Prasad classification based on consumer price index of December, 2009.

The association of dietary habits to the prevalence and degree of anaemia was found to be statistically insignificant, as the percentage of normal patients and also the anaemic patients was found to be high in vegetarians.

Any symptoms of anaemia present							
Yes	51(11.09)	101(13.15)	73(30.42)	31(59.62)	256(16.95)	91.8(2)	0.000
No	409(88.91)	667(86.85)	167(69.58)	21(40.38)	1264(83.05)		
Total	**460**	**768**	**230**	**52**	**1510**		
History of blood transfusion in the past							
Yes	11(2.39)	1(0.13)	22(9.57)	5(9.62)	39(2.58)	70.9(2)	0.000
No	449(97.61)	767(99.87)	208(90.43)	47(90.38)	1471(97.41)		
Total	**460**	**768**	**230**	**52**	**1510**		

Table 4: Medical History

The associations with symptoms of anaemia was found to be significant as symptoms of anaemia were present only in 13% cases of mild anaemia whereas they were there in 60% of the cases with severe anaemia.

As obvious from the table % is explainable also, that 99% of the patients with mild anaemia did not receive blood transfusion in past while around 10% of the total patients with severe anaemia had a history of blood transfusion. Therefore the past history of blood transfusion has a statistically significant correlation with the present state of anaemic.

Parity							
1	201(43.70)	341(44.40)	101(43.91)	9(17.31)	652(43.18)	304(10)	0.000
2	135(29.35)	402(52.34)	86(37.39)	5(9.62)	628(41.59)		
3	110(23.91)	7(0.91)	25(10.87)	18(34.62)	160(10.60)		
4	1(0.22)	15(1.95)	15(6.52)	15(28.85)	46(3.05)		
5	12(2.61)	2(0.26)	1(0.43)	4(7.69)	19(1.26)		
>5	1(0.22)	1(0.13)	2(0.86)	1(1.92)	5(0.33)		
Total	**460**	**768**	**230**	**52**	**1510**		
No. of Abortions							
0	359(78.04)	579(75.40)	130(56.52)	36(69.23)	1104(73.11)	36.5(4)	0.000
1	42(9.13)	168(21.88)	93(40.43)	12(23.08)	315(20.86)		

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2	59(12.83)	21(2.73)	7(3.04)	4(7.69)	91(6.03)		
Total	**460**	**768**	**230**	**52**	**1510**		
Birth Interval							
<1yr	70(15.22)	154(20.05)	46(20)	29(55.77)	299(19.80)	38.3(4)	0.000
1-2yr	189(41.09)	212(27.60)	72(31.30)	8(15.38)	481(31.85)		
>2yr	201(43.69)	402(52.34)	112(48.70)	15(28.85)	730(18.34)		
Total	**460**	**768**	**230**	**52**	**1510**		

Table 5: Obstetric History

Increasing number of births have a statistically significant correlation with the degree of anaemia has a evident from the table. Out of the total patient mild anaemia, 96% had 1 or 2 previous births while 72% of severly anaemic patients had more than 2 previous births.

Same implies with the number of previous abortions, in cases of mild anaemia 75% did not have a history of previous abortions while around 30% cases of severe anaemia had a history of 1 or 2 abortions in past.

Birth interval carries a significant impact on the prevalence of anaemia as 52% of patients who had mild anaemia had birth interval of >2yr while around 56% of patients severe anaemia had birth interval of less than 1 yr.

DISCUSSION: The prevalence of anaemia among pregnant woman in the present study was high (69.53%), although higher results were found in other studies like G.S. Toteja et al. (84.9%),[4] V.P. Gautam et al. (96.5%).[5] Umesh Kapil et al. (78.8%).[6] However, lower prevalence of anaemia was reported by Panghal et al. (51.0%).[7] National Family Health Survey-2 conducted during 1998-99 (49.7%).[8] The overall prevalence of severe anaemia (Haemoglobin <7.0 gm/dl) among the study subjects was 3.44%. In other similar studies in India severe anaemia was found 13.1% by G.S. Toteja et al.[4] 8.3% by Raman L et al.[9] 22.8% by V.P. Gautam et al.[5] and only 1.6% by Umesh Kapil et al.[6] and 2.5% by NFHS-2.[8] The prevalence of anaemia was significantly more in those above 25 years and those below 20 years of age and those in class III & IV socio-economic status, similar to that reported by V.P. Gautam et al.[5] In India, National Family Health Survey -2 in 1998 to 99 shows that 54% of women in rural and 46% women in urban areas are anaemic.[10] The relative prevalence of mild, moderate, and severe anaemia are 13%, 57% and 12% respectively in India (ICMR data).

Anaemia is particularly prominent in South Asia. In India for example, up to 88 per cent of pregnant women are affected.[11] The prevalence of anaemia in urban areas, rural areas and endemic areas of hook-worm infestation is 40 to 50 per cent, 50 to 70 per cent and 90 per cent, respectively. A high prevalence of anaemia in pregnancy was observed (96.5%), of which 22.8 per cent had mild, 50.9 per cent had moderate and 22.8 per cent had severe anaemia in a study conducted in Delhi.[12] The reported incidence of anaemia varied from 40 to 90 per cent in various states of India and contributed to 10 to 15 per cent of the direct maternal deaths.[13] The National Family Health Survey (NFHS-2) states that 52 per cent of women in India are suffering from anaemia, mainly nutritional. Incidence of anaemia among women is as high as 60 per cent in Assam, Bihar, Orissa and West Bengal. Whereas the prevalence of anaemia is around 54 per cent in Karnataka and only 23 per cent in

Kerala.[8] According to Rapid Household Survey Reproductive Child Health (RHS-RCH) project, the prevalence of anaemia in Kodagu district of Karnataka during 2002 was 61.5 per cent. Among these anaemic pregnant women, 38.5 per cent was mild and 23.1 per cent was moderate.[14]

As in other studies, severity of anaemia was inversely related to educational status,[5,15,16] socio-economic status.[5] Severity of anaemia was more often seen when first pregnancy occur before 18 years of age and those aged more than 25 years, from joint families, educated till high school or less and parity two or more.[5,15,17,18] One study found that anaemia was most common in illiterate women (53.7%) as compared with 37.1% in literate women.[19] A study conducted in 7 states with similar sample used in National Family Health Survey (NFHS) - 2 had observed and association between the literacy status of husband with anaemia in pregnant women.[20] These factors could be taken care by timely health education to adolescent girls regarding importance of literacy, delaying the age at marriage, family spacing, small family norm etc.

Data from NNMB surveys showed that iron and folic acid intake in the country in all the age groups was very low. There has not been any increase in iron intake over the last three decades in any group. The apparent reduction in iron intake in the NNMB surveys 2000-0115 and beyond was due to the finding that only 50 per cent of the iron in Indian diets is absorbable. Poor iron stores at birth,[21] low iron content of breast milk and low dietary iron intake through infancy and childhood results in high prevalence of anaemia in childhood.[22-23] Anaemia gets aggravated by increased requirements during adolescence and during pregnancy.[22] Assuming that the absorption of iron is 8 per cent in pregnant women, their average dietary intake will meet only 30-45 per cent of the requirement. Interstate differences in iron intake are of small magnitude. The low dietary 628 INDIAN J MED RES, november 2009 intake of iron, folic acid and food stuffs that promote iron absorption, coupled with poor bioavailability of iron are the major factor responsible for very high prevalence of anaemia in the country.[24-25]

CONCLUSION: Prevalence of anaemia in pregnant women is still quiet high (70%), as also found in various other studies done in India.

The existing health care resources should be reinforced strictly, with mandatory supply of IFA tablets to adolescent girls & pregnant women, food fortification along with correction of other nutritional deficiencies and timely interventions for reducing the burden of malaria, & other infectious diseases.

Unfavourable socio demographic factors are the major barriers to the efforts in place for the prevention of anaemia during pregnancy. Socio-economic status, literacy of women & awareness related to health concerns are the major determinants that contribute to the problem of anaemia.

Therefore public health education/information on reproductive health are important health care measures to be undertaken at the community level, taking care of the fact that the health care should be provided during the important years of adolescence, before marriage & child bearing. Also it is high time for realisation that health system should focus on various factors that contribute to the occurrence of anaemia & include them as an important indicator in the national health care policy.

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