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Community Medicine

KNOWLEDGE AND PRACTICES OF PREGNANT WOMEN REGARDING IRON AND FOLIC ACID SUPPLEMENTATION AT SINGUR, WEST BENGAL

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ABSTRACT
Background: Iron deficiency anemia during pregnancy as it is associated with increased maternal and perinatal mortality and morbidity.
Objective: To study the knowledge and practices of pregnant women regarding IFA supplementation during pregnancy.
Methodology :A cross-sectional study was conducted for 2 months (May –July 2017) among 108 pregnant women in their third trimester attending the antenatal   at Singur. Knowledge and practice assessed using structured schedule. Logistic regression was done to establish association.
Results : Poor knowledge significantly associated with lower age(AOR= 0.80,CI=0.67-0.95), lower educational status(AOR= 3.75, CI= 1.5-9.34),lower per capita income (AOR= 3.09, CI= 1.24-7.72). Poor practice associated lower educational status(AOR=3.30, CI=1.45-7.53) and improper guidance from health-care worker(AOR=3.15, CI=1.29-7.72)
Conclusions : The present study indicated poor knowledge and practice regarding IFA supplementation. So intensive counselling, motivation and implementing this into practice would help in reducing the incidence of anemia during pregnancy.

KEYWORDS : Anemia, IFA supplementation, knowledge, practice, Pregnant women

Introduction

Anaemia is a condition in which the oxygen carrying capacity of the red blood cells is insufficient to meet the body physiological needs.[1] Iron, is an essential nutrient, which is required for haemoglobin synthesis, other than the normal well-being, whose demand increases highly during pregnancy and many times does not get supplied through the regular diet.[1]

The world health organisation (WHO) defines anemia as blood haemoglobin concentration less than 11gm/dl or haematocrit less than 37% in pregnant women.[2] It can cause various health complications in every age group including pregnant women, where it can lead to adverse maternal and foetal outcomes[1] .

According to WHO estimation, the prevalence of anaemia in pregnant women is 14% in developed countries, it is 58 % in developing countries and it is 65-75% in India.[2] India contributes to about 80% of the maternal deaths caused by anaemia in South Asia.[2]

 NFHS 4 (2015-16) estimates 52.1 pregnant women in India is anemic. NFHS 4 (2015-16) estimates 53.3 % Pregnant women in West Bengal are anemic.[3] Only around 41.8 % pregnant women consume 100 iron and folic acid (IFA) tablets during pregnancy according to the District Level Household Survey (DLHS)IV, from rural India.[4]

Therefore the most suitable mass intervention for iron supplementation is administering Iron along with Folic acid in the form of tablets to pregnant women aimed at increasing the haemoglobin concentration, so that the level of anaemia at term could be reduced to the best possible extent.[5,6,7]

Most Ministries of Health in developing countries have policies to give pregnant women either iron by itself or combined with folic acid in tablet form (IFA tablets). The National protocols in India require the provision of 1 tablet containing 100 mg elemental iron and 0.5 mg folic acid for daily for 180 days starting after the first trimester, at 14-16 weeks of gestation. To be repeated for 180 days postpartum.[3]

But effectiveness and success of such interventions depend on the knowledge about IFA supplementation   and their practice. Thus knowledge and practice is influenced by several social and demographic factors.[8,9]

There are factors including health system and patient factors which determine the knowledge and practice, which are not studied extensively .

This study was carried out in a primary health centre to assess the knowledge, practices of Iron and folic acid supplementation and its determinants among the pregnant women with iron and folic acid therapy.

Methods

A cross-sectional, Clinic-based observational study was conducted among antenatal mothers attending ante-natal clinics in Diara, Nanda, Poltagarh and Anandnagar villages which are under the purview of RHUTC, Singur AIIH&PH, Kolkata. It was conducted from May 2017 – July 2017 . All Pregnant women attending the ANC clinics in the 3rd trimester, whether primi or multi-gravida till their delivery, were included in this study. The eligible pregnant mothers were interviewed confidentially with the help of a pre-designed, structured schedule after getting written informed consent.

Data were collected according to the age, religion, family type, level of education, per capita income, gravida, number of pregnant women consume IFA tablets regularly (adherence), Hemoglobin status during first antenatal visit, Hemoglobin status during third trimester visit . Modified Prasad's scale 2017 was used for socio-economic classification.

Knowledge was assessed by thirteen questions and each right answer carried one score. Range of attainable score were from 0 to 13. All those who scored ≤ 7 were considered to have poor knowledge. While those who scored > 8 were considered to have good knowledge.

Practice was assessed by 12 questions and each question carried one score. Range of attainable score were from 0 to 12. All those who scored ≤ 7 were considered to have poor practice. While those who

scored > 8 were considered to have good practice.

Data analysis was done using SPSS version 16.0 Descriptive and inferential statistical analysis were performed accordingly.

Univariate and multivariable logistic regression were employed to analyze the association between poor knowledge, poor practice and various factors.

Results

The study included 108 pregnant women attending the antenatal clinic. The socio-demographic characteristics of the study subjects are depicted in Table 1. The mean age of study participant was 22.80 ±2.81. Majority 58 (53.7%) of women were in the age category of 22 to 25 year age group. 92(85.2%) were living in a joint family. Most of the study participants were Hindus 100 (92.6%). Most of the study participants 96 (88.8%) had secondary or below secondary education. 67(62%) of the study subjects belong to Class IV socioeconomic class.

Table : 1: Distribution of study subjects according to Socio-demographic characteristics

Characteristic	No %		*Mean(± SD) #Median (IQR)
Age (in completed years)	18-21	33(30.6)	* 22.80(±2.81) #23(21 – 24.75) Range 13
	22-25	58(53.7)	
	26-29	16(14.8)	
	30-33	1(0.9)	
Religion	Hindu	100(92.6)	
	Muslim	8(7.4)	
Type of family	Joint	92(85.2)	
	Nuclear	16(14.8)	
Education	Below primary (1-4)	5(4.6)	
	Primary(5-7)	16(14.8)	
	Middle school(8-9)	32(29.6)	
	Secondary(10-11)	43(39.85)	
	Higher secondary	10(9.3)	
	University	2(1.85)	
SES (According to Modified B.G Prasad's Scale 2017)	Class 2	8(7.4)	*Mean(± SD) #Median * Rs. 1592.83(±811) #1291.6(1000 – 1361.6)
	Class 3	22(20.3)	
	Class4	67 (62)	
	Class 5	11(10.1)	

Table 2: Distribution of study subjects according to Hemoglobin status during First antenatal visit (n =108)

Hb status	No%	*Mean(± SD) #Median(IQR)
Non anemic	43 (39.8)	
Mild anemia	49(45.4)	*10.67(±.89) #10.6(10.2– 10.81) Range 4.6
Moderate anemia	16 (14.8)	

Table 3: Distribution of study subjects according to Hemoglobin status during third trimester antenatal visit(n =108)

Hb status	No%	*Mean(± SD) #Median(IQR)
Non anemic	69 (63.9)	
Mild anemia	35(32.4)	*11.02(±.57) #11.2(10.56– 11.34) Range 2.94
Moderate anemia	4 (3.7)	

Majority 65(60.2%) were anemic during their first pregnancy visit to clinic and 39(36.1%) were remained anemic during their third trimester pregnancy visit as depicted in Table 2 and 3.

Table 4: Univariate and multivariable regression of factors associated with poor knowledge

Variables		OR(95% CI)	P value	AOR(95% CI)	P value
Age	-	**0.795(0.68-0.93)***	**0.004**	**0.80(0.67-0.95)**	**0.01**
Religion	Hindu	1.231(.311-4.869)	0.76		
	Muslim	1			
Type of family	Joint	1			
	Nuclear	1.63(0.56-4.73)	0.37		
Education	Upto Middle class	**3.56(1.56-8.13)***	**0.004**	**3.75(1.5-9.39)***	**0.008**
	Secondary and above	1			
PCI	Below 50th percentile	**2.80(1.25-6.23)***	**0.012**	**3.09(1.24-7.72)***	**0.025**
	Above 50th percentile	1			
Gravida	Primigravida	**2.27(1.01-5.10)***	**0.047**	2.17(0.85-5.50)	0.118
	Multigravida	1			
Previous H/O Abortion	Yes	1			
	No	1.009(0.331-3.07)	0.987		
Health Care provider explained	Yes	1			
	No	1.72(0.75-3.95)	0.542		
Hemoglobin Status During First Visit	Non- anemic	1.91(0.85-4.32)	0.119		
	Anemic	1			

Nagelkerke R^2 0.30
Hosmer & Lemeshow not significant (0.37)
*P value less than .05 was considered statistically significant

From Table 4 it was evident lower age, low level of education, lower socio- economic status and primigravida were associated with poor knowledge in univariate logistic regression and association was statistically significant.

All those four explanatory variables found to be associated with poor knowledge were entered into multivariable logistic regression for adjustment.

It was obvious that, in the multivariable logistic regression analysis, only three of the explanatory variables, lower age ,low level of education, lower socio- economic status retained their significance after adjustment.

Table 5: Univariate and multivariable regression of factors associated with poor practice

Variables		OR (95% CI)	P value	AOR (95% CI)	P value
Age	-	0.95(0.82-1.08)	0.458		
Religion	Hindu	1			
	Muslim	3.03(0.60-15.35)	0.079		
Type of family	Nuclear	1			
	Joint	1.74(0.59-5.09)	0.307		
Education	Upto Middle class	**3.36(1.51-7.47)***	**0.002**	**3.30(1.45-7.53)***	**0.005**
	Secondary and above	1			
PCI	Below 50th percentile	1.35(0.63-2.89)	0.43		
	Above 50th percentile	1			
Gravida	Primigravida	1.66(0.75-3.69)	0.209		
	Multigravida	1			
Previous H/O Abortion	Yes	1.23(0.40-3.75)	0.709		
	No	1			
Health Care provider explained	Yes	1			
	No	**3.32(1.40-7.87)***	**0.003**	**3.15(1.29-7.72)***	**0.004**

	No	3.32(1.40-7.87)*	0.003	3.15(1.29-7.72)*	0.004
Hemoglobin Status During First Visit	Non- anemic	1.26(0.57-2.76)	0.564		
	Anemic	1			

Nagelkerke R^2 0.29
Hosmer & Lemeshow not significant (0.25)
*P value less than .05 was considered statistically significant

From Table 5 it was evident, low level of education, Improper guidance from health care worker were associated with poor practice in univarite logistic regression and association was statistically significant.

Those two explanatory variables found to be associated with poor practice were entered into multivariable logistic regression for adjustment and found statistically significant.

Out of 45 pregnant women who were taking Iron and folic acid tablets irregularly stated that forgetfulness was the major reason 32 (71.1%) for irregular-consumption.

Discussion

Anaemia prevention programme is recently strengthened by Government of India with Iron plus guidelines with gains from NRHM and MOFHW and support of workers like ASHA, FHW and ANM. Pregnant women can get IFA tablets free of cost at all Government hospitals or through distribution by these workers during house to house visits. In spite of these efforts anaemia in pregnancy still stands as a major health problem.

The present study showed that 65 (60.1%) of the study participants had poor knowledge regarding IFA supplementation, A similar study conducted by Nivedita K, Shanthini N titled Knowledge, attitude and practices of pregnant women regarding anemia, iron rich diet and iron supplements and its impact on their haemoglobin levels showed knowledge is 52.5% [9].

In our present study it was revealed that only 51.9 were aware about anemia in pregnancy and 66.1 % were aware of significance of consumption of iron and folic acid tablets tablets besides regular diet. Similarly, Nivedita et al found that Only 56.6% gave the correct response that pregnant women should take iron supplementation inspite of taking a healthy diet [9].

The other variables which significantly associated poor knowledge regarding iron and folic acid supplementation is lower education and per-capita income. This finding is consistent with a study reported by Taye B et al[10]. This might be due to education and higher income would increase the women's access to information through reading and understanding the benefit of the supplement. Different studies reported the benefit of maternal knowledge and perception towards maternal compliance to the iron and folic acid supplementation use[11,12,13].

The study found that there was significant association regarding preventive practice regarding anemia and women's education. similar finding was found in study conducted by Rajeev Kumar Yadav et al. Knowledge and Practice of Anemia among pregnant women attending antenatal clinic in Dr. Prabhakar Kore hospital, Karnataka-A Cross sectional study[14].

Our study found out that lack of Counselling by health worker is the significant predictor of poor practice , Another study on influence of awareness and attitude about anemia in South India[15] found that, in women in rural areas misconceptions regarding oral iron intake and lack of counselling by health workers were significant predictors of poor Practice.

In our study 45 (41.7%) pregnant women were taking iron and folic acid tablets irregularly. Similarly Balasubramaniyam et al found that 51% had a regular intake of iron tablets, 32% had irregular intake, and 17% had not taken iron supplementation.[16]

In our study major reason for irregular consumption of iron and folic acid was forgetfulness in 71.1% , Similarly Dutta et al found forgetfulness to be a major reason for irregular consumption.[17]

Limitation of the study
The present study has got its own limitations. Small sample size taken due to limited time, manpower and resources. A larger sample size would be required to establish these associations adequately.

The cross- sectional nature of the study doesnot extend to the information on complete iron intake during pregnancy.

There may be subjective bias introduced during the interview period.

Conclusion
Most of the participant had a very poor level of knowledge about anaemia. Therefore, pregnant woman should receive adequate information from health providers about iron folate supplementation. They should be aware of the benefits and importance of taking the supplementation.

Targeted estimation of hemoglobin levels in adolescent girls and women in reproductive age group, intensive counselling and motivation of pregnant women to consume Iron and folic acid, implementing this into practice and ensuring adequate supply to them would help in reducing the incidence of anemia during pregnancy.

References
1. Iron deficiency anemia assessment, prevention and control[10-9-2012]. Available from URL.http://int/vmnis/indicators/haemoglobin.pdf.
2. World Health Organization. Iron Deficiency Anaemia: Assessment, Prevention and Control. A guide for programme managers.
3. National Family Health survey (NFHS-4), India 2015-2016,West Bengal. Ministry of Health and Family Welfare Government of India. [Last accessed on 2017 aug 4]. Available from: http:// www.rchiips.org/ pdf/rch3/state/India.pdf .
4. Consumption of IFA tablet, State fact sheet District Level Household and Facility Survey 2015-16. Ministry of Health and Family Welfare Government of India. [Last accessed on 2017 aug 17] Available from: http://www.rchiips.org/pdf/rch3/state/India.pdf .
5. Mitra P, Unnikrishan B et al . Complaince with iron and folic acid therapy among pregnant women in an urban area of south india-2013 Dec; 13(4); 880-885
6. Galloway R, Dush E, Elder L et al. Women's perception of iron deficiency and anemia prevention and control in eight developing countries. Social Science and medicine. 2002 Aug : 55(4): 529-544
7. Galloway R, Mcguire J, Determinants of compliance with Iron and folic acid supplementation; Supplies, Sideeffects, Psychology Social Science and Medicine .1994;39;381-390
8. Olokare Puspa O, Gattoni Prakash L et al. A study of prevalence of anemia and socio-demographic factors associated with anemia among pregnant women in Aurangabad City India.2012;69(1);30-34 .
9. Nivedita K, Shanthini FN. Knowledge, attitude and practices of pregnant women regarding anemia, iron rich diet and iron supplements and its impact on their hemoglobin levels. Int J Reprod Contracept Obstet Gynecol. 2016;5:425-31.
10. Taye B, Abeje G, Mekonen A: Factors associated with compliance of prenatal iron Folic Acid supplementation among women in Mecha district, Western Amhara. Pan African Medical Journal. 2015;20(43).
11. Zakia M, Seham A, Mikhail H, Khattab M: Assessment of Adherence to Iron and Folic Acid Supplementation and prevalence of anemia in pregnant women. Med. J. Cairo Univ., 2011, Vol. 79, No. 2, PP; 115–121.
12. Oriji VK, Enyindah CE, Nyeche S: Factors determining compliance to routine iron supplementation in pregnancy at the University of Partharcout Teaching Hospital. Niger J Med. 2011. 20(1): 131–4. pmid:21970275
13. Gebremedihin S, Samuel A, Mamo G, Moges T, Assefa T: Coverage, compliance, and factors associated with utilization of iron supplementation during pregnancy in eight rural districts of Ethiopia: a cross-sectional study. BMC public Health. 2014; 14;14: 607. pmid:24930036
14. Yadav1 R.K , Swamy M.K , Banjade B :Knowledge and Practice of Anemia among pregnant women attending antenatal clinic in Dr. Prabhakar Kore hospital, Karnataka-A Cross sectional study. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 13, Issue 4 Ver. VII. (Apr. 2014), PP 74-80 www.iosrjournals.org
15. Demographic details of Manglore and other parts of India[10-9-2012]. Available from URL Http;//http;//Census India. Gov.in /2011-Common/ ahsurvey.html
16. Balasubramanian T, Aravazhi M, Sampath SD. Awareness of Anemia among Pregnant Women and Impact of Demographic Factors on their Hemoglobin Status. Int J Sci Stud. 2016;3(12):303-)
17. Dutta AJ, Patel PB, Bansal RK. Compliance to Iron Supplementation Among Pregnant Women: a Cross Sectional Study in Urban Slum. Natl J Community Med. 2014;5(4):457-62.