

PREVALENCE OF ANAEMIA IN PREGNANT WOMEN ATTENDING A PRIMARY HEALTH CENTRE IN BARPETA DISTRICT, ASSAM

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ABSTRACT

BACKGROUND

Anaemia in pregnancy has serious adverse effects on the health of the mother and the developing foetus.

OBJECTIVES

The study aims to estimate the prevalence of anaemia in pregnant woman attending the Nagaon Primary Health Centre (PHC) in Barpeta district, Assam.

METHODS

A cross-sectional study was carried out from 1 April, 2014 to 1 May, 2014. 100 pregnant women attending Nagaon PHC were interviewed using a predesigned and pretested interview schedule followed by a short clinical examination for pallor and laboratory estimation of haemoglobin. Sahli's (Acid Haematin) method was used for haemoglobin estimation. Haemoglobin level below the cut-off 11 g/dL was used to label a pregnant woman as anaemic and further classified as mild (10-10.9 g/dL), moderate anaemia (7-9.9 g/dL) and severe anaemia (<7 g/dL).

RESULTS

77% women were suffering from anaemia. Out of these, 57 %were mildly anaemic and 20% were moderately anaemic. Women of younger age groups, greater parity, a gap less than 3 years between subsequent pregnancies, less education and practising Hinduism had a greater prevalence of anaemia.

CONCLUSION

Awareness about the serious consequences that anaemia can lead to and advocacy of a proper iron-rich diet, regular intake of IFA tablets and purification of water to prevent infestation by parasites can help in reduction of anaemia.

KEYWORDS

Anaemia, Pregnant Women, Prevalence, Assam, India

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INTRODUCTION: Nutritional anaemia is a deficiency disorder that has affected many in our country and throughout the world. The World Health Organisation (WHO) has defined anaemia as 'A condition in which the haemoglobin content of blood is lower than normal as a result of a deficiency of one or more essential nutrients, regardless of the cause of such deficiency.' Anaemia is present if the haemoglobin level is below the cut-off points recommended by WHO.¹ The most frequent cause of anaemia is iron deficiency and less frequently folate or vitamin B 12 deficiencies. In addition, proteins, amino acids, vitamins A, C and other vitamins of B-complex group are also involved in maintenance of haemoglobin level. Worldwide, it

is estimated that global anaemia prevalence is at around 42%.¹

Available data from the National Family Health Survey (NFHS)-3 shows that the national prevalence of anaemia is 58% in pregnant women in the age group of 15-49 years whereas the corresponding state figure in Assam stands at 72%.² Anaemia particularly affects pregnant women. Iron deficiency anaemia prevalence is higher in pregnant women due to the extreme iron demands of a growing foetus during pregnancies, which are approximately two times the demands in the non-pregnant state. Increased iron requirements during pregnancy and lactation lead to poor iron stores, in turn predisposing pregnant women to iron-deficiency anaemia. 19% of maternal deaths in India have been attributed to anaemia.³ Severe anaemia in pregnancy impairs oxygen delivery to the foetus and interferes with normal intrauterine growth, resulting in intrauterine growth retardation, stillbirth, low-birth weight and neonatal deaths.⁴

As such, it has emerged as a serious public health problem that needs consideration. In India, the high prevalence of anaemia in pregnant women can be attributed to an insufficient quantity of iron-rich foods and 'Iron

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enhancers' in the diet, and low bioavailability of dietary iron, poor iron stores from infancy, childhood deficiencies and adolescent anaemia.

Iron loss from postpartum haemorrhage, increased iron requirement due to tissue, blood and energy requirements during pregnancy predispose women to anaemia. Teenage pregnancies and repeated pregnancies with less than 2 years' interval are also responsible for a high prevalence of anaemia. Iron loss due to parasite load (e.g., malaria, intestinal worms) and poor environmental sanitation and unsafe drinking water are additional causes for anaemia.⁵ The present study tries to assess the extent of the problem of nutritional anaemia in a small pregnant population in a district in rural Assam. It has attempted to explore any factors that might have any role in the process.

This study, conducted in a Primary Health Centre in rural Assam, was carried out by interviewing pregnant participants about factors hypothesised to play a part in causing anaemia. Pregnant women were interviewed irrespective of the period of gestation and consumption of Iron and Folic acid (IFA tablets); this was done to review the benefits of the National Nutritional Anaemia Control Programme. It has been observed that despite the national programme being in operation for quite a long time, it still continues to be a major public health problem affecting pregnant women in a rural area.

The present study is an attempt

- To determine the prevalence of anaemia in pregnant woman attending the Nagaon Primary Health Centre in Barpeta district, Assam and
- To compare the observations so obtained with the results of relevant national surveys. It tries to observe the scenario at the level of a small rural population.

METHODS

Study Details: A cross-sectional study was carried out to estimate the prevalence of anaemia in pregnant women attending the Nagaon PHC in Barpeta district, Assam. All consenting pregnant women attending the Primary Health Centre district for antenatal check-up were selected for the study. With a view to obtaining full-cooperation, the purpose of the study was clearly explained. Data collection involved 100 participants in any trimester of pregnancy irrespective of Iron and Folic Acid (IFA) consumption. Data collection was carried out for a period of one month followed by compilation of collected data and interpretation of results.

Data Collection: Participants were interviewed using a predesigned and pretested interview schedule after

obtaining due consent from them. This was followed by a short clinical examination for pallor.

A Laboratory estimation of haemoglobin was performed using Sahli's (Acid haematin) method for haemoglobin estimation. Anaemia was classified as per the World Health Organisation (WHO) grading criteria. Haemoglobin level below the cut-off of 11 g/dL was used to label a pregnant woman as anaemic and it was further classified as

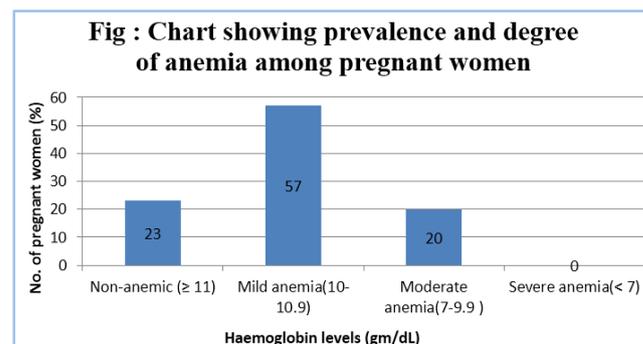
- Mild anaemia (10-10.9 g/dL)
- Moderate anaemia (7-9.9 g/dL)
- Severe anaemia (<7 g/dL)

Data Analysis: Data so collected on various aspects of the study were compiled and tabulated according to the percentage of anaemic women. Prevalence of anaemia was further classified as mild, moderate or severe. Further, the distribution of pregnant anaemic women according to different parameters was tabulated, as per questions asked in the interview. On the basis of tabulated data, graphical and diagrammatic representations are made wherever felt necessary. The results have been presented in the chapter under Results.

RESULTS:

Hb (<11 g/dL)	No. of Pregnant Women	Percentage (%)
Anaemic	77	77
Mild	57	74.02
Moderate	20	25.97
Severe	0	-
Non-Anaemic	23	23
Total	100	100

Table 1: Distribution of Pregnant Women According to Haemoglobin Levels



Variable		Anaemic (n =77)	Non-anaemic (n=23)	Total (n=100)	df	χ ²	p-value
Age	<20	29	3	32	3	10.525	0.014
	20-25	42	13	55			
	26-30	2	3	5			
	>30	4	4	8			
Caste	General	53	7	60	3	11.0286	0.01157
	OBC	8	6	24			

	SC	14	9	13			
	ST	2	1	3			
Religion	Hinduism	40	9	49	1	1.1643	0.280574
	Islam	37	14	51			
Type of family	Nuclear	23	6	29	1	0.1231	0.725691
	Joint	54	17	71			
Educational qualification	Illiterate	18	2	20	5	23.5	0.0002
	Primary school	39	3	42			
	High school	15	13	28			
	Matriculation	4	2	6			
	Higher Secondary	0	0	0			
	Graduate	1	2	3			
	Post-graduate	0	1	1			
Parity	<1	20	16	36	2	14.8664	0.00051
	1-3	24	2	26			
	>3	33	5	38			
Interval between pregnancies	1-2 years	20	1	21	2	2.4671	0.291254
	2-3 years	35	5	40			
	>3 years	2	1	3			
Consumption of green leafy vegetables	3-5 times/week	8	11		3	22.5332	0.0005
	1-2 times per week	4	3				
	Occasionally	25	7				
	Do not consume	40	2				
Citrus fruit consumption	3-5 times/week				3	31.3006	0.00001
	1-2 times per week						
	Occasionally						
	Do not consume						
Consumption of IFA tablets (100 or more)	Yes	23	12		1	3.8725	0.05
	No	54	11				

Table 2: Distribution of Anaemia and Different Variables among the Pregnant Women

p-value is significant at $p > 0.05$.

Significant values have been put in bold.

DISCUSSION:

- The National Family Health Survey-3 (NFHS), 2005-2006 found that 58% of pregnant women in India were anaemic.⁶ It concludes that 28% suffer from mild anaemia, 32% from moderate anaemia and 3% from severe anaemia.
- The District Level Household Survey (DLHS) on Reproductive and Child Health, 2002-2004⁷ found that around 96% of the pregnant women in India are suffering from some degree of anaemia. 51% of women have been found to be suffering from mild anaemia, 42% from moderate anaemia and 3% from severe anaemia. In the state of Assam, it found that 97% of the pregnant women are suffering from some form of anaemia. Among pregnant women, 31% have mild anaemia, 59% who have moderate anaemia and 8 %who have severe anaemia.
- Among the 100 pregnant women evaluated in this present study, 77 were found to be anaemic. 57 women showed mild anaemia (74.02%), followed by

moderate anaemia in 20 (25.97%). No cases of severe anaemia were observed during this period.

These values are more than those reported in the NFHS-3 and less than those found in the DLHS-3. As per the interview schedule, the following observations were noted after the completion of the study.

- Anaemia was found to be most prevalent in the age group 20-25 years. Young women were found to be more anaemic.
- Anaemia was mostly prevalent among the general caste.
- Women from joint families have been found to be anaemic in a number greater than those from nuclear families. A possible cause could be inadequate intake of food on their part after serving other family members and greater work-load in a joint family with more family members.
- A very pronounced section of the women of the area has been found to be illiterate. As the results indicate, anaemia has been found to be more prevalent in

illiterate women as well as primary school drop-outs. Lack of proper awareness about anaemia and its consequences could be attributed to this.

- Majority of the pregnant women interviewed were housewives excepting few, who worked outside their homes. They were also among the lesser educated ones, which could explain ignorance about anaemia and its detrimental effects on both mother and child.
- Anaemia appears to be more prevalent in women with a parity of more than 3 children. Loss of blood or haemorrhage in each delivery or close pregnancy intervals in some pregnant women could be responsible for this observation.
- It has been observed that an interval of 1-2 years for a subsequent pregnancy has shown an increased prevalence of anaemia. Out of the 77 anaemic women, 46 were multigravida. Out of these, deliveries for 29 women were institutional, and the rest had their deliveries conducted at home. Home deliveries and their improper management can be suspected to play some role in the occurrence of anaemia.
- Consumption of green leafy vegetable as well as citrus fruits has been found to be inadequate. Lack of proper awareness of what foods are necessary for a healthy pregnancy as well as a poor per capita income appears to have some effect on nutrition of the pregnant women.
- Vegetarian practices seem to indicate inadequate consumption of haemoprotein from meat and fish. This has led to the result of a larger number of Hindus being anaemic.
- Another finding observed is that in spite of consumption of Iron and Folic acid (IFA) supplements, of the 77 anaemic women, 23 women, in spite of IFA consumption have been found to be anaemic. Causes behind this could be irregular intake of the supplements provided, or any other inhibitors that hinder oral absorption of iron.
- Passage of worms in stool was reported by few pregnant women who were found to anaemic.

From this study, it was seen that anaemia was highly prevalent in a rural population of pregnant women. Particularly affected were young women, those with less education and those with a parity of more than 3 years. Factors like an interval of 1-3 years between subsequent pregnancies, religion and food habits are also seen to have played some role. As this study was carried out within a limited span of time, all the aspects could not be covered in depth and thereby more explorative studies into the possible factors with applications of appropriate statistical tests are necessary to look into the situation.

CONCLUSION: The results obtained in this study indicate that a major portion of pregnant women in this rural area of Assam remain anaemic. Anaemia still remains a health major problem for this population. The majority of women are

revealed to have been suffering from mild anaemia, and this condition could deteriorate if not corrected in time.

All this could ultimately lead to serious consequences for both mother and child; very grave consequence of this uncorrected anaemia could be increased maternal or neonatal mortality. The government programme of Weekly Supplementation of Iron and Folic Acid (WIFS) introduced to make iron tablets available for adolescent girls is an appreciable move; proper execution will ensure that any existing anaemia is corrected at adolescence itself and it does not manifest itself at adulthood or during early pregnancy. What remains even more important is awareness about the serious consequences that anaemia can lead to and advocacy of a proper iron-rich diet and purification of water to prevent infestation by parasites and other organisms. Further, family planning services should be ensured to all in order to avoid pregnancies in a smaller interval of time.

Moreover, workers at health centres should be motivated for ensuring proper distribution as well as reception of IFA tablets to adolescents and expectant mothers. Programme errors should be minimised to all possible extents. It was noticed in the course of this study that women hesitate to consume IFA tablets because of the inadvertent side-effects of oral iron preparations. It can thus be concluded that awareness about anaemia and proper distribution and consumption of IFA supplements by pregnant women is the need of the hour.

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