

## PREVALENCE OF ANAEMIA AND NUTRITIONAL AWARENESS AMONG RURAL PREGNANT WOMEN

PRIYADARSHANI D & ASHA A

Department of Food and Nutrition, College of Home Science,  
Vasanrao Naik Marathawada Krishi Vidhyapeeth, Parbhani, Maharashtra, India

### ABSTRACT

A study was undertaken to assess the prevalence of anaemia and nutritional awareness among pregnant women in the age group of 16 to 30 years from three villages of Parbhani Tahsil, Maharashtra, India. Base line data of respondents was collected using pre structured survey schedule and haemoglobin content was estimated by Cyanamethaemoglobin method. Findings showed that 62.22 percent pregnant women were from joint families and 45.56 percent of respondents had only one earning member in their family. Majority (94.44%) of the respondents was educated, most of them were involved in the farming (51.11%) and 46.67 percent of subjects had insufficient crops from their own land. Mean haemoglobin content was 9.18 g/dl. More than 90 percent respondents were anaemic. Prevalence of mild, moderate and severe anaemia among the subjects was 47.78, 34.44 and 8.89 percent respectively. All most all subjects knew that green leafy vegetables should be included in the diet but more than half of them (57.78 %) didn't know the reason for consumption. Practice of washing vegetables after cutting was followed by 64.44 per cent subjects. None of the subjects had knowledge regarding the causes, ill effects, identification and preventive measures of anaemia. This study substantiates the existence of mild to severe form of anaemia and poor nutritional awareness among rural pregnant women and underlines the need for nutrition education.

**KEYWORDS:** Pregnancy, Anaemia, Haemoglobin, Nutritional Awareness

### INTRODUCTION

Pregnancy is one of the most critical and unique period in a woman's life. It is a period of considerable physiological and nutritional stress, during which the maternal requirements of almost all the nutrients are greatly increased in order to meet the needs of the growing foetus and of maternal tissues associated with pregnancy.

Maternal anaemia is a burning public health problem and has been related to poor foetal outcome. In India anaemia is directly or indirectly responsible for 40 percent of maternal deaths (Kalaivani, 2009). Maternal anaemia is associated with poor intrauterine growth and increased risk of preterm births and low birth weight rates. This in turn results in higher perinatal morbidity and mortality and higher infant mortality rate. Women with moderate anaemia have substantial reduction in work capacity and may find it difficult to cope with household chores and child care. They are more susceptible to infections and recovery from infections may be prolonged.

Nutritional or iron deficiency anaemia is a pathological condition in which the blood haemoglobin level, the haematocrit or the number of red blood cells becomes abnormally low. Anaemia is the late manifestation of deficiency of

nutrients needed for haemoglobin synthesis. Inadequate supply of nutrients viz. iron, folic acid, vitamin B<sub>12</sub>, proteins, vitamin A, vitamin C, niacin and pantothenic acid are involved in the maintenance of blood haemoglobin level.

About one third of the global population (over 2 billion) is anaemic (WHO, 2004). Prevalence of anaemia in South Asian countries is highest in the world. WHO estimates that even among the South Asian countries, India has the highest prevalence of anaemia (Ezzati *et al.*, 2002). In India, prevalence of anaemia in all age groups is higher as compared to other developing countries (DeMayer and Tegman, 1998). In the developing world alone, 370 million women suffer from anaemia, with the prevalence being higher in pregnant women (51%) than in the non-pregnant women (41%). The prevalence among pregnant women in Southeast Asia varies from 13 percent in Thailand to the highest prevalence of 88 percent in India (Vijaraghavan, 2007). As per NFHS-3 (2005-06) survey in rural Maharashtra 56.40 per cent pregnant women are anaemic. Even among affluent and educated segments of population about 50 percent of children, adolescent girls and pregnant women are anaemic (Kalaivani, 2009). The present study was therefore planned to estimate the prevalence and awareness about anaemia in rural pregnant women.

## METHODOLOGY

The present study was carried out in the three villages of Parbhani Tahsil. A total sample of 90 rural pregnant women with the gestational age of three to fifth month was randomly selected. The data was collected by using pretested survey schedule. The information regarding socio-economic status, family type, family size, age, education and occupation was collected by personally interviewing the subjects. Nutritional awareness with special emphasis on anaemia was also tested through the pre tested survey schedule by interviewing the subjects. Questions regarding causes, ill effects, identification and preventive measures of anaemia were asked to collect the information regarding awareness of anaemia among the subjects. Haemoglobin content of the subjects was estimated by Cyanamethaemoglobin method (Crosby *et al.* 1954). Based on haemoglobin content the subjects were divided into four categories such as normal (Hb > 11 g/ dl), mildly anaemic ( Hb 9-11 g/ dl), moderately anaemic ( Hb7-9 g /dl) and severely anaemic ( Hb < 7 g /dl) (WHO, 1968).

### Statistical Analysis

Data obtained regarding demographic profile, haemoglobin level and the nutritional awareness of respondents was expressed in frequency and percentage.

## RESULTS AND DISCUSSIONS

### General Background Information

General background information of selected subjects is presented in Table 1. It is evident from the data that maximum subjects were from joint families (62.22 %), whereas 37.78 percent were from nuclear families. In all 45.56 percent of the respondents had only one earning member in their families whereas, only 16.66 percent of respondents had  $\geq$  3 earning members in their family. Family size of the pregnant women's indicated that nearly half of the respondents (48.89 %) were from medium size families with 4-6 members. Quite a big number of families (42.22 %) were big with more than 6 members; only 8.89 percent subjects were from small families. Jalaja Kumari *et al.* (2009) also reported that maximum rural pregnant women were from joint families and were illiterate. Sreegiri *et al.* (2010) observed that majority of the respondents were from middle size (3 to 5 members) families. There were 71.11 percent of the subjects who had own land and 28.89 percent subjects did not possess land. Majority (46.66 %) of subjects had insufficient crops from their

own land. Food crops were marketed by 37.78 percent subjects and food crops were self sufficient for 15.56 percent subjects. It was noticed that 52.22 percent respondents had empty space in the house while remaining 47.78 percent respondents had no empty space. However, 64.44 percent subjects were willing to develop kitchen garden. The willingness for kitchen garden was not expressed by 35.56 percent respondents. The educational status of the selected pregnant women revealed that there were only 5.56 percent uneducated respondents. Half of the subjects (50.00 %) were 10<sup>th</sup> passed followed by 44.44 per cent pregnant women who had higher secondary school and above level of education. Occupation wise data indicated that farming was a predominant (51.11 %) occupation followed by household work (44.44 %) and remaining (4.44 %) pregnant women were engaged in business.

### **Blood Haemoglobin Content of Pregnant Women**

Table 2 gives the information about haemoglobin content of the respondents. The mean value of blood haemoglobin content (9.18 g/dl) of pregnant women indicated that they were anaemic. This may be due to the poor awareness of respondents regarding various aspects of anaemia (Table 4). Jolly *et al.* (2000) and Wadgave (2011) also reported that majority of the pregnant women were anaemic with blood haemoglobin content between 7 to 9.99 g/dl.

### **Distribution of Pregnant Women According to Categories of Anaemia**

Distribution of selected pregnant women according to categories of anaemia is presented in Table 3. Prevalence of anaemia was at higher magnitude. Only 8.89 percent of selected pregnant women were normal. Percent prevalence of mild, moderate and severe anaemia among the subjects was 47.78, 34.44 and 8.89 percent respectively. The scrutiny of data regarding prevalence of anaemia among studied pregnant women indicated that a meagre percentage (almost 9 percent) of pregnant women was non- anaemic while remaining 91 percent were suffering with anaemia which is a very high percentage. Severe anaemia (Hb < 7 g/dl) was also noticed in 8.89 percent pregnant women which is very dangerous in view of pregnancy outcome. Ayaskar and Kulkarni (2008) reported 100 percent prevalence of anaemia in rural pregnant women. Wadgave (2011) reported high prevalence (92 %) of anaemia among pregnant women. In both studies moderate anaemia (Hb 7 to 9.99 g/dl) was reported to be highest. These results are mainly due to the very poor knowledge of rural pregnant women regarding causes, effects and preventive measures of anaemia (Table 4).

### **General Awareness of Pregnant Women Regarding Anaemia**

General awareness of pregnant women regarding anaemia is presented in Table 4. The scrutiny of data regarding causes, ill effects, identification and preventive measures of anaemia among the subjects indicated that 100 per cent subjects had no knowledge regarding the above aspects of anaemia. All the respondents (100%) were unaware of the facts that anaemia is a nutritional deficiency disease, pregnant women are at risk for anaemia, blood examination is necessary for diagnosis of anaemia, it can cause due to worm infestation, periodic deworming helps in prevention of anaemia, anaemia in pregnancy results in low birth weight of baby, affects growth in children and working capacity in adults. These results showed the poor knowledge level of rural pregnant women regarding anaemia. Vijayaraghavan (2007) reported 72.80 percent prevalence of anaemia among pregnant women in Maharashtra and further reported that dietary inadequacy, iron absorption inhibitors, ignorance, lack of purchasing power, exposure to frequent infections and infestations were the major determinants of anaemia.

Table 5 shows the nutritional awareness of women about anaemia. None of the respondent knew that anaemia can

be prevented through dietary care. It was noticed that only 37.78 and 10 per cent respondents knew that eggs and green leafy vegetables respectively should be consumed in increased amount during anaemia. Rest of the 52.22 per cent subjects did not know about it. The awareness regarding cooking green leafy vegetables in iron vessel was seen only in 22.22 per cent pregnant women. Consumption of citrus fruits and fermented foods helps in prevention of anaemia was not known by 85.55 per cent selected pregnant women. Only 14.44 per cent selected pregnant women expressed positive opinion about it. Practice of washing vegetables after cutting was followed by 64.44 per cent subjects.

## CONCLUSIONS

From the findings of the study it can be concluded that more than 80 per cent of the rural pregnant women were having mild to moderate anaemia. Majority of the rural pregnant women were educated but had very poor nutritional awareness, which is indicative of the urgent need of nutrition education.

## REFERENCES

1. Ayaskar, S. R. and Kulkarni, D. N. (2008). Prevalence of anaemia in the pregnant women. *Asian J. Home Science*, 3(2): 199-201.
2. Crosby, W. H., Munn, J. and Furth, F. W. (1954). Cynomethaemoglobin method for estimation of haemoglobin. *US. Armed forces, Med, J.*, 5-693.
3. DeMayer, E. M. and Tegman, A. (1998). Prevalence of anaemia in the World. *World Health Organ Qlty*; 38:302-16
4. Ezzati, M., Lopez, A. D., Dogers, A., Vander, H. S. and Murray, C. (2002). Selected major risk factors and global and regional burden of disease. *Lancet.*, 360:1347-60.
5. Jalaja Kumari, D., Sri Hari Krishna, B. and Anjaneyulu, GVSR (2009). Health and nutritional status of rural teenage pregnant girls and prevalence of low birth weight. *Ind. J. Nutr. Dietet.* (46): 246-251.
6. Jolly, R. A., Ganesan, C. and Jayaseelan, S. (2000). Maternal anaemia: A persistent problem in rural Tamil Nadu. *Nati. Med. J. Ind.* 13(5): 242-245.
7. Kalaivani, K. (2009). Prevalence & consequences of anaemia in pregnancy. *Ind. J. Med. Res.*, (130): 627-633.
8. Sreegiri, S, Babu Krishna, G. and Madhavi Devi, B. (2010) A cross sectional study of nutritional status of antenatal mothers in rural areas of Visakhapatnam, Andhra Pradesh. *J. Comm. Med.*, 6 (1) [www.jcmorissa.org](http://www.jcmorissa.org).
9. Vijayaraghavan, K. (2007). Iron deficiency anaemia in India and its control. *Ind. J. Nutr. Dietet.*, (44):107-114.
10. Wadgave, H. V. (2011). Burden of anaemia among the pregnant women in rural area. *Health line 2* (2): 76-77. ISSN 2229-337X
11. World Health Organization. (2004). Micronutrient deficiency: Battling iron deficiency anaemia: the challenge. Available from: <http://www.who.int/nut/ida.htm>, accessed on April 24, 2008
12. World Health Organization. (1968). Nutritional anaemias: Report of a WHO Scientific Group. Technical report series No. 405. Geneva.

## APPENDICES

Table 1: Socio-Economic and General Background of Pregnant Women

Particulars	Total (n=90)	Total (%)
Type of Family		
Joint	56	62.22
Nuclear	34	37.78
Number of earning members		
1	41	45.56
2	34	37.78
≥ 3	15	16.66
Size of family-		
< 4	08	8.89
4-6	44	48.89
> 6	38	42.22
Own House :		
Yes	90	100
No	-	-
Own Land :		
Yes	64	71.11
No	26	28.89
Food crops grown are-		
Marketed	34	37.78
Self sufficient	14	15.56
Insufficient	42	46.66
Empty space	47	52.22
No space	43	47.78
Willingness for kitchen garden :		
Yes	58	64.44
No	32	35.56
Education-		
Nil	05	5.56
Up to 10 <sup>th</sup> std.	45	50
Secondary & above	40	44.44
Occupation		
Household work	40	44.44
Farming	46	51.11
Service	-	-
Any other	04	4.44

Table 2: Blood Haemoglobin Content of Pregnant Women (Mean ± SD)

Groups	Haemoglobin (g/dl)
Total sample (n=90)	9.18±1.45

Table 3: Distribution of Pregnant Women According to Categories of Anaemia

Anaemia Category	Total Sample (n=90)
Normal (>11g/dl )	8 (8.89)
Mild (9-11 g/dl)	43 (47.78)
Moderate (7-9 g/dl)	31 (34.44)
Severe (< 7 g/dl)	8 (8.89)

Figures in parentheses indicate percentages

**Table 4: General Awareness of Pregnant Women Regarding Anaemia**

Awareness Aspects	Total Sample (n=90)
Have you heard about anaemia Yes	-
No	90 (100)
Anaemia is- Infectious disease	-
Nutritional deficiency disease	-
Don't know	90 (100)
Risk of anaemia is more in pregnancy- Yes	-
No	-
Don't know	90 (100)
Symptoms of anaemia are – Headache	-
Paleness	-
Both I & II	-
Don't know	90 (100)
Is blood examination necessary for diagnosis of anaemia - Yes	-
No	-
Don't know	90 (100)
Do you know normal level of Hb in pregnant women- Yes	-
No	90 (100)
Anaemia is caused due to-	
Contaminated water	-
Contaminated food	-
Worm infestation	-
Don't know	90 (100)
Anaemia adversely affects-	
Growth	-
Work capacity	90 (100)
Don't know	-
Anaemia in growing children affects-	
Height	-
Learning ability	-
Don't know	90 (100)
Periodic deworming helps in prevention of anaemia- Yes	-
No	-
Don't know	90 (100)
Anaemia during pregnancy results in –	
High fever	-
Low Birth Weight	-
Don't know	90 (100)
Is it advisable to take iron tablets during pregnancy-	
Yes	-
No	-
Don't know	90 (100)

Figures in parentheses indicate percentages

**Table 5: Nutritional Awareness of Pregnant Women about Anaemia**

Awareness Aspects	Total Sample (n=90)
Anaemia results due to deficiency of Calcium	-
Iron	-
Don't know	90 (100)
Anaemia can be prevented through diet-	
Yes	-
No	-
Don't know	90 (100)
Anaemic person should eat more-	
Eggs	34 (37.78)
GLV	9 ( 10)
Don't know	47 (52.22)
Which vessel do you use for cooking GLV-	
Aluminium	37 (41.11)
Iron	20 (22.22)
Any other	33 (36.67)
Do you consume citrus fruits frequently-	
Yes	13 (14.44)
No	77 (85.55)
Regular consumption of citrus fruits, fermented foods	
Reduces acidity	-
Prevents anaemia	-
Don't know	90 (100)
GLV washed-	
Before cutting	11 (12.22)
After cutting	58 (64.44)
Not specific	21 (23.33)

**Figures in parentheses indicate percentages**

