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Haemoglobin profile of women in reproductive age group in rural area of Maharashtra

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Abstract

Introduction: Anaemia is a very common but hidden health problem in Indian women affecting 48.8% in reproductive age group. Iron Deficiency is main cause though other factors may exacerbate it. Anaemia has long term consequences like increased maternal and infant morbidity and mortality. This study tries to assess haemoglobin profile in villages of Maval taluka and adopt intervention measures accordingly.

Materials and Methods: A cross sectional study was carried out in villages of Maval taluka. Health camps were organised by UHTC and an NGO Disha in selected villages and all women who attended camps were included in study. A pretested structured questionnaire was used for study. Data thus collected was analysed using appropriate statistical methods.

Results and Discussion: Out of 495 women who attended the camp, 480 consented for Haemoglobin estimation. 347 belonged to age group of 15-45 and 133 were above age of 45. 153 women had a purely vegetarian diet and 327 consumed mixed diet. 170 women out of 480 suffered from moderate to severe Anaemia. 293 women suffered from Mild degree of Anaemia. Anaemia was seen more in reproductive age group. No relation was seen between type of diet and Anaemia.

Conclusion: In spite of several efforts undertaken by public and private organisations, to combat Iron Deficiency Anemia, it remains a Public Health problem. There is need to develop more intensive and sustainable strategies to combat Anaemia at all levels.

Keywords: Anaemia, haemoglobin, reproductive age group

Introduction

The word anaemia is composed of two greek words that together means 'without blood' WHO has defined anaemia as a condition in which the number of red blood cells or the Haemoglobin concentration within them is lower than normal ^[1].

Haemoglobin is required to carry oxygen and if the red blood cells or haemoglobin are reduced, it leads to decreased oxygen carrying capacity of the blood to the tissues, resulting in symptoms such as fatigue, weakness, dizziness and shortness of breath ^[2].

Anaemia is a very common but hidden health problem in women. It is already proven that, severe anaemia is closely related to risk of mortality, but even mild anaemia carries health risks and reduces the capacity to work ^[3].

As per NFHS 4 data, Anaemia affects over 48.8 % women in reproductive age group in urban area, 47.8 % in rural area. 50% of women in reproductive age group in Pune district are also affected by the same. Prevalence of anaemia has remained almost the same in the time period between NFHS 3 (2005-06) to NFHS 4 (2015-16) This shows that this problem has not been tackled effectively. Anaemia in most cases is nutritional in origin. However other factors may exacerbate it like parasitic infection and menorrhagia. Besides the obvious causes many sociodemographic factors contribute to the illness i.e. literacy, socioeconomic status, age of marriage, parity, awareness about anaemia etc. ^[4].

Evidence has shown that Maternal anaemia is associated with complicated childbirth and that includes increased risk of preterm births, still births. It also leads to perinatal morbidity and low birth weight. In the last 3 decades, it is estimated that on an average, Anemia has caused 16% maternal mortality and 22% of perinatal deaths ^[5].

Anaemia in reproductive age women has long term consequences in the form of increased maternal and infant morbidity and mortality rate.

It is the underlying cause of maternal deaths (20-40%) it is also second most common cause of maternal death accounting for 20% of maternal deaths.

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This study is an effort to find the prevalence of anaemia in rural Maval taluka and its association with various sociodemographic factors. The study will help to identify the best practices for controlling anaemia.

Objectives

1. To assess the haemoglobin in rural women in Maval taluka of Pune district, Maharashtra.
2. To correlate the haemoglobin with the socioeconomic profile of rural women in Maval taluka of Pune district, Maharashtra.

Methodology

A community based cross sectional study was conducted in 10 villages of Maval taluka, district Pune, Maharashtra. This study was done by the Urban Health Centre under the Community Medicine Department of a Medical College of Maharashtra from January 2018 to December 2018. It was done along with DISHA (Development initiative for self help and action), an N.G.O based at Talegaon Dabhade which works in microfinance for women in villages of Maval taluka. Purposive sampling was done and villages selected were those where DISHA had formed self help groups (Bachat Gat).

All the women members of these self help groups and female members of their family who attended the health camp organized by DISHA were enrolled for the study. They were interviewed regarding sociodemographic data, meal pattern and obstetric history using a prestructured questionnaire. A thorough clinical examination was done by doctors conducting the health camp. Haemoglobin estimation was done by Sahli's method by a trained laboratory technician. Based on the report and dietary history, detailed dietary counseling was done by concerned doctors. Haematinics were also prescribed.

Results and Discussion

A total of 10 villages from Maval Taluka in Pune district were included in the study. All the women belonging to the village "Bachatgat" or savings scheme were included in the study. Health check up of total 495 women was carried out. A total of 480 women gave consent to do their Haemoglobin estimation.

347 belonged to the reproductive age group of 15-45 and 133 were above the age of 45.

153 women had a purely vegetarian diet and 327 consumed a mixed diet.

As far as weight was concerned, 186 women out of 495 had weight below 45 kg.

Height and weight were measured using standard procedure as recommended by WHO. Height and weight was measured with an accuracy of 0.1 cm. and 500 gm respectively. The body mass index (BMI) was computed following the standard formula:

$BMI (kg/m^2) = \frac{Weight (kg)}{Weight^2 (m^2)}$. BMI was subdivided into low ($<18.5 kg/m^2$), normal ($18.5-24.9 kg/m^2$) and high ($\geq 25 kg/m^2$) according to WHO criteria.¹⁰

Height and Weight of the women was taken and BMI was calculated. 68 women had a BMI of less than 18; 199 had BMI between 18.1 and 24.99; 65 females had BMI above 25. The BMI for 157 women was not calculated as data was missing. (women did not want to reveal their weight/height)

Table 1: BMI of women

BMI	Number of women
Less than 18 (low)	68
18.1-24.99 (normal)	199
25 (high)	65

Out of the 480 women, 66 women complained of generalised weakness, 138 complained of backache or generalised bodyache, 24 complained of giddiness, 12 complained of feeling tired. Only 12 said that they had some menstrual disturbances. The rest did not have any complaints. Out of the 357 belonging to the reproductive age group, 38 had undergone tubectomy.

According to a WHO expert group, Iron Deficiency Anaemia should be considered to exist when the Haemoglobin level for non-pregnant adult females is below 12g/dl. A haemoglobin level of 10-11 gm/dl has been defined as early Anaemia and a level below 10 gm/dl is defined as marked Anaemia^[6].

Out of the 480 women whose haemoglobin was done, 5 had Haemoglobin value of less than 7gm%. 12 had a Hb value of between 7- 8gm/dl, 153 had a Hb between 8-10 gm/dl, 293 had an Hb between 10-12 gm/dl and only 17 women had an Hb above 12gm/dl. Thus most of the women were suffering from Anaemia. The highest value was 16 gm % and the lowest value was 6.5gm%.

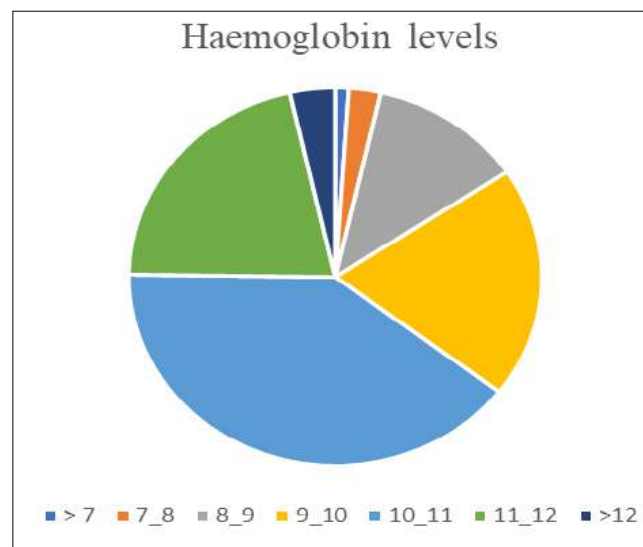


Chart 1: Haemoglobin levels of women

The above graph shows that 170 women out of 480 suffered from moderate to severe Anaemia. 293 women suffered from Mild degree of Anaemia. So, 96% of women were suffering from some degree of anaemia which is very high compared to the latest NFHS 4 figures in which it was seen that 53.1% women in the age group were suffering from Anaemia.

Table 2: Relation between Type of Diet and Haemoglobin

	Diet Vegetarian	Diet Mixed	Total
Hb below 10	63 (54.19) (1.43)	107 (115.81) (0.67)	170
Hb above 10	90 (98.81) (0.79)	220 (211.19) (0.37)	310
Margin total	153	327	480 (grand total)

The Chi -square statistic is 3.2574. The p-value is 0.71101. Not significant at $p < 0.05$

The above table shows that 153 women had a purely vegetarian diet and 327 consumed a mixed diet, however, when chi square test was applied it was seen that, in our study, type of diet is not associated with Anaemia.

Table 3: Association between Haemoglobin and age group

	Age15-45 yrs	Above 45 yrs	Total
Hb below 10	142 (122.9) (2.97)	28(47.1) (7.75)	170
Hb above 10	205(224.1) (1.63)	105 (85.9) (4.25)	310
Total (margins)	347	133	480 (grand total)

Chi square statistic with Yates correction is 15.7381. P value. 0.00073. Significant at $P < 0.5$.

In this study, 347 women belonged to the reproductive age group of 15-45 years and 133 women were above 45 years. The above table indicates that percentage of moderate and severely anaemic women is more in the reproductive age group (42%) as compared to those in the older age group (20%) This association is significant by Chi square test.

In our study, 347 women belonged to the reproductive age group of 15-45 years and percentage of moderate and severely anaemic women in the reproductive age group was 42% which is lower than the figures seen in NFHS4^[4]. and also lower than the figures by WHO and UNICEF^[7].

In our study, it was observed that, type of diet is not associated with Anaemia. However in a study by Deepak Chaturvedi *et al.*, it was seen that Anaemia is more common in vegetarian people having predominantly rice based diets. Study by Mathew Little *et al.* also observed that meat and egg consumption was associated with improved Haemoglobin levels^[8].

In our study prevalence of Anemia was more in the younger age group which was similar to the study of Bharti Premananda *et al.*^[9] Similar result was also seen in the study by Mithun Mog *et al.* in their study^[5] But in a study by Mathew Little *et al.* it was observed that Older age was associated with Lower Haemoglobin levels which was in contrast to our study^[8].

Limitations of the study

The study has certain limitations as it was done in a group of women belonging to a Self-Help Group and their family members, so an element of bias cannot be ruled out.

Conclusion

Our study shows that in spite of several efforts undertaken by public and private organisations, to combat Iron Deficiency Anemia, it still remains a public Health problem. Majority of the women still continue to be anemic which indicates that these measures have not been able to have the desired impact. Hence, there is a need to develop more intensive and sustainable strategies to combat Anaemia at all levels.

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