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Original Research Article

A Cross-Sectional Study of Iron Deficiency Anemia among Women Aged Between 18-25 Years in Allahabad District

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ABSTRACT

Background and Objectives: Anemia in women is defined by World Health Organization (WHO) as a haemoglobin concentration below 11g/dl. Iron-deficiency anemia is the most common form of malnutrition in the world and is the eighth leading cause of disease in girls and pregnant women in developing countries. This study was conducted with the objective to determine the prevalence of anemia among rural women aged between 18-25 years.
Materials and Methods: A cross sectional study was conducted in different villages of Allahabad district by taking a total of 120 women aged between 18-25 years. Weight and height were measured to assess the body mass index of the respondents. The hemoglobin level of the respondents were measured in this study with the help of pathologist in which blood samples were drawn from the index finger of the respondents by the finger pricking method.
Results- Out of 120 respondent's majority, 66% of the rural women were aged between 21-25 years. Most of the rural women were categorized as anemic (70%) according to their hemoglobin level based on classification given by WHO. Results also revealed that most of the anemic rural women were categorized as underweight (44%) according to their Body Mass Index.
Conclusion- this study was found that the prevalence of anemia among respondents was very high and there is significant association between poor nutrition and occurrence of anemia as most of the respondents were underweight.

Keywords- Anemia, Underweight, Body Mass Index, Malnutrition, Hemoglobin Level.

INTRODUCTION

Anemia in women is defined by World Health Organization (WHO) as a hemoglobin concentration below 11g/dl.1 Iron-deficiency anemia is the most common form of malnutrition in the world and is the eighth leading cause of disease in girls and reproductive age women in developing countries. Women's health is central to the survival of the society as they give beginning to the new life on the earth and cares for all the family members. Both developed and developing countries are affected by anemia. It has been global public health problem with major consequences for human health. It affects people of all age groups but its prevalence is more in women of reproductive age and young children. [1] According to WHO, anemia is classified as mild degree (Hb 9.0- 11.0 g\dl), moderate (7.0-9.0 g\dl) and severe (4.0-7.0 g\dl). In developing countries the major cause of anemia is hook worm infestation because many

developing countries are located in tropical climate. In this region, low income country like India faces the problem of non-availability of iron rich food. WHO estimates that the prevalence of anemia ranges from 40-60% in the developing countries. Half of those who are suffering from anemia are supposed to be suffering from iron deficiency anemia (IDA). The prevalence of anemia is very high i.e. (33-75%) in developing countries to that of 15% in developed countries for example in India; anemia was estimated at 65-75%.

For many women, running a home, bringing up children and taking care of elderly relatives, as well as working outside the home, can influence their physical and mental well being. Ensuring good nutrition and a healthy lifestyle can contribute significantly to women's health throughout their lives. Rapid growth during adolescence, menstruation and the demands of pregnancy and lactation can result in an increased risk of low levels of nutrients such as iron, folic acid and calcium. [2] So the present study is fruitful with a view that the early detection and identification of nutritional risk factors like low hemoglobin level and undernourishment, allow the implementation of individualized and aggressive intervention programs to reduce adverse health outcome like anaemia.

MATERIALS AND METHODS

This study was a cross sectional and descriptive study based on prevalent conditions of the population. The women aged between 18-25 years were chosen as unit of study and the mean age of the respondents were 21.5±6.48. The villages of chaka and jasra block from Allahabad district were selected as area of the study. The sample size of the study was 120 and samples were selected randomly among population. The data obtained was subjected to statistical analysis by using Arithmetic Mean technique.

Variables Description:

Anthropometric assessment: Weight and height were measured according to the LIC standard to assess the body mass index of the respondents. Body Mass Index was calculated by dividing weight (in kilograms) by the square of the height (in meters). The respondents were classified according to their BMI values**.** [3]

Classification	*BMI values*
Underweight	>18.5
Normal	18.5-22.9
Overweight	23-24.9
Obese	25-29.9

Hemoglobin Estimation*:* The hemoglobin level of the respondents was measured with the help of pathologist in which 0.02ml blood was drawn from the index finger of the respondents by the finger pricking method. The selected respondents were classified according to their hemoglobin level into following categories. [4]

Classification	Hemoglobin values(mg/dl)
Non-anemic	>11
Mildly anemic	8-11
Moderately anemic	6.5-8
Severely anemic	<6.5

Ethical Consideration: Ethical permission was taken by the ethical committee of Sam Higginbottom Institute of Agriculture Technology and Sciences-Deemed University, Allahabad. A formal permission was also taken from the every respondent before drawing blood from their body and they were informed about the whole procedure by patient information sheet.

RESULT AND DISCUSSION

Age wise distribution of the respondents

Anemia	**18-20 Years (%)**	**21-25 Years (%)**	**Total (%)**
Present	24 (20%)	60 (50%)	84 (70%)
Absent	25 (20.83%)	11 (9.16%)	36 (30%)

In the present study the hemoglobin level of the women aged between 18-25 years were estimated to determine the prevalence of anemia. So according to above data the prevalence of

anemia was 84% among rural women of Allahabad district. The selected respondents were distributed age wise into two categories i.e. 18-20 years and 21-25 years. In 18-20 years age group 20% women were anemic and 20.83% were non-anemic while in 21-25 years age group 50% women were anemic and 9.16% were not reported as anemic. [5]

Severity of Anemia-

Severity	18-20 Years (%)	21-25 Years (%)	Total (%)
Mild	06 (5%)	18 (15%)	24 (20%)
Moderate	14 (11.66%)	32 (26.66%)	46 (38.33%)
Severe	04 (3.33%)	10 (8.33%)	14 (11.66%)

The mean hemoglobin level among women aged between 18-25 years of Allahabad district were 11.2 gm%. While observing severity of anemia, in 18-20 years age group there were 5% mild anemia among women followed by 11.66% moderate anemia and 3.33% severe anemia among selected women. In 21-25 age group there were 15% mild anemic followed by 26.66% moderate anemic and severe anemic among selected respondents. [6,7]

BMI of the respondents

BMI	18-20 Years (%)	21-25 Years (%)	Total (%)
Underweight	24 (20%)	46 (38.33%)	70 (58.33%)
Normal	33 (27.5%)	07 (5.83%)	40 (33.33%)
Overweight	04 (3.33%)	06 (5%)	10 (8.33%)

In this study among 18-20 years age group 20% women were underweight followed by normal (27.5%) and overweight (3.33%) while in 21-25 years age group 38.33% women were underweight followed by normal (5.83%) and overweight (5%). This data revels that most of the respondents (58.33%) were underweight which result of poor nutrition is and it may leads to the deficiency disorders like anemia. [8]

Prevalence of Anemia among respondents belonging to different nutritional level

Anemia	Underweight (%)	Normal (%)	Overweight (%)	Total (%)
Present	64 (53.33%)	14 (11.66%)	06 (5%)	84 (70%)
Absent	06 (5%)	26 (21.66%)	04 (3.33%)	36 (30%)

While observing prevalence of anemia in relation with nutritional status of the respondents, the data reveals that there is negative association between the nutritional status and occurence of anemia. This study suggests that anemia prevalence decreases as nutritional status of subject increases. Among all the anemic respondents (70%) there were 53.33% underweight (53.33%) followed by normal (11.66%) and overweight (5%) while among non-anemic respondents 5% were underweight followed by normal (21.66%) and overweight (3.33%). [9,10]

CONCLUSION

In this study it can be concluded that the prevalence of anemia among rural women of Allahabad district aged between 18-25 years was very high (70%) and it is may be due to the poor nutritional status of the women as most of the anemic respondents were underweight (58.33%). Therefore in this study the data reveals that there is close relation between the nutritional status and deficiency disorders like anemia.

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