



DETERMINATION OF HAEMOGLOBIN LEVELS AMONG THE COLLEGE WOMEN STUDENTS

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ABSTRACT

Anemia is a condition that develops due to lack of healthy red blood cells. There is a high demand for iron and other micronutrients, and loss of blood during menstruation for college going women students with age group of 18 to 22 are at major risk of nutritional anaemia. The aim of this study was to analyse the prevalence, severity and burden of adolescent women college students. The study shows that most of our college women students are anaemic 73 % of which 18% are mild, 47% are moderate and 8% are severe and 27% women students are having normal range of haemoglobin.

Key words: Women students, Adolescence, Anaemia, Mild, Moderate, Severe, Normal.

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Anemia is a condition that develops due to lack of healthy red blood cells. There is a high demand for iron and other micronutrients, and loss of blood during menstruation for college going women students with age group of 18 to 22 are at major risk of nutritional anaemia. The aim of this study was to analyse the prevalence, severity and burden of adolescent women college students. The study shows that most of our college women students are anaemic 73 % of which 18% are mild, 47% are moderate and 8% are severe and 27% women students are having normal range of haemoglobin.

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Introduction

WHO defined anemia as a condition where the number of RBC is less.¹ Anaemia may occur due to nutritional inadequacies or any other clinical conditions like mal absorption and hookworm infestation where intestinal absorption of iron altered due to gut environment. Nutritional anaemia can also be defined as the condition resulting from the inability of the erythropoietic tissue to maintain a normal hemoglobin concentration due to inadequacy of one or more nutrients.² Adolescence is the period of the growth spurt in all aspects hence their nutritional status plays a vital role in the progress.³ Anaemia is widely prevalent among all age groups, but since the requirement of iron is more and loss of around 12.5-15mg iron each month through menstruation, adolescent girls are more vulnerable to anaemia.⁴ The trends also varied between rural and urban areas.⁷ The rate of incidence in urban area women 15-49 years of Telangana is 55% and in the rural area is 58.1%. The National Family Health Survey (NFHS)-2 data 2015- 2016, adolescent girls aged between 15-19 years shows iron deficiency anemia contributing to 59.4%.⁸ Although there is a fall in the prevalence of anemia as per the NFHS-2 from 67.4% (2005-06) to 59.4% due to the various intervention taken up such as oral supplementation under national nutritional anaemia prophylaxis programme, WIFS programme launched under the Ministry of Health and Family welfare-Government of India, fortification, dietary diversification and through health communications, the impact of anemia among adolescent girls is still substantive.^{9,10}

Anaemia affects the overall nutritional status of adolescents and causes adverse consequences as it progresses.^{11,5} It affects the growth, onset of menarche, academic performance, physical performance, cognitive development etc., The most common cause of anemia is iron-deficiency anemia. Other conditions like parasitic infections, excessive blood loss during menstruation and growth spurts with suboptimal hematopoietic contents also contribute to anemia. Many nutrients play a vital role in the process of erythropoiesis- a process of formation of Red blood cells in the bone marrow, such as proteins (glycine, histidine, proline and hydroxyl proline), iron, copper, vitamin E, riboflavin, pyridoxine, folate and cyanocobalamin and vitamin C.² Deficiency in any of these nutrients may retard the process thus contributing to anemia.

MATERIALS AND METHODS

200 Graduate women students of the college with age group between 18 to 22 years were evaluated for hemoglobin levels. The students were made aware of the purpose of the study and taken their written consent. The measurement of Hb was relied on the services of a well-equipped clinical laboratory, using automated hematology analyzers which are reliable and accurate. This system is an automated blood cell counter which measures hemoglobin using non- cyanide method and was carried out by electrical impedance method. Criteria for anaemia among these students were accepted as haemoglobin value <12 gm/dl as per W.H.O. recommendations. This haemoglobin test was conducted by Sachivalyam Health staff.

RESULT AND DISCUSSION

The hemoglobin cut-off values suggested by WHO are used to diagnose anemia in students and the cut- off values defining mild, moderate and severe anemia are presented in Table 1^{14, 15}.

Table 1: Showing the Number of Women Students and the Percentages with different levels of anemia ((g/dL).

Women Students	Non-Anaemic 12 or Higher	Anaemia		
		Mild 11.0- 11.9	Moderate 8.0-10.9	Severe Lower than 8.0
Number: 200	54	36	94	16
Percent	26	18	47	8

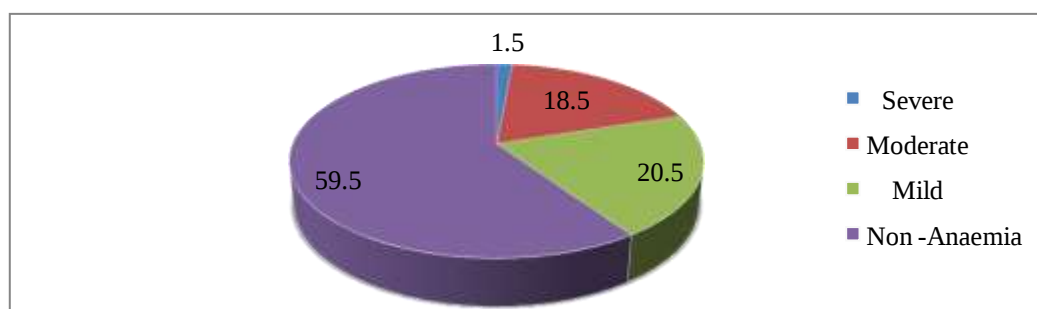


Figure 1: Graphical representation showing the percentage of college Women students with different levels of Anemia.

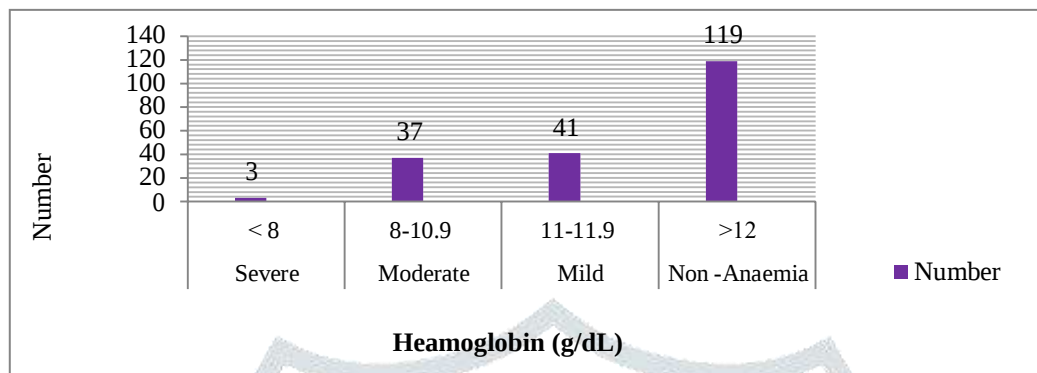


Figure 2: Graphical representation showing the number of girl students at each hemoglobin range and condition of anemia.

The percentage of women students with non-anemic condition or normal is only 26 % which causes a concern about their health status. Rest of our students 18% mild, 47% moderate and 8% severe anemic. Overall the percentage of anemic students falls in the range of 73 % of total category.

Our data is in correlation with the other reports as WHO database on global prevalence of anemia and which has reported an overall prevalence of 25% where 65.5% of pre- school children, 48.2% of pregnant women and 45.7% of non-pregnant women were estimated to have anemia¹⁶. Report by Saksham Kumar¹⁸ had also shown that 52.6 per cent of the college going girls are non anemic, whereas 45.1 per cent of college girls had 9-11% and 2.3 per cent had 6-8 gram percentage of hemoglobin.

CONCLUSION

Adolescent girls and post adolescent girls apart from pregnant women are at major risk of nutritional anaemia particularly iron deficiency anaemia. Iron requirements increase dramatically due to expansion of the total blood volume, lean body mass, and their entry into the reproductive cycle soon after menarche. The problem of anaemia arises mainly due to lack of balanced and nutritious diet which forces them to get into anaemic condition over a period of time. Therefore, it is essential to improve nutritional status of a girl who further makes up the family and society, which is possible only by implementing health education, early detection and effective management of anemia, especially through diet. The present study also clearly emphasizes the need for implementing the above said measures at college levels as nearly 73% of women students tested are under anemic condition.

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