



PREVALENCE OF ANEMIA AMONG UNDERGRADUATE GIRL STUDENTS OF A UNIVERSITY OF ASSAM

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ABSTRACT

Background & Objectives: Anemia is a global health problem. About 40% of the world's population suffers from anemia and college going girls are one of the most vulnerable age group. Hence the objective of the study was to determine prevalence and distribution of anemia among college going girl students of Assam down Town University. **Materials & Methods:** This study was conducted in University of Assam from Northeastern India for the college going girls. A total of 262 college going girls (18-25 years of age) were included in the study. Hemoglobin, PCV, ESR estimation, RBC count was done and anemia was defined as per WHO cut-off. **Results:** The prevalence of anaemia was found to be 54.11% where 2 (0.76%) were severe, 50 (19%) were moderate positive and 90 (34.35%) were mildly anemic. It was observed that the prevalence of anaemia was high in college going girls (18- 25yrs). A majority of the girls had mild anaemia. We have found 186 (71%) under weight and 76(29%) girls with normal BMI. **Conclusion:** The present study revealed anaemia to be a major health problem among the college going educated girls in University with high prevalence rate and nutrition is one of the leading causative factors for anemia.

KEYWORDS: Haemoglobin, BMI, Anaemia.

INTRODUCTION

Anemia remains as a public health problem worldwide. According to World health Organization (WHO), an estimated 150 million individuals in the Eastern Mediterranean Region suffer from some type of anemia.^[1] There are many causes for anemia; these causes may simply be attributed to acquired or congenital disorders. Iron deficiency anemia is the most frequently acquired nutritional anemia and over 2 billion people i.e., nearly one third- throughout the world have iron deficiency anemia.^[2] According to the WHO, the highest number of individuals affected by anaemia is observed in nonpregnant women aged 15–49.99 years.^[3] Women of childbearing age are having an additional risk of developing anaemia because of their monthly menstrual blood loss and nearly 50 percent of females in this age group are anaemic.^[4] On average a healthy woman loses about 25–30 mL of blood monthly. Therefore, the body needs to produce blood in order to compensate for this loss and if the essential nutrients required for haemopoiesis are not supplied in their diet, anaemia will develop. Prevalence of anaemia among nonpregnant women is 30.2% worldwide and in Asia it is 33% accounting to about 318.5 million individuals. Out of the total nonpregnant anaemic individuals of the world, nearly reside in Asia. Anaemia among non pregnant women has become a public health problem in 191 countries out of the 192 member countries of WHO.^[3]

Very few studies have been conducted on anemia in college going students from India. Especially from North eastern India there is no such report on college going female students. There are a very few reports in tea tribe, minorities children and pregnant women in northeastern India. However little is known about anemia among college female students. The objective of this study is that we assumed that the nutrient intake of female college going students is lower than that of the general population because they buy their meals from the canteens in the university premises or from the nearby food stalls. These places sell food for a considerably lower price and therefore quantity and the quality of this food items are very poor. Thus, these female undergraduates may not obtain nutrients to meet the requirement of the body and were likely to have a higher risk of developing anemia.

MATERIAL AND METHOD

An analytical cross-sectional study was performed to determine the proportion and contributing factors to anaemia among female of a University from Assam. Ethical clearance for the study was obtained from Ethical Review Committee, of the University, and the study protocol was conducted according to the guidelines of the declaration of Helsinki. A consent form along with an information sheet giving details of the study (nature of the study, what will be expected from the participants, and expected risks and benefits) were provided to all

female undergraduates who were randomly selected to the sample. The details were also explained verbally to the potential participants. Afterwards, female undergraduates who provided written consent were included in the study.

A simple random sample of 262 girls was drawn from the population of female undergraduates from the University. Random numbers were generated by using blind draw method. Haemoglobin, total RBC count, ESR and PCV was done. Haemoglobin estimation was performed by Cyanmethemoglobin method, ESR was by westerngren method, PCV by macrohaematocrit method (wintrobe Method) and MCH, MCHC and MCV were calculated for each student.

Criteria to indicate and classify severity of anemia were based on ICMR protocol

Indicator	Hb (gm/dl)
Non anemic	≥12
Grade I (mild) anemia	10.0-11.9
Grade 2 (moderate)	7.0-9.9
Grade 3 (severe) anemia	Less than 7

RESULT

The present study was prevalence of anemia among college going female students which was conducted at Assam down town University. We have included 262 college girls of age between 18-25 years in this study. A written consent were obtained from each students. A general information was collected giving a Questionnaire to all of them where age economic status of parents and geographical location of native. Height and weight were measured to calculate BMI of each according to WHO. The overall prevalence of Anaemia was 54.11% (142 nos.). The positive anemic students have varied severity. Anaemia was absent in 45.8% (120) girls students. Out of 142 anaemic students 2 (0.76%) were severe, 50 (19%) were moderate positive and 90 (34.35%) were mildly anemic. BMI was classified as underweight (BMI below 18.5), normal (18.5 -24.99) and over weight (BMI greater than 25). We have found 186 (71%) under weight and 76(29%) normal BMI.

Table 1: Prevalence of anaemia

Hemoglobin (g/dl)	Types of anaemia	Numbers (Percentage)
7	Severe	2 (0.76%)
7.1-9.9	Moderate	50 (19%)
10-11.99	Mild	90 (34.35%)
12+	Normal (no anaemia)	120 (45.8%)

Table 2: BMI of the students

BMI range	Type	Numbers (percentage)
BMI below 18.5	Underweight	186 (71%)
18.5 -24.99	Normal	76 (29%)
BMI greater than 25	Overweight	Nil

DISCUSSIONS

Anaemia is a major public health concern in pre- school children and pregnant women in the developing world. About 40% of the world's population suffers from anemia and college going girls are one of the most vulnerable age group. College going girls are at a high risk for anemia and malnutrition. The present investigation was conducted on 262 college going girls (18-25 years) selected from a University of Assam. The study revealed anaemia (54.11%) in the college going girl's students where 2 (0.76%) were severe, 50 (19%) were moderate positive and 90 (34.35%) were mildly anemic. The reasons for the anaemia among the college girls are: Increased iron requirements because of growth, Menstrual loss, discrepancy between high iron need for haemoglobin formation and low intake of iron containing foods, Erratic eating habits, dislike for foods which are rich in iron, like green leafy vegetables.

There are lack of studies in adolescent girls in Northeastern India to compare the present result. However, A study from tea garden worker women found 74.5% anaemia patient by Das et al.^[5]

Another study in pregnant women by Bora et al found 50.4% anaemic pregnant women from Guwahti, Assam which found more common in young and low socioeconomic people.^[6]

The prevalence of anaemia among the pregnant women in Lakhimpur district was found as 92.8 %. Among the pregnant women, prevalence of moderate anaemia was found to be highest 61.0 %, followed by mild anaemia 29.5 % and severe anaemia 2.3 %.^[7]

It has been hypothesized that iron deficiency anaemia is a major cause of the high maternal and infant mortality in the state. Assam has the highest prevalence of iron deficiency anaemia among Adolescent girl and pregnant women (67.8% & 73%, Indian National Family Health Survey 2005–2006).^[8]

Studies from other part of India showed various result. A study which was conducted in the rural areas of Tamil Nadu revealed that the prevalence of anaemia among the adolescent girls was 44.8%.^[9] A Study from Haryana showed prevalence of anemia in college going youths in rural blocks and found that overall prevalence of anemia was 43.76%.^[10]

Study from Ahmedabad among school going girls revealed that 55.2% were mildly anaemic, 44.9% were moderately anaemic and that 0.6% were severely anaemic.^[11] There are some more other studies from India showed the prevalence of anameia in college going adolescent students.^[12-19]

Anaemia is common in underdeveloped countries. A study from semi urban Nepal, showed the prevalence of anemia in adolescent girls aged 11-18 years was found to

be about 68.8%.^[21] Another study from Nepal showed the nutritional intake of Nepalese girl and anaemia.^[22] Studies from Sri Lanka, Bangladesh, Peshawar, Peru, Indonesia also showed mild to moderate anaemia in adolescent girls.^[23-27]

CONCLUSION

In conclusion, the present study revealed anaemia to be a major health problem among the college going girls in a University of Assam. The prevalence of anaemia was high. It was also found that many girl students do not have proper dietary habits. They are dependent on 'fast foods' as daily routine. There is need to include iron rich food in the diet of college girls. Preventive measure should be required for the target group. Frequent screening of students for presence of anaemia should be done. Periodical and routine health check-up and haemoglobin estimation of the students should be done. The students should be motivated and educated to take balanced diet rich in green leafy vegetables and fruits as nutritional anaemia is totally preventable.

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