

# Anemia and non- anemia status through biochemical estimation of Lucknow city

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**ABSTRACT :** Anemia is a common health problem among girls throughout the world. However, there has been minimal research on girl's concepts of anemia. With the objective the present experiment was undertaken to assess the anemic and non-anemic status of study subjects girls. The cross sectional study was carried out in there of Lucknow city. The study was confined to the girls of age group 20-25 years. A total sample size 120 hostels girls were undertaken. The present study was conducted at girls hostel BBAU in Lucknow city. It included 120 girls who live in girl's hostel. The overall prevalence of anemia 45 (37.5%) anemic out of 120 girls. In this show that 1.91 per cent and 707 normal, of study subject were folic, Iron, vitamin and 1.82 per cent and .003 significance of study subject were never. Twice a week, once a week of subject was 29.3 per cent normal. Overall prevalence of anemia calculated as per WHO.

**KEY WORDS:** Anemia, Prevalence, Adolescent, Iron deficiency

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Anemia is a major public health problem worldwide and is often ignored in both developed and developing countries. Pre school children, pregnant women and adolescents constitute vulnerable group of anemia. Adolescence is defined by WHO as period of life spanning the ages between 10-19 years which is a period where both physical as well as psychological changes occur. During childhood, nutritional needs of boys slightly differ from that of girls. But the difference in the nutritional needs widens after the onset of puberty. Iron requirements peak during adolescence due to rapid growth and increase in blood volume. Though this enhanced to offset the added burden like menstrual blood loss which precipitates the crisis often. In developing countries, parasitic infections and other infectious diseases are more common which peak the requirements of iron in the human body. Though this study has been planned to highlight the burden of anemia in adolescent girls, it will also be helpful in drawing recommendations and rendering suggestions to evaluate and enhance the existing "Anemia control programmers".

During adolescence, physiological requirements for iron and zinc peak at the time of the pubertal growth spurt, which in girls generally occurs between 10 and 15 years which the quality of their diets is often poor. This has been attributed to poor food selection patterns, and low energy intakes arising from concerns about body weight, and possibly from a sedentary lifestyle. Furthermore, among this age group, the interest in vegetarian dietary patterns has increased, often resulting in a reduced consumption of red meat and high intakes of plant-based foods.

Dietary inadequacy, especially of food sources rich in iron and folic acid, is a major determinant of anemia. According to the Indian Council of Medical Research, a normal Indian vegetarian diet, which is low in heme-iron food sources, contains 18-22 mg. of iron. This is only 58 per cent of the 40-60 mg of iron recommended during pregnancy based on a 10 per cent absorption rate, which would provide the requisite amount of 4-6 mg. Although iron absorption increases during womanhood and iron-folate supplements are essential during this vulnerable period. This is not up to the mark in hostel girls.

Haemoglobin testing is the primary method of anemia diagnosis. Based on concentration of haemoglobin in the blood, anemia is classified into three groups as mild, moderate or severe.

**RESEARCH METHODS**

**Area of the study :**

Lucknow city.

**Period of the study:**

The study was carried out for a period of 11 month, July 2012 May 2013.

**Study design:**

A cross sectional study design was adopted for the study. Total 120 girls residing in hostel selected for the study.

**The study subject:**

Youth age group of 20 to 25 years female residing in girls hostel of BBAU.

**Selection of study:**

Subject was done at two stages.

**Tools of the study:**

A pre- design and pre- tested questionnaire was used to collect the following information. The questionnaire

consisted of two main parts.

**Weight recording:**

Recording of all study subjects was done with the help of weighing machine. All study subjects were weighed with minimum possible clothing and without footwear. The machine was checked periodically by using standard known weight.

**Height recording:**

The standing height was measured in cm, with steel anthropometric rod along the parallel bar. The steel anthropometric rod was placed on the even floor. For measurement, subject stands against the rod without foot wears. The bar was put at right angle on her head and the reading was noted. The accuracy of the steel anthropometric rod was 0.1 cm.

**Biochemical investigation:**

*Hb estimation:*

Haemoglobin estimation of each study subject was done using acid haematin (Sahle's) method.

**RESEARCH FINDINGS AND DISCUSSION**

The present study was a cross sectional study which was conducted at girls hostel BBAU in Lucknow city. It included 120 girls who were living in girls hostel. The overall

**Table 1 : Distribution of hemoglobin level among hostlers**

Variable	Sanghmitra hostel		Yashodhra hostel		Sig.
	Mean	S.D.	Mean	S.D.	
Iron (8-10), folic (10-12), vitamin (B12)	1.91	.612	2.37	.827	.707
Once, twice, never	1.82	.590	2.57	.640	.003**

**Table 2: Distribution of anemic and non anemic girls hostel**

Anemia	Girls hostel	
	Number	Percentage (%)
Anemia	45	37.5
Non-anemia	75	62.5
Total	120	100.0

**Table 3: Distribution of study subjects according to body mass index (BMI)**

Classification	BMI category (kg/m <sup>2</sup> )	Number	Percentage
Under weight	<18.5	18	15.2
Normal weight	18.5-24.9	35	29.3
Over weight	25.0-29.9	26	21.6
Obese class I	30.0-34.9	21	17.3
Obese class II	35.0-39.0	12	10.0
Obese class III	>= 40.0	8	5.8
Total		119	100

prevalence of anemia 45 (37.5%) anemic out of 120 girls.

Table 1 shows that mean value 1.91 per cent and .707 no. significance difference of study subject were folic, Iron, vitamin and shows that mean value 1.82 per cent and .003 significance of study subject were never, Twice a week, once a week.

From Table 2 it was found that out of 120 girls, 45 (37.5%) were suffering from various degrees of anemia and that 75 (62.5%) were non - anemic. This indicated that it was a public health problem of high magnitude as per WHO guideline.

WHO the classification of underweight, normal weight, overweight, obese class I, class II, class III according to BMI 2012. In the present study, according to WHO standards, 15.2 per cent of study subjects were under weight, 29.3 per cent of study subjects were of normal weight, 21.6 per cent were overweight, 17.3 per cent were of obese class I, 10.0 per cent of obese class II and 5.8 per cent of study subjects were obese class III.

Iron deficiency anemia is the most common nutritional deficiency worldwide. The negative consequences of iron deficiency anemia on the cognitive and physical development of children and on the work productivity of adults are of major concern (Verdon *et al.*, 2003). A high prevalence of iron deficiency anemia was found among adolescents. Anemia is a major public health concern in pre-school children and pregnant women in the developing world. While many studies have examined these two at-risk groups, there is a paucity of data on anemia among adolescents who are living in developing countries, in the complex ecologic context of poverty and malnutrition. Anthropometric predominant over other methods of malnutrition assessment such measurements are weight and height commonly used technique. The girls were categorized in to various grades based on BMI according to WHO International Standard.

#### Conclusion:

A total 120 girls were studied, of that majority of sixty two (75.5%) of study subject were on normal and thirty seven (45.5%) of study subject were on serious condition. Majority (29.3%) of study subjects were on normal and 5.8

per cent of study subjects were were found to be obese.

#### Recommendation:

- This study reveals that anemia prevails irrespective of socio-economic status which stresses the need to increase awareness of consequences of anemia in all strata of the society.
- Period survey should be done in university on anemia for updating prevalence.
- In depth studies can be done on evaluation of iron indicators like serum ferritin, serum transferrin ect.
- Screening for iron deficiency in high risk groups should be considered.

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#### ■ REFERENCES

- Bentley, P. and Parekh, Anjou** (1998). Perception of anemia and health seeking behaviour among women in four India status, Technical Working Paper No.9, Mother care project, John snow Inc and the office of health and nutrition, bureau for global programmes, field support and research, *USAID* (1998).
- Gibson, R.S., Health, A.L. and Fergusson, E.L.** (2002). Risk of suboptimal iron and zinc nurture among adolescent girls in Australia and New Zealand: causes, consequences and solutions, *I* (11): 543-552.
- Premalatha, T., Valarmathi, S., Parameshwari, Srijayanth, Jasmine, S., Sundar and Kalpana, S.** (2012). Prevalence of anemia and its associated factors among adolescent school girls in Chennai. *Epidemiol.*, *2* (2) : 1-4.
- Verdon, F., Burnand, B., Stubi, C.L., Bonard, C., Graff, M., Michaud, A., Bischoff, T., de Vevey, M., Studer, J.P., Herzig, L., Chapuis, C., Tissot, J., Pécoud, A. and Favrat, B.** (2003). Iron supplementation for unexplained iron deficiency in non-anemic women. Double blind randomized placebo controlled trial. *BMI*, *326* (7399) : 1124.

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