



PREVALENCE OF ANEMIA IN ADOLESCENTS – AN OBSERVATIONAL SURVEY STUDY.

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ABSTRACT In today's era the lifestyle of people is changed drastically. People don't follow regular eating habits in day to day life. Due to this they become viable for various nutritional disorders. Anemia is one such condition. Anemia is a decrease in the total amount of red blood cells (RBCs) or hemoglobin in the blood or a lowered ability of the blood to carry oxygen. It is one of the most important health problems throughout the world. Nutritional anemia is one of India's major public health problems. The prevalence of anemia ranges from 33% to 89% among pregnant women and is more than 60% among adolescent girls. In Adolescence age there is more prevalence of Iron deficiency anemia. So purpose of selection of this topic was to know whether the students in age group 17 to 21 years are healthy and don't suffer from Anemia. At the end of study it was found that **81.81%** girl students suffer from anemia compared to **76%** male students. Prevalence of anemia was seen in both the sexes. So proper regular screening, guidance and treatment should be given to the affected participants.

KEYWORDS : Anemia, Adolescents.

INTRODUCTION:

In today's era the lifestyle of people is changed drastically. People don't follow regular eating habits in day to day life. Due to this they become viable for various nutritional disorders. Anemia is one such condition. Anemia is a decrease in the total amount of red blood cells (RBCs) or hemoglobin in the blood or a lowered ability of the blood to carry oxygen¹. It is one of the most important health problems throughout the world. It is defined as reduced hemoglobin concentration in blood below the normal range for the age & sex of the individual². Nutritional anemia is one of India's major public health problems. The prevalence of anemia ranges from 33% to 89% among pregnant women and is more than 60% among adolescent girls. The World Health Organization (WHO) defines adolescence as the period of life between 11 to 19 years³. These are most formative years in terms of Physical, intellectual, emotional, psychological, behavioral development. In Adolescence age there is more prevalence of Iron deficiency anemia.

Purpose of Selection of this Topic:

Adolescence anemia is a global health problem. Various risk groups are prone to anemia and it leads to long term consequences. Among adolescents, girls are more vulnerable and neglected as far as their nutrition and health are concerned. So the purpose of selection of this topic was to know whether the students in age group 17 to 21 years are healthy and don't suffer from Anemia. So that proper guidance and treatment can be given to the affected participants.

AIM AND OBJECTIVES:

1. Estimate whether the students in age group 17 to 21 years are healthy and don't suffer from Anemia.
2. To educate and guide them for maintaining healthy life.

REVIEW OF LITERATURE:

Anemia is defined as reduced hemoglobin concentration in blood below the normal range for the age & sex of the individual². Pathophysiology of Anemia is as follows Hemoglobin count decreases, it decreases the oxygen carrying capacity of the blood. This initiates compensatory physiological adaptations i.e. increased release of oxygen from Hemoglobin, Increased blood flow to the tissue, Maintenance of blood volume and Redistribution of blood flow to maintain cerebral blood supply. Symptoms are Tiredness, weakness, shortness of breath, Easy fatigability, generalized muscular weakness, Lethargy and Headache.

Tests used for determine Anemia:

- Hb count

- RBC count
- Hematocrit (PCV)
- Absolute value (MCV, MCH, MCHC).

Various tests are performed for various types of anemia:

- Iron deficiency anemia – MCV, MCH, MCHC are decreased.
- Thalassemia – MCV, MCH, MCHC are decreased
- Anemia due to acute blood loss & hemolytic anemia – MCV, MCH, MCHC within normal limits.
- Megaloblastic anemia – MCV increased above normal range.²

MATERIAL AND METHODS:

Inclusion Criteria

1. Age from 17 years to 21 years
2. Both Gender.

Exclusion Criteria

1. Age below 17 years and above 21 years.

Study Design – An observational study

This is an observational study to determine the prevalence of Anemia. Complete blood count, blood test investigation was performed of all the participants to determine the hemoglobin values. According to the hemoglobin values they were categorized as Healthy, Mild Anemic, Moderate Anemic and Severe Anemic.

According to the hemoglobin values, data was collected percentage calculation was done with reference to the values and this information is presented in the form of tables and Figures.

OBSERVATIONS AND RESULT

Table no. 1 - Age wise distribution

Age Group in years	No. of participants	Percentage
17	4	2.03%
18	69	34.84%
19	85	42.93%
20	37	18.68%
21	3	1.52%
Total	198	100 %

The above table shows that - majority of the participants i.e. **42.93 %** participants were observed of age 19 years, followed by **34.84 %** participants were of age 18 years, **18.68 %** participants were of age 20 years, **2.03 %** participants were of age 17 years, and **1.52 %** participants were of age 21 years.

Table no. 2 - Gender wise distribution

Gender	No. of participants	Percentage
Male	55	27.78%
Female	143	72.23%
Total	198	100 %

The above table reveals that - majority of the participants i.e. **72.23 %** were Females, and **27.78 %** participants were Males.

Table no. 3 – Hemoglobin (in Males) wise distribution

Hemoglobin (gm/dl)	No. of participants	Percentage
Healthy (> 14)	13	23.65%
Mild (12 - 14)	36	65.45%
Moderate (10 - 12)	6	10.9%
Severe (< 10)	0	0
Total	55	100 %

The above table shows that - majority of the participants i.e. **65.45 %** participants were observed with hemoglobin levels in Mild Anemia (12 – 14) range, followed by **23.65 %** participants were observed with hemoglobin levels in Healthy (> 14) range, **10.9 %** participants were observed with hemoglobin levels in Moderate Anemia (10 - 12) range, and **no** participants were observed with hemoglobin levels Severe Anemia (< 10) range.

Table no. 4 – Hemoglobin (in Females) wise distribution

Hemoglobin (gm/dl)	No. of participants	Percentage
Healthy (> 12)	26	18.18%
Mild Anemia (10 - 12)	88	61.55%
Moderate Anemia (8 - 10)	25	17.48%
Severe Anemia (< 8)	4	2.79%
Total	143	100 %

The above table shows that - majority of the participants i.e. **61.55 %** participants were observed with hemoglobin levels in Mild Anemia (10 – 12) range, followed by **18.18 %** participants were observed with hemoglobin levels in Healthy (> 12) range, **17.48 %** participants were observed with hemoglobin levels in Moderate Anemia (8 - 10) range, and **2.79%** participants were observed with hemoglobin levels Severe Anemia (< 8) range.

DISCUSSION:

Anemia is a global health problem. It has various effects on health of an individual. It results in stunted growth, reduced attention, memory loss, poor performance, reduced immunity and increased infection rate. Delay in onset of Menarche and menstrual irregularities. Normal values of hemoglobin are above 14 gm/dl in males & above 12 gm/dl in females. Hemoglobin values between 12 – 14gm/dl is considered as mild anemia, between 10 – 12 gm/dl is considered as moderate anemia and below 10 gm/dl is considered as severe anemia in males. Hemoglobin values between 10 – 12 gm/dl is considered as mild anemia, between 8 – 10 gm/dl is considered as moderate anemia and below 8 gm/dl is considered as severe anemia in females. Signs of anemia are as follows -

- Pallor – seen in mucous membrane of conjunctiva & skin.
- Cardiovascular system – tachycardia, cardiomegaly, dyspnea on exertion, congestive heart failure.
- Central nervous system – faintness, giddiness, headache, drowsiness, tingling sensation of hands & feet.
- Reproductive system – Amenorrhea, Menorrhagia.
- Urinary system – mild proteinuria.
- Gastrointestinal system – anorexia, flatulence, nausea, constipation, weight loss.
- Retinal hemorrhage.

Pathological causes of anemia are

- Due to blood loss – Acute post hemorrhagic anemia.
- Impaired RBCs formation – Cytoplasmic malnutrition – Iron deficiency due to haem synthesis & Thalassemia due deficient globin synthesis. Malnutrition defect – Megaloblastic anemia due to Vitamin B12 deficiency & folic acid deficiency.
- Morphological – Microcytic hypochromic, Normocytic normochromic & Macrocytic.

CONCLUSION:

The purpose of selection of this topic was to know whether the students in age group 17 to 21 years are healthy and don't suffer from Anemia. 198 participants blood was tested by conducting complete blood count investigation and hemoglobin values were noted. It was found that 42 out of 55 Male participants were found anemic i.e. **76%** male participants were Anemic. 117 out of 143 female participants were found anemic. i.e. **81.81%** female participants were Anemic. It is often said that mostly adolescence girls are anemic, but this study shows that the difference between male & female students is not vast. At the end of observational study it was found that Female participants (**81.81%**) suffer from anemia compared to male students (**76%**). It can be concluded that both the sexes are suffering from anemia. It may be due to the increased stress of studies, change in regular eating habits & change in life style of adolescents. Anemia in adolescence age can be prevented by proper education & guidance. Anemic persons must be encouraged to take iron rich diet, continuous screening of women who are at risk of Iron deficiency anemia – heavy menstrual bleeding, worm infestation, low iron diet should be screened for anemia annually & appropriate treatment regimen can be started for its correction.

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