

## A study on Anaemia among Adolescent Girls in District Pulwama

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**Abstract:** India has the world's highest prevalence of iron deficiency anaemia among women, with 60 to 70 percent of the adolescent girls being anaemic. Adolescence is considered as a nutritionally critical period of life. The present study is an effort to study the prevalence of iron deficiency of anaemia among adolescent girls. The study was conducted on a sample of 60 adolescent girl students from four different secondary schools of district pulwama. Self constructed Questionnaire was developed by the investigator were used for data collection. Significant results were found that the students which belong to govt. school are more anaemic than private schools.

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**Keyword:** study; Anaemia; Adolescent; Girl; District Pulwama

### Introduction

The word adolescence is derived from the Latin word, 'adolescence' meaning "to grow, to mature". The WHO has defined adolescence as the age period between 10 to 19 years of age. There are about 1.2 billion adolescents in the world, which is equal to 1/5th of the world's population and their numbers are increasing. Out of these, 5 million adolescents are living in developing countries. India's population has reached the 1 billion mark, out of which 21% are adolescents. Anaemia is widely prevalent in India, developing country and affects both sexes and all age groups. Among adolescents, girls constitute a vulnerable group particularly in developing countries. In a family with limited resources, the female child is more likely to be neglected.

Adolescent girls are at a high risk for anaemia and malnutrition. Inadequate nutrition during adolescence can have serious consequences throughout the reproductive years of life and beyond. Very often, in India, girls get married and pregnant even before the growth period is over, thus doubling the risk for anaemia. During this period of adolescents' blood volume and muscle mass increases and this in turn is found to increase the need for haemoglobin formation. The risk of iron deficiency among girls remains during her reproductive life and is the most widespread form of malnutrition among women and children.

Prevalence of anaemia also depends on socio economic status, literary status of mothers and type of families'. Intestinal infestations are particularly important in adolescence as they cause or aggravate malnutrition including iron deficiency anaemia. The present study was planned to highlight the problem of anaemia in adolescent girls in the light of scarcely available literature for this high risk.

### Review literature:

Upadhyayet *al.* (2002) observed the impact of single vs. combination of media on nutrition knowledge and haemoglobin status. After a period of 60 days a significant rise in post exposure knowledge scores of both the groups was observed. Between the groups multimedia group scored significantly higher than print media group. Mean haemoglobin concentration were found to be higher though non-significant. Similarly in the present study the subjects were exposed to short lectures, and other visual aids such as folder, flash cards, posters and display of raw foods which showed a significant rise in post exposure knowledge scores.

Meenakshi & Vyas (2003) used a questionnaire to assess the nutritional knowledge of adolescent girls which contained 100 questions with multiple choices. A pre- test and post test study was conducted within the interval of seven days on the same questionnaire. The results indicated about 30 % gain in knowledge by comparing the scores of pre – test and post test, as against to a high score (>23) by the subjects in the post tests in the present study.

Dutta *et al.* (2004) revealed that 60 % of the girls (17-19 years) had correct knowledge about signs of anaemia and cheapest source of iron, 72 % of them knew the dietary cause of the disease. Their knowledge regarding the prevalence of anaemia among Indian women and the normal haemoglobin level of them, however, was poor as only 26 % and 37% of the girls could correctly answer in this respect.

Patel, K. (2009) conducted a study and the result revealed that nutrition deficiency diseases are widely prevalent in rural community due to poor awareness regarding nutrition. Because of poor knowledge regarding nutrition, their family suffers from deficiency diseases. Two villages Kamli and Sinhi of

Unjhataluka were selected by purposive random sampling method. 100 rural women of 20-50 years age group were selected (50:50) or equally from two villages randomly. The intervention program was conducted by poster exhibition and lecture. Data revealed that awareness regarding nutritional requirement had increased after intervention program. Highest difference was observed in knowledge about vitamin requirement (50%). The respondents had highest unawareness about calorie and lowest awareness regarding vitamins requirements before an intervention program.

Siddharam et, al. (2011) studied anaemia among adolescent girls in rural area of Hassan district, south India To estimate the prevalence of anaemia among adolescent girls and to study the socio-demographic factors associated with anaemia. Materials and methods: A cross sectional survey was conducted in selected anganwadi centres of rural area of Hassan district. Three and Fourteen adolescent's girls (10-19 yrs old) were included in the study. The study was conducted from February to April 2011 (3 moths). Data analysis was done by using proportions and Chi-square test. Results: Prevalence of anaemia was found to be 45.2%. A statically significant association was found with iron deficiency anaemia, weight loss and anaemia, pallor and anaemia. In the present study it was seen that among the 45.2% of anaemic adolescent girls 40.1% had mild anaemia, 54.92% had moderate anaemia and 4.92% had severe anaemia. Conclusion: A high prevalence of anaemia among adolescent girls was found, which was higher in low economic strata. It was seen that anaemia affects overall nutritional status of adolescent girls.

#### Objectives:

The objectives of the study were formulated as under:

- To assess the prevalence of iron deficiency anaemia among the sample group by the biochemical test.
- To assess nutritional status of adolescent girls by anthropometric measurements.
- To examine the clinical symptoms of the study sample their by assessing the various nutritional deficiencies.

#### Methodology:

##### Method

A descriptive survey method was followed for conducting the present study the present study on adolescent girls of district pulwama age group 12- 18 years is a comparative study among Govt and Private

school girls the random sampling was used to collect the information from the study sample.

#### Sample

Purposive random sampling method was used to select schools, where sample was obtained. It was ensure that schools were only meant for girls. The sample for the study consisted of 60 adolescent girls from both Govt and Private schools of District pulwama.

#### Tools used

Self- constructed questionnaire were used to collect the data. In designing the questions the simple language was used. The questions included various sections; like Anthropometric data, dietary information, socio demographic characterises.

#### Anthropometric data:

These measurements were used to assess the physical development of adolescent girls. Various anthropometric measurements were used like height, weight and body mass index.

**Height:** Height was measured with the help of non stretch tape which was fixed to flat wall.

**Weight:** The weight of subjects was measured with the help of digital weighing machine. The subjects were weighed with minimum clothing.

**Body mass index:** It was calculated by dividing weight in Kg by square height in meters.

$$\text{BMI} = \frac{\text{Weight (Kg)}}{\text{Height}^2 \text{ (m)}}$$

#### Statistical treatment

To fulfil the objectives of to study, % statistics was used.

#### Analysis of the data

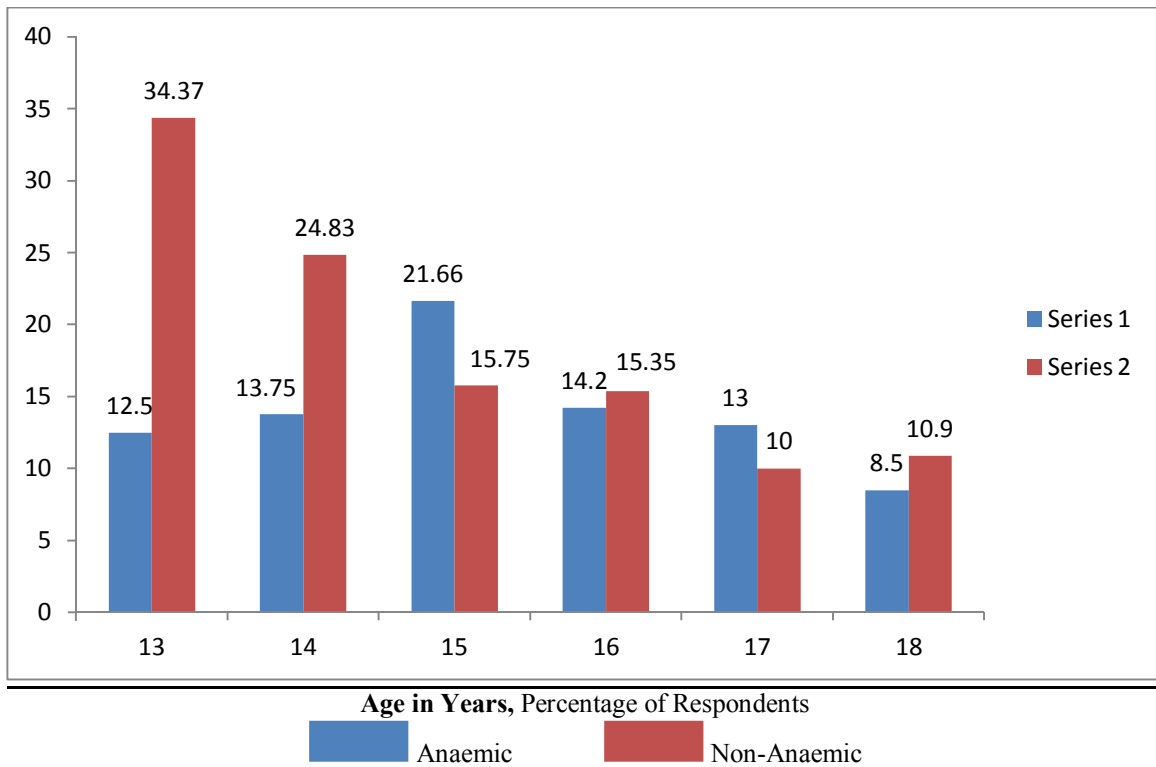
In order to have results of investigation at a glance they are presented in tabular and graphical form.

**Tab. 1** presents the distribution of anaemic and non-anaemic respondents as per the age. After analysing the above data which was taken from the private school showed that the 48% were found anaemic and 52% were found non anaemic which belong to the age group of 13 to 18 years of age.

**Tab. 2** presents the distribution of anaemic and non-anaemic respondents as per age the above data which is taken from govt schools shows that 64% were found anaemic and 36% were found non anaemic which belong to the same age group 13 to 18 years age.

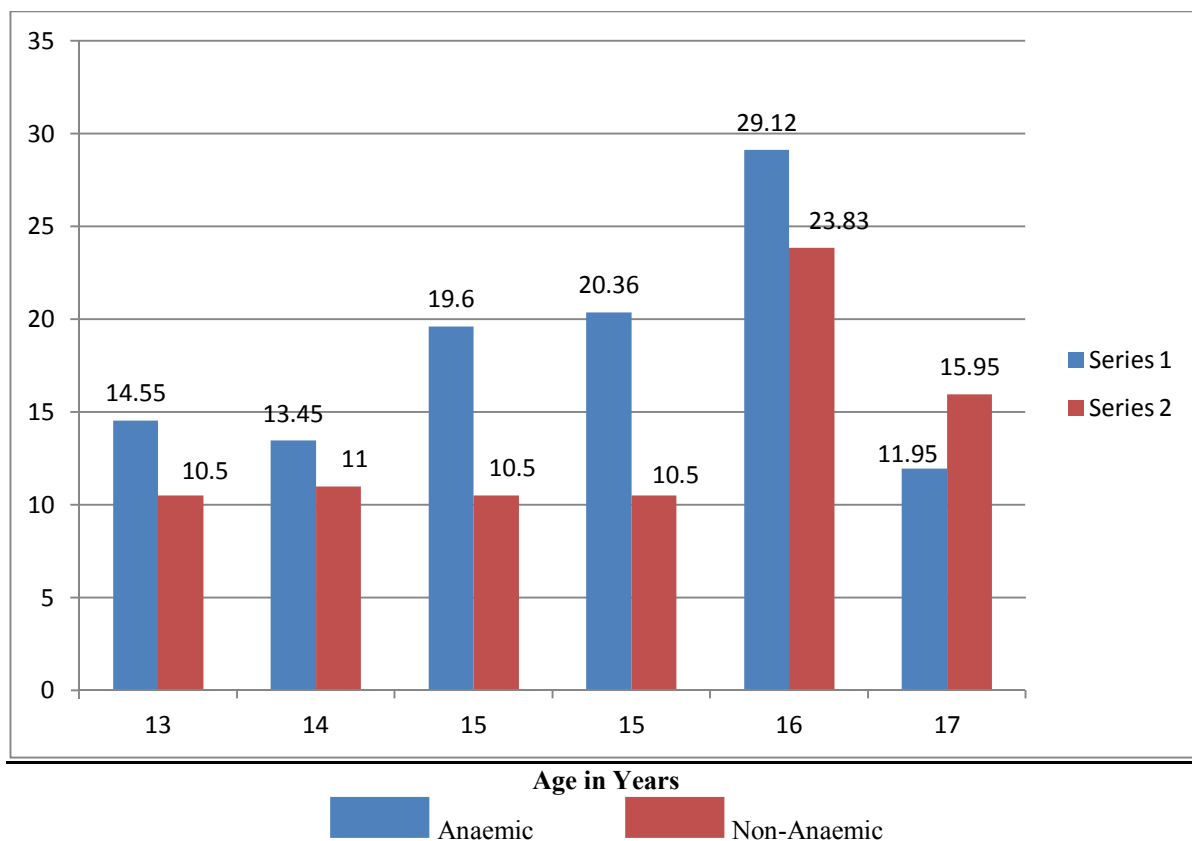
**Tab. 1. In order to have results of investigation at a glance they are presented in a tabular and graphical form. (In case of private school the observation are as under)**

Age in Years	Anaemic<10g %		Normal≥10g%		Total
	Count	%age	Count	%age	
13	2	12.75	4	34.37	6
14	2	13.75	3	24.83	5
15	3	21.66	2	15.75	5
16	2	14.2	2	15.35	4
17	2	13.0	1	10.0	3
18	1	8.5	1	10.9	2
<b>Total</b>	<b>12</b>		<b>13</b>		<b>25</b>



**Tab.2. Showing the observation which were from the Govt. school are as:**

Age in Years	Anaemic<10g %		Normal ≥10g%		Total
	Count	%age	Count	%age	
13	2	14.55	1	10.5	3
14	2	13.45	1	11.0	3
15	3	19.56	1	10.5	4
16	3	20.36	1	10.5	4
17	4	29.13	3	23.83	7
18	2	11.95	2	15.95	4
<b>Total</b>	<b>16</b>		<b>9</b>		<b>25</b>



After analysing the data it was found that the 48% students were found anaemic and 52% were found Non-Anaemic in case of the private school which belongs to the age group of 13 to 18 years.

But in case of Govt School 64% were found anaemic and 36% was found Non-Anaemic which belongs to the same age group of 13-18 years of age.

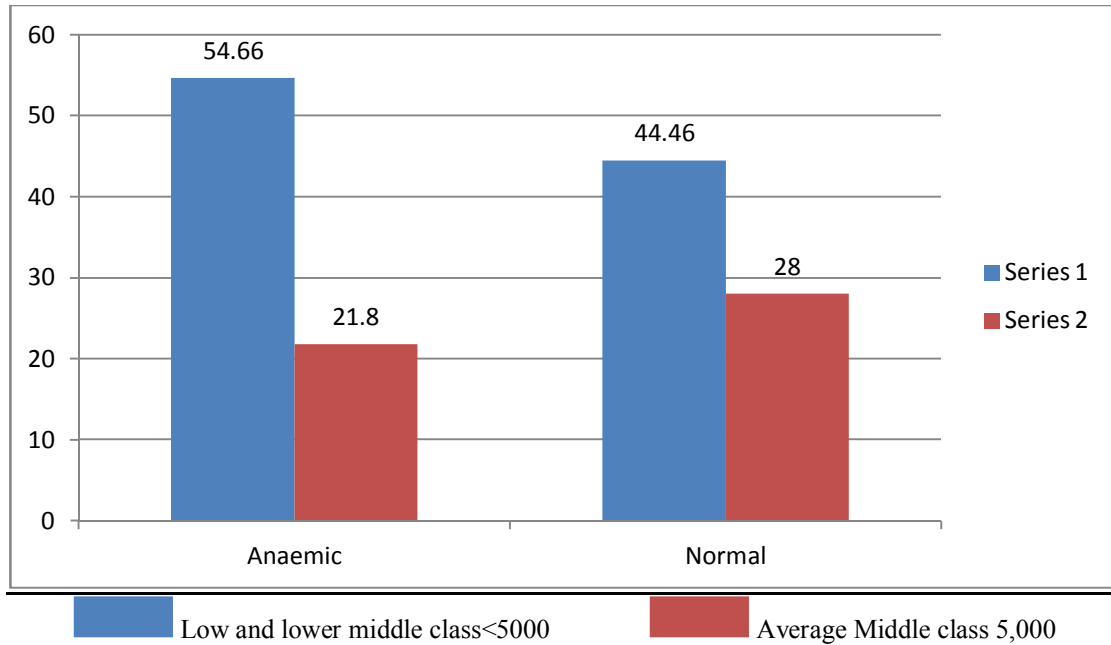
After comparing the two data's from the both schools it was found that the adolescent girls which

belong to the Govt. school were found more anaemic as compared to the private school, which may be because of the low social-economic status and low knowledge regarding the iron rich foods and mostly the parents of Govt. school children were less educated and belong to the low social-economic status.

**Tab.3. Showing the distribution of respondents accordingly to the monthly income of their family (in case of Govt. school students):-**

Socio Economic Status	Anaemic <10.0gm%		Normal ≥10.0gm%		Total
	Count	%age	Count	%age	
Low and Lower middle class <5,000	12	54.66	6	44.46	18
Average middle class (5,000 to 10,000)	4	21.8	3	28.0	7
<b>Total</b>	16		9		25

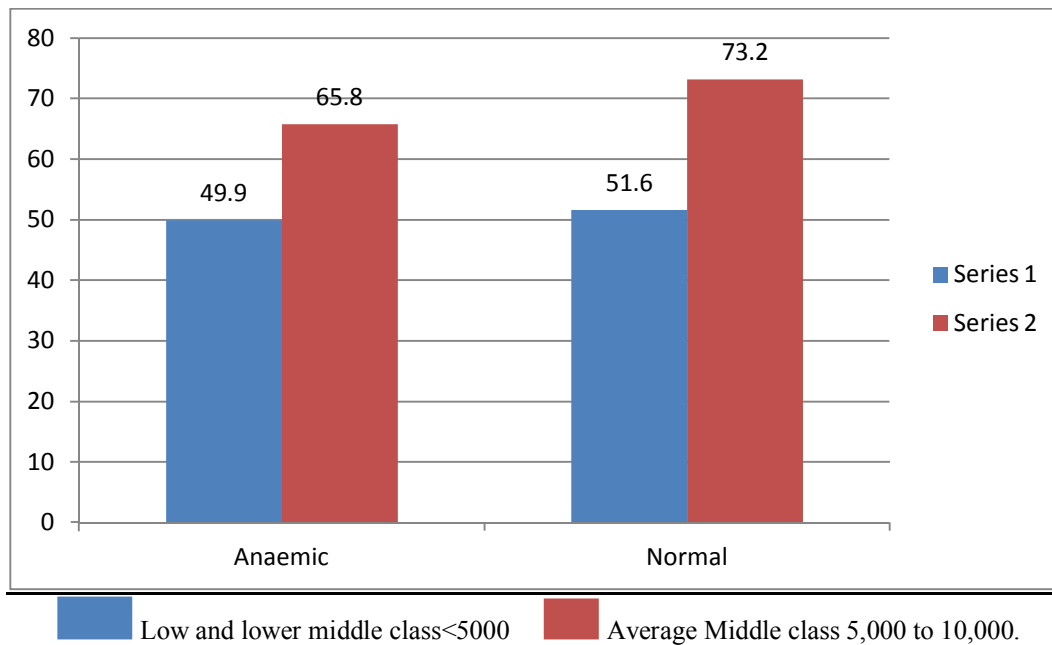
The above table presents the distribution of anaemic and non-anaemic respondents according to their economic status. After analysing the above data which is taking from Govt. school it was found that only 28% students belong to the average middle class families.



**Tab.4. Showing the distribution of respondents accordingly to monthly income of their family(in case of private school students)**

Socio Economic Status	Anaemic <10.0gm%		Normal ≥10.0gm%		Total
	Count	%age	Count	%age	
Low and Lower middle class <5,000	5	49.9	4	51.6	9
Average middle class (5,000 to 10,000)	7	65.8	9	73.2	16
<b>Total</b>	<b>12</b>		<b>13</b>		<b>25</b>

The above table presents the distribution of anaemic and non-anaemic respondents according to their economic status. After analysing the above data which is taken from the private school, it was found that 73.2% belong to the average middle class.

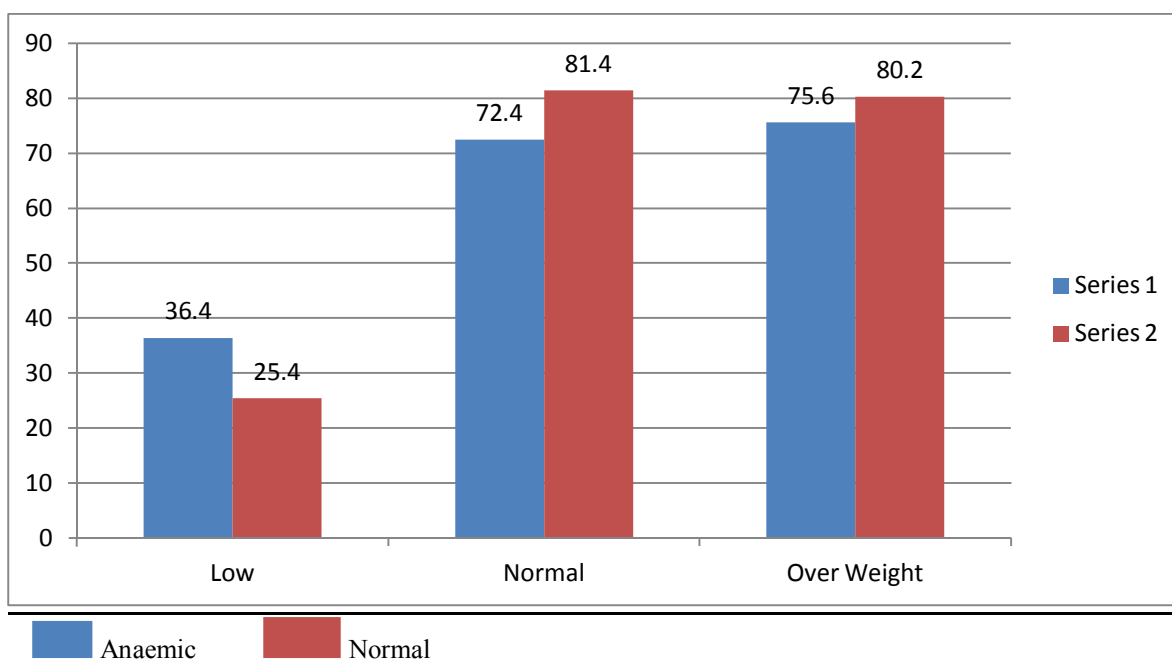


From the above two graphs it is evident that the economic status of students belong to private school is good as compared to the Govt. school students, which belong mostly to poor families. In case of Govt. school students only 28% belong to the average middle class families but in case of private school students 73.2% belong to the average middle class families.

**Tab. 5. Showing the Body Mass Index (BMI) of respondents(In case of Govt. School Students).**

Body Mass Index(BMI)	Anaemic<10.0g%		Normal $\geq$ Hb 10.0gm %		Total
	Count	%age	Count	%age	
Lower(Below 18.5 Kg)	5	36.4	3	25.4	8
Normal(18.5Kg-25.0Kg)	3	72.4	5	81.4	8
Over Weight(25.1-29.1Kg)	4	75.6	5	80.2	9
<b>Total</b>	<b>12</b>		<b>13</b>		<b>25</b>

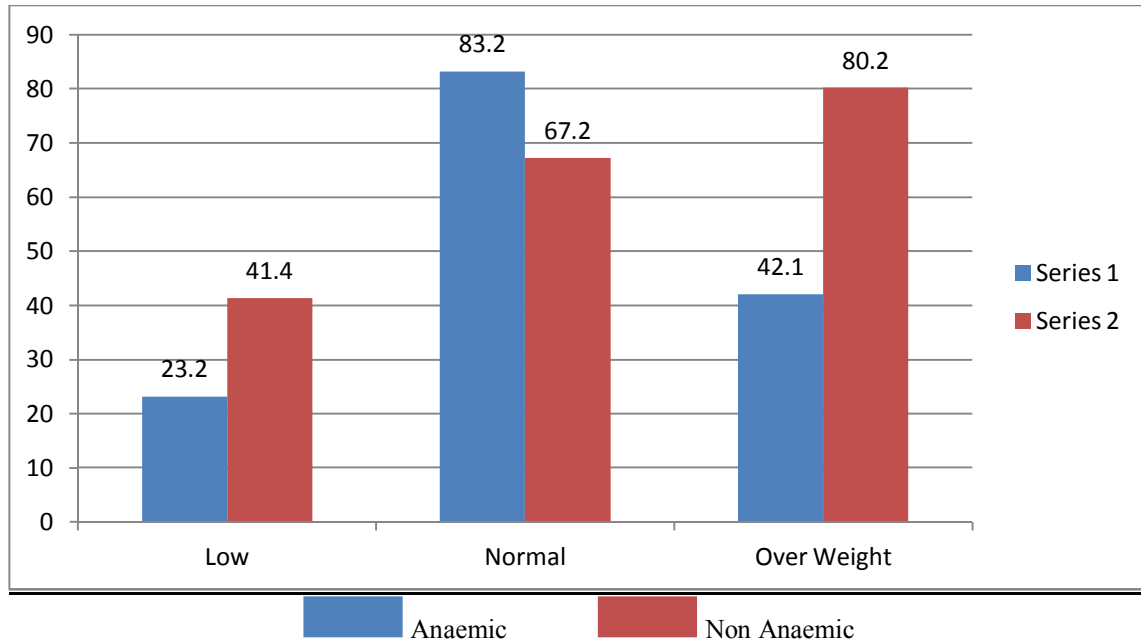
The above table presents the distribution of anaemic and non-anaemic students according to their BMI. After analysing the above data which is taken from the govt. school it was found that 70% of the students were malnourished and their diet was not adequate according to the recommended dietary allowances.



**Tab.6. Showing the Body Mass Index (BMI) of respondents (In case of Private School Students)**

Body Mass Index(BMI)	Anaemic<10.0g%		Normal $\geq$ Hb 10.0gm %		Total
	Count	%age	Count	%age	
Lower(Below 18.5 Kg)	2	23.2	6	41.4	8
Normal(18.5Kg-25.0Kg)	6	83.2	2	67.2	8
Over Weight(25.1-29.1Kg)	2	42.1	7	87.1	9
<b>Total</b>	<b>10</b>		<b>15</b>		<b>25</b>

The above data presents the distribution of anaemic and non-anaemic students according to their BMI. After analysing the above data which is taken from the Private school, it was found that 75% students were nutritionally fit and it was also found that they were more prone to become obese because most of the students were overweight.



From the two graphs it shows that BMI of private school students is well as compared to Govt. school students, but the private school students are more prone to become obese as the overweight percentage in case of private school is very high as compared to Govt. school students.

#### Discussion:

To be well nourished and well developed is one of the rights of childhood, the responsibility of turning this right into reality rest with the parents, shared by teachers and in fact of all those who are interested in the welfare of the children as they are important assets. Better health and nutrition is one of the important factors responsible for increased growth, the influence of age on the requirements or influence of sex determines the nutritional need that once appears through adolescence.

Adolescence is often turbulent period in which they experience hormonal changes, physical maturation and frequent opportunities to begin planning for future and to adopt health attitude in behaviour. Adolescents have to need the challenge of growth while on the otherh and they have poor nutrition that hampers their growth and this coupled with social discrimination makes them more vulnerable to these hazards. Although as per national figure our state ranks nutritionally better than many other states yet due to recent socio political and socio economic changes in past decade and half it likely health of adolescents may have been affected.

The educational status of the parents particularly mothers plays an important role in maintenance of good health and nutrition of adolescents. The parents of better educational status have shown improved nutritional status as compared less educated parents. In the present study it was observed the highest

percentage of anaemic that is 64% of children belonged to the families where both parents were illiterate. It was revealed in our study that majority of adolescent girls among the both groups consumed foods which are low in iron because of the poor economic status. Also majority of respondents have high tendency of junk foods. The present study found that majority of student does not take lunch to school. It was also observed almost all adolescent girls get more of their nutrition from rice, because rice is culturally accepted, easily available and gives feeling of fullness after eating. The findings of the present study showed that overall nutrient intake of adolescent girls in both groups either anaemic or normal group was less as per recommended dietary allowances.

#### Conclusion:

From the present study it was revealed that anaemia is a major health problem among adolescents especially girls because of lack of proper information regarding dietary habits adolescents have a habit of skipping their meals because they are more conscious about their body structure anaemia could also be the result of heavy periods and reduced iron intake thus govt should promote awareness programs in schools which will lead to healthy eating patterns and selection of appropriate foods they should also be given education about enhancing factor intake of vitamin C which helps in the absorption of iron.



From the study it was concluded that over all nutritional status of adolescent that over all nutritional status of adolescent girls was not up to the mark clinical examination showed that girls had signs of various deficiencies the intake of all the nutrients was found less than recommended dietary allowances.

### Recommendations:

Measures which can be implemented for adolescent girls in order to improve their nutritional statuses especially iron level are:-

1. Inclusion of iron rich foods and regularity of meals need to be established among the adolescent girls.
2. Foods like green leafy vegetables, meat, chicken, pulses and egg to be consumed in abundance so as to improve nutritional stores of the body more over vitamin C rich fruits should be consumed to enhance iron absorption.
3. Fortification of widely consumed foods with iron / foliate.
4. Regular de-worming of adolescents.
5. The strategy for nutrition intervention in adolescence.

Suggest components of promotion prevention and treatment thus promoting adequate nutrition with adolescents means enhancing control of adolescents over their food and food resources and improving their food and food resources and improving their access to appropriate nutrition services in addition to strengthening food related skills and encouraging healthy eating and life style.

Prevention focuses on condition like malnutrition and specific micronutrient deficiencies treatment includes health care services to deal with nutritional aspects diseases in adolescents in an appropriate manner.

6. School based nutrition intervention also provide the most effective and efficient way schools should provide a setting to introduce nutritional information technologies to the community and also interventions such as nutritional serving providing micro nutrient supplements ensuring consumption and nutrition behaviour development and school feeding programmes more ever population where many adolescents are not in school, school outreach programme had been found effective, vocational schools and other community based institutions such as youth group can also involved in addition to using the media.

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