# PREVALENCE OF ANAEMIA IN COLLEGE GOING ADOLESCENTS

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## ABSTRACT

A study was undertaken to assess the prevalence of anaemia in college going adolescents. A total sample of 63 adolescents from College of Rural Home Science was randomly selected. Nutritional status of the selected adolescents was assessed by anthropometry and to know the prevalence of anaemia, haemoglobin level was determined. The findings of the study showed that maximum subjects (68.25 %) were from the age group of 17-18 years and the majority of them were females (84.13 %). Only 39.68 percent of the adolescents had ideal BMI. Percent prevalence of mild, moderate and severe anaemia among the adolescent girls was 24.53, 47.17 and 9.43 percent respectively. Only one boy had normal haemoglobin level (> 13 g/dl). Study concludes that nutritional status of the adolescents was poor with 44.44 percent underweight subjects and higher percent (83.13) prevalence of anaemia in girls.

**KEYWORDS:** Adolescents, Anaemia, Anthropometry, Nutritional Status

## INTRODUCTION

World Health Organization has defined 'adolescence' as a period between 10 and 19 years (WHO, 1996). Adolescence in girls has been recognized as a special period of transition from girlhood to womanhood. This is the formative period of life when the maximum amount of physical, psychological, and behavioral changes take place. This is a vulnerable period in the human life cycle for the development of nutritional anemia (Chaudhary and Dhage 2008). In the period of early adolescence, nutrient requirements are high and reserves are being laid for the subsequent rapid growth and development.

Iron deficiency anemia (IDA) is a formidable health challenge in developing countries and remains persistently high despite national programs to control this deficiency. Among different types, iron deficiency anaemia continues to pose significant challenge to public health all over world. It is the commonest nutrition disorder in the world, particularly affecting the women in reproductive age group (Vijayraghavan, 2007). Furthermore, anemia may compromise pubertal growth spurt, and may also reduce physical work capacity and cognitive function (Sen and Kanani, 2005).

The main reasons for the high prevalence of anemia in India are dietary inadequacy, iron absorption inhibitors, ignorance, lack of purchasing power, exposure to frequent infections and infestations, lack of motivation on the part of the health functionaries due to absence of orientation and training, inadequate and irregular supplies, lack of supervision and absence of nutrition education. The present investigation was planned to assess the nutritional status of selected adolescents and to study the prevalence of anaemia in selected adolescents.

## MATERIALS AND METHODS

A total sample of 63 adolescents of College of Rural Home Science was randomly selected. Among that 10 were boys and remaining 53 were girls. Nutritional status of the selected adolescents was assessed by anthropometry. The measurements of body weight and height of each respondent were recorded by following the standard techniques given by Jelliffe (1966) and body mass index was calculated by using the formula height in meter square divided by weight in kilograms. Age and gender information was also collected.To study the prevalence of anaemia, a finger prick sample of all the subjects was collected with the help of a trained laboratory technician. The collected blood samples were analyzed on the same day in the laboratory for estimation of haemoglobin content by Cyaname tha emoglobin method (Crosby et al. 1954). Based on haemoglobin content the adolescent girls were divided into four categories such as normal (Hb>12 g /dl), mildly anaemic (Hb 10-12 g /dl), moderately anaemic (Hb7-10 g /dl) and severely anaemic (Hb< 7 g /dl) (Anon 2003). Whereas, hemoglobin value below 13 g /dl for boys was considered as the criteria of diagnosis with anemia. The collected data was processed, tabulated and analyzed for statistical measures like percentage, mean and standard deviation.

## RESULTS AND DISCUSSION

### Age and Gender Wise Distribution of the Selected Adolescents

Age wise distribution of the selected adolescents (Table 1) indicated that most of the (68.25%) respondents aged 17 to 18 years followed by 16 to 17 years old (17.46%). Only 14.29 percent respondents belonged to age group 18 to 19 years. Genderwise distribution of the selected adolescents (Table 2) indicated that most of the (84.13%) respondents were females followed by 10 males(15.87%).

### Anthropometric Measurements of Selected Adolescents

Data regarding anthropometric measurements of selected adolescents is presented in Table 3. The mean value of weight of selected adolescents was 48.64 ± 6.87 kg and height was 156.80 ±7.66 cm. Sekhan and Minhas (2014) also reported a mean height and weight of 154.51 ± 7.66 and 44.03 ± 4.40 respectively for adolescent girls of 19 years.

### Distribution of Selected Adolescents According to Categories of BMI

Distribution of selected adolescents according to categories of Body Mass Index (BMI) is presented in Table 4. The data regarding BMI of adolescents indicated that 44.44 percent adolescents were underweight (<18.5) and 1.59 percent were having grade II obesity. Percentage of adolescents having ideal BMI (18.5 to 22.9) was 39.68. There were 4 adolescents with grade I obesity and 5 of them were overweight. Similarly, Pattnaik *et al.,* (2012) also reported that 49 percent adolescent girls were underweight.

### Distribution of Adolescents according to Categories of Anaemia

Distribution of selected adolescent girls according to categories of anaemia is presented in Table 5. Only 18.87 percent of adolescents were normal. Percent prevalence of mild, moderate and severe anaemia among the subjects was 24.53, 47.17 and 9.43 percent respectively. Inadequate knowledge and awareness of adolescent girls regarding anaemia might be the reason for higher prevalence as reported by Resmi *et al.,* (2017). Out of ten adolescent boys under study, only one (10.00%) boy had normal haemoglobin level (> 13 g/dl). Kulkarni *et al.,* (2012) also reported 90.10 per cent prevalence of anaemia in urban slum adolescent girls. Prevalence of mild and moderate anaemia among young adolescent

girls was reported as 32.60 and 34.70 per cent respectively (Sen and Kanani, 2005).

## CONCLUSIONS

Only 39.68 percent of the adolescents had ideal BMI and 44.44 percent adolescents were underweight. Only 18.87 adolescent girls had normal haemoglobin (> 12 g/dl) and rest of them was suffering from different levels of anaemia. Study clearly demonstrates that nutritional status of the adolescents was not on par with the standards and per cent prevalence of anaemia was also found to be higher.

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## APPENDICES

**Table 1: Age Wise Distribution of the Selected Adolescents**

| Age (Years) | Total Subjects (n=63) |
|---|---|
| 16-17 | 11 (17.46) |
| 17-18 | 43 (68.25) |
| 18-19 | 9 (14.29) |

Figures in parentheses indicate percentages

**Table 2: Gender Wise Distribution of Adolescents**

| Gender | Total Subjects (n=63) |
|--------|----------------------|
| Male | 10 (15.87) |
| Female | 53 (84.13) |

Figures in parentheses indicate percentages

**Table 3: Anthropometric Measurements of Selected Adolescents (Mean ± SD)**

| Parameters | Total Sample (n=63) |
|-----------|---------------------|
| Weight (kg) | 48.64± 6.87 |
| Height (cm) | 156.80± 7.66 |

**Table 4: Distribution of Selected Adolescents According to Categories of BMI**

| BMI Category | | Total Sample (n=63) |
|-------------|-----------|---------------------|
| Underweight | <18.5 | 28 (44.44) |
| Ideal | 18.5 – 22.9 | 25 (39.68) |
| Overweight | > 23 | 5 (7.93) |
| Obese grade I | >25 | 4 (6.35) |
| Obese grade II | >30 | 1 (1.59) |

Figures in parentheses indicate percentages

**Table 5: Distribution of Selected Adolescent Girls According to Categories of Anaemia**

| Anaemia Category | Total Sample (n=53) |
|-----------------|---------------------|
| Normal (>12g/dl ) | 10 (18.87) |
| Mild (10-12 g/dl) | 13 (24.53) |
| Moderate(7-10 g/dl) | 25 (47.17) |
| Severe (< 7 g/dl) | 05 (9.43) |

Figures in parentheses indicate percentages