



# Assess The Knowledge Regarding Iron Deficiency Anemia Among Adolescent Girls In Higher Secondary Educational Schools

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**Abstract:** A Descriptive Research design was employed to evaluate the understanding of iron deficiency anemia among adolescent girls at a higher secondary school in Chandragiri, A.P. One hundred adolescent girls were chosen using the Non-Probability Purposive Sampling technique. Data collection was conducted through a structured questionnaire on iron deficiency anemia. The data was analyzed utilizing descriptive and inferential statistics.

## MAJOR FINDINGS OF THE STUDY

Out of the 100 adolescent girls surveyed, 42 (42%) demonstrated moderate knowledge of iron deficiency anemia, 35 (35%) displayed adequate knowledge, and 23 (23%) exhibited inadequate knowledge of iron deficiency anemia. The mean and standard deviation among adolescent girls were 18.52 and 2.451, respectively. There is a statistically significant association between socio-demographic variables and knowledge among adolescent girls, including age, father's education, father's occupation, and monthly income (significant at  $p < 0.01$ ). Additionally, there is a statistically significance seems to adolescent girls, such as religion, education level, type of family, food pattern, source of knowledge, and age at menarche (significant at  $p < 0.05$ ). The results indicated that a significant number of adolescent girls had inadequate knowledge regarding iron deficiency anemia. In response to these findings, an information booklet was distributed to all adolescent girls to address and mitigate this condition, aiming to enhance their overall health status. This study contributes to equipping healthcare personnel with valuable insights to better educate adolescent girls about iron deficiency anemia.

**KEY WORDS:** Iron deficiency Anemia, Adolescent Girls, Secondary High School.

## 1.INTRODUCTION

Anaemia poses a critical public health problem in India, impacting women and children across their lifespan. It not only hampers the development and learning abilities of boys and girls but also diminishes their concentration in daily tasks, heightening vulnerability to infections and elevating school dropout rates. Moreover, anaemia diminishes physical fitness and work productivity. In girls, particularly during pregnancy, anaemia is linked with adverse outcomes such as premature births, low birth weight, and increased risks of peri-natal and maternal mortality <sup>2</sup>.

Adolescence is a period of considerable growth for both boys and girls, characterized by increased nutritional requirements in proportion to their body size. In regions like India, where social norms and prevailing beliefs frequently favor males over females, there is a significant incidence of malnutrition and anemia among girls. Furthermore, the rising emphasis on slimness and physical appearance has made girls more vulnerable to

anemia. This condition during adolescence and young adulthood can have adverse effects on cognitive function and overall development<sup>4</sup>.

Ensuring adequate nutrition for adolescents is vital as school attendance and academic performance significantly influence their career opportunities and long-term economic prospects, not only for themselves but also for their future families. By addressing their nutritional needs, we make a crucial investment in their future by enhancing their learning capacity and potential for success<sup>7</sup>.

A Study was conducted on “Assess the Effectiveness of Structured Teaching Program me on Knowledge Regarding Prevention and Prevalence of Anemia among Adolescent Girls”. The one group pre-test and post-test experimental descriptive research design is used to collect the 100 samples from selected areas of Mohali. The study findings reveled that Majority 58 (58%) of the adolescent girls had inadequate knowledge, 40 (40%) had moderate knowledge and 02 (2%) had adequate knowledge in pre-test before administering structured teaching program. After getting structured teaching program, 15 (15%) of adolescent girls had moderate knowledge and 85 (85%) of adolescent girls had reported adequate knowledge. The study was concluded that there is gain in knowledge after teaching program and there is significant association between level of knowledge and demographic variables<sup>8</sup>.

## 2. NEED FOR THE STUDY

Anemia represents a mild public health concern among school adolescent girls in India. Predictors of anemia include household monthly income, family size, intestinal parasite infections, duration of menstruation, and BMI for age<sup>6</sup>.

Adolescents aged 10-19 years face a heightened risk of iron deficiency and anemia due to several factors. These include an accelerated increase in iron requirements during this period, inadequate dietary intake of iron, a high rate of infections and worm infestations, as well as prevalent social norms encouraging early marriage and adolescent pregnancy<sup>9</sup>.

Nutritional anemia stands as a significant public health challenge in India. The prevalence of anemia varies from 33% to 89% among pregnant women and exceeds 60% among adolescent girls. Therefore, intervention strategies should prioritize the prevention and early treatment of intestinal parasites, nutritional education, screening initiatives, and iron supplementation programs aimed at averting anemia among school adolescent girls<sup>12</sup>.

Anemia during adolescence can lead to functional impairments such as diminished academic performance, decreased productivity, and adverse effects on present and future reproductive health, particularly for those who conceive. Intermittent iron and folic acid supplementation are recommended for menstruating women residing in anemic areas. This supplementation aims to enhance hemoglobin concentration and iron status, especially in populations where the prevalence of anemia among non-pregnant women of reproductive age exceeds 20%<sup>10</sup>.

The World Health Organization (WHO) estimates that approximately two billion people worldwide suffer from anemia, with roughly 50% of all cases attributed to iron deficiency. Iron deficiency anemia can occur at any stage of the life cycle but is more prevalent among pregnant women and young children. Adolescents, especially girls, are particularly susceptible to iron deficiency<sup>5</sup>.

Anemia in adolescent girls presents a significant health risk, as their physical, mental, emotional, and social development is crucial during this period. Reduced hemoglobin levels hinder and impede the growth and associated developments. If they become pregnant during these years while anemic, they may give birth to babies with average to poor health. Awareness among adolescents is essential due to their tendency to neglect their health. Providing health education will empower them with the knowledge to adopt healthy lifestyles and thus prevent anemia<sup>3</sup>.

Primary prevention of anemia involves maintaining a well-balanced diet rich in iron, as well as other vitamins and minerals essential for iron absorption and red blood cell/hemoglobin production. Adolescence is a critical period marked by physical growth and sexual maturation. It is imperative for adolescents to consume a balanced diet that supplies all necessary nutrients—carbohydrates, proteins, fats, vitamins, and minerals—in the required amounts and proportions to maintain overall health and well-being. This includes incorporating various food items into their daily meals, such as pulses, chapatti or rice, green vegetables, locally available fruits, and milk.

Foods rich in iron include:

- (i) Green vegetables and fruits
- (ii) Grains such as wheat, jowar, bajra, sprouted pulses, groundnut, sesame, jaggery, and dried fruits
- (iii) Animal sources like liver, eggs, fish, and meat
- (iv) Vitamin C-rich foods aid in the absorption of iron. These include citrus fruits like oranges and lemons, Indian gooseberry (Amla), apples, and pears.

Under the Weekly Iron and Folic Acid Supplementation (WIFS) program for adolescents, free distribution of iron and folic acid (IFA) supplements is conducted on a weekly basis for the target groups. Additionally, Albendazole tablets for deworming are to be administered twice a year to the same target groups<sup>1</sup>.

### 3. METHODS

**3.1. RESEARCH APPROACH:** The study utilized a quantitative research approach.

**3.2. SETTING OF THE STUDY:** The study was conducted in Government higher secondary school at Chandragiri, A.P.

**3.3. POPULATION:** The study population comprised adolescent girls aged between 13 and 18 years.

**3.4. SAMPLE SIZE:** The sample consisted of 100 Adolescent girls.

**3.5. SAMPLING TECHNIQUE:** The study employed a non-probability purposive sampling technique.

#### 3.6. SAMPLE CRITERIA:

##### INCLUSIVE CRITERIA:

- The study included adolescent girls aged between 13 and 18 years who had experienced menarche.
- Participation in the study was voluntary, and adolescent girls willing to participate were included.

##### EXCLUSIVE CRITERIA:

- Adolescent boys are excluded from the study.
- Adolescent girls who were absent during the data collection period were excluded from the study
- Those who had not yet experienced menarche and were unwilling to participate were also excluded.

### 4. DATA ANALYSIS AND STATISTICAL METHOD

The collected data will be analyzed using descriptive and inferential statistics. A self-structured questionnaire was developed for

the collection of data. The questionnaire was organized into the following sections,

**SECTION A:** This section includes 13 questions related to socio-demographic variables.

**SECTION B:** This section comprises 40 knowledge questions concerning iron deficiency anemia in adolescent girls. Each question has one correct answer. Each correct response is awarded one point according to the predetermined key sheet, while zero points are awarded for incorrect responses. The total score for all 40 items is 40 marks. The scoring is as follows:

#### 4.1. INTERPRETATION OF KNOWLEDGE SCORE:

TABLE:1

S.NO	LEVEL OF KNOWLEDGE	PERCENTAGE
1.	Inadequate	<50 %
2.	Moderate adequate	50-75%
3.	Adequate	>75 %

**4.2. DATA ANALYSIS AND INTERPRETATION****SECTION I:** Frequency and percentage distribution of socio-demographic variables among Adolescent Girls.**TABLE:2**

(N=

100)

S.No	Demographic Variables	Frequency	Percentage %
<b>1.</b>	<b>AGE</b>		
	12-13 Years	50	50%
	14-15 Years	40	40%
	16-17 Years	10	10%
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>2.</b>	<b>RELIGION</b>		
	Hindu	81	81%
	Muslim	16	16%
	Christian	3	3%
	Others	0	0%
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>3.</b>	<b>Education</b>		
	7th standard	73	73%
	8th standard	18	18%
	9th standard	9	9%
	10th standard	0	0%
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>4.</b>	<b>EDUCATIONAL STATUS OF THE FATHER</b>		
	Illiterate	52	52%
	Primary	37	37%
	Higher Education	11	11%
	Graduate	0	0%
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>5.</b>	<b>OCCUPATION OF THE FATHER</b>		
	Business	29	29%
	Coolie	55	55%
	Self-employment	16	16%
	Govt. Employee	0	0%
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>6.</b>	<b>TYPE OF FAMILY</b>		
	Nuclear	39	39%
	Joint	53	53%
	Extended	8	8%
	None	0	0%
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>7.</b>	<b>MONTHLY INCOME</b>		
	< Rs 5000	46	46%
	Rs 5001 - Rs 10000	36	36%
	Rs 10001 - Rs 15000	18	18%
	> Rs. 15001	0	0%

S.No	Demographic Variables	Frequency	Percentage %
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>8.</b>	<b>FOOD PATTERN</b>		
	Vegetarian	52	52%
	Non-Vegetarian	27	27%
	Mixed	21	21%
	<b>Total</b>	<b>100</b>	<b>100%</b>
<b>9.</b>	<b>AGE AT MENARCHE</b>		
	<10years	69	69%
	11-12 years	24	24%
	13-15 years	7	7%
	16-18 years	0	0%
	<b>Total</b>	<b>100</b>	<b>100%</b>
10	<b>MENSTRUAL CYCLE</b>		
	Regular	53	53%
	Irregular	47	47%
	<b>Total</b>	<b>100</b>	<b>100%</b>
12	<b>DURATION OF MENSTRUAL CYCLE</b>		
	<3 days	<b>27</b>	<b>27%</b>
	3-5 days	<b>29</b>	<b>29%</b>
	>5 days	<b>44</b>	<b>44%</b>
	<b>Total</b>	<b>100</b>	<b>100%</b>
13	<b>SOURCE OF INFORMATION ABOUT IRON DEFICIENCY ANEMIA</b>		
	School	80	80%
	Friends and Relatives	14	14%
	Mass Media	6	6%
	Health care personnel	0	0%
	<b>Total</b>	<b>100</b>	<b>100%</b>

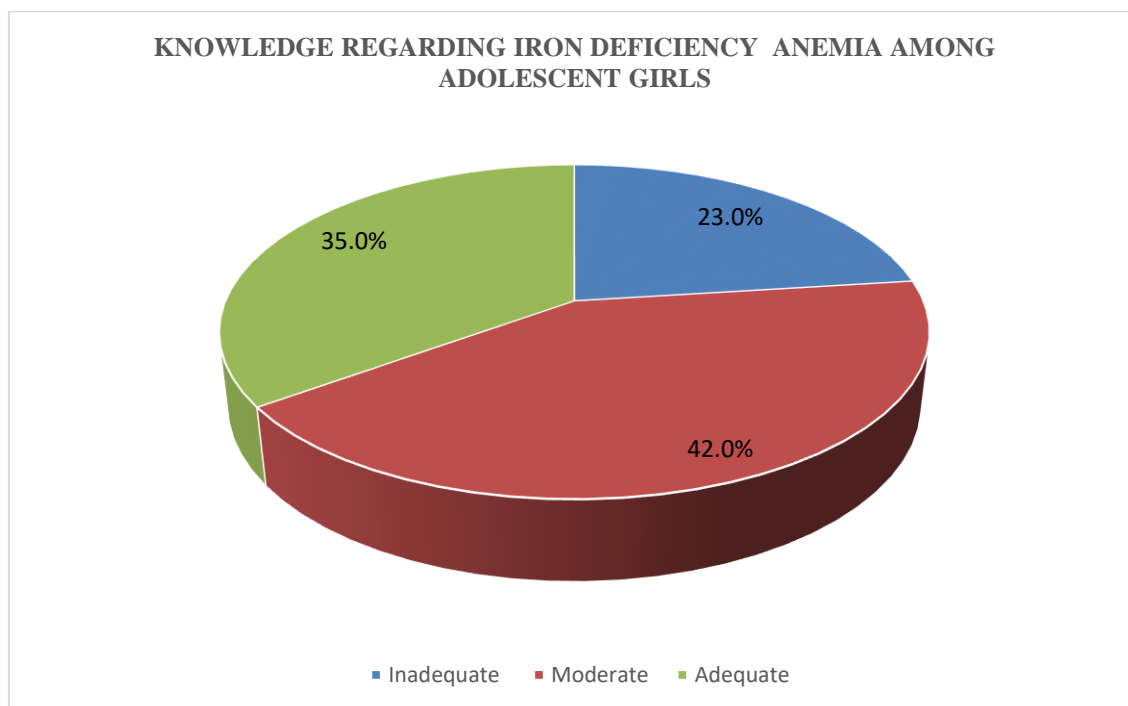
**SECTION II:** Frequency and percentage distribution of knowledge regarding iron deficiency anemia among adolescent girls.

**TABLE: 3**

knowledge regarding iron deficiency of anemia among adolescent girls	Frequency	Percentage %	Mean	SD
Inadequate	23	23%	18.52	2.451
Moderate	42	42%		
Adequate	35	35%		
<b>Total</b>	<b>100</b>	<b>100</b>		

Out of 100 adolescent girls surveyed, 42 (42%) demonstrated moderate knowledge of iron deficiency anemia, 35 (35%) displayed adequate knowledge, and 23 (23%) exhibited inadequate knowledge of iron deficiency anemia. The mean and standard deviation among adolescent girls were 18.52 and 2.451, respectively.

Fig: I



**SECTION III:** The association between socio-demographic variables and the level of knowledge of iron deficiency anemia among adolescent girls. There is a statistically significant association between socio-demographic variables and knowledge among adolescent girls in terms of age, father's education, father's occupation, and monthly income (significant at  $p < 0.01$ ). Additionally, there is a statistically significance seems to adolescent girls, such as religion, education level, type of family, food pattern, source of knowledge, and age at menarche (significant at  $p < 0.05$ ).

## 5. SUMMARY AND CONCLUSION

According to the study results, the findings underscored that the majority of participants had insufficient knowledge about iron deficiency anemia. It is recommended that teachers and healthcare professionals collaborate to develop educational programs and offer guidance and health education on iron deficiency anemia, actively engaging adolescent girls. In response to these findings, information booklets were distributed to all adolescent girls to address this issue and enhance their health status. It emphasizes the importance of including iron-rich foods in the diet of adolescents, highlights several examples such as mustard leaves, powdered milk, grams, maize, and red meat, all of which have high iron content. Incorporating these items into the diet of adolescents can effectively address their iron requirements and contribute to overall health and well-being. However, after receiving the information booklet, there will be an improvement in knowledge regarding the prevention of iron deficiency anemia among adolescent girls.

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