

A study of clinical profile and factor associated with anemia in the school going children

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Abstract

Background: Anemia is a condition characterized by reduction in the number of red blood cells and/or hemoglobin (Hb) concentration. **Aims and Objectives:** To Study Clinical profile and factor associated with Iron Deficiency anemia in the school going children. **Methodology:** This was a cross-sectional study in School going children aged 8-18 during the year June 2015 to June 2016. The school was having 900 students all the students were screened for Anemia by Sahli's hemoglobinometer. The diagnosis of anemia was done by WHO recommendation - out of total 900 there were 87 students found anemic. **Result:** The prevalence of anemia was 9.66%, majority of the patients were in the age group of 16-18 i.e. 36.78% followed by 13-16. 31.03%, 11-13-17.24, 8-11-14.94. The majority of the patients were Females i.e. 60.92% followed by Male 27.58. The majority of the patients were having Mild grade of Anemia i.e. 65.52% followed by Moderate-26.44%, Severe -8.05%. The most common Symptoms observed were Weakness in 94.25%, followed by Fatigue in 90.80%, Decreased appetite in 83.91%, Headache in 79.31%, Shortness of breath in 67.82%, Sore tongue in 55.17%, Coldness in hands and feet in 25.29%. The most common signs were Pale skin color (pallor) in 90.80%, Bald tongue in 71.26%, brittle nails in 48.28%, cracks in the sides of the mouth in 37.93%, Splenomegaly in 13.79%. The most common associated factors were Poor SES of Parents in 90.80% followed by Vegetarian Diet in 71.26%, Underweight in 67.82%, Female sex in 60.92, H/o frequent ARI and Diarrheal infection in 48.28%, H/o worm infestation in 36.78%, H/o Malaria in 33.33%. **Conclusion:** It can be concluded from our study that the most common Symptom was Weakness. The most common signs were Pale skin color (pallor). The most common Associated factors were Poor SES of Parents followed by Vegetarian Diet, Underweight, Female sex, H/o frequent ARI and Diarrheal infection, H/o worm infestation, H/o Malaria.

Key Words: Anemia, worm infestation, Malaria, Underweight.

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INTRODUCTION

Anemia Is A Condition Characterized By Reduction In The Number Of Red Blood Cells And/Or Hemoglobin (Hb) Concentration.¹ Anemia Is A Global Public Health Problem Affecting Both Developing And Developed Countries And Has Major Consequences For Human

Health As Well As Social And Economic Development. It Affects 24.8% Of The World Population.² The Burden Of Anemia Varies With A Person's Age, Sex, Altitude, And Pregnancy.¹ The Worldwide Prevalence Of Anemia Among Adolescents Is 15% (27% In Developing Countries And 6% In Developed Countries).³ In Ethiopia, The Prevalence Of Anemia Among The Age Group Of 15-19-Year-Old Males And Females Ranged From 2.8% To 15% And 9.3% To 34.8%, Respectively.⁴ Causes Of Anemia In Developing Countries Are Multi-Factorial, Which Include Nutritional (Iron, Folate, And Vitamin B12) Deficiencies, Infections (Such As Malaria And Intestinal Parasitic Infection [Ipi]), And Chronic Illness.⁵ Iron Deficiency Anemia Is A Condition In Which Anemia Occurs Due To Lack Of Available Iron To Support Normal Red Cell Production.⁶ The Prevalence Of Iron Deficiency And Subsequent Anemia Increases At

The Start Of Adolescence. In Girls, This Is Caused By Increased Requirements Of Nutrition For Growth, Exacerbated A Few Years Later By The Onset Of Menstruation, But Subsides For Boys.⁷ Globally, Anemia Is A Public Health Problem Affecting People In Both Developed And Developing Countries With Bad Consequences Of Human Health As Well As Social And Economic Development^{8,9}. Anemia Is A Critical Health Concern Because It Affects Growth And Energy Levels Adversely⁹. It Damages Immune Mechanisms and Is Also Associated With Increased Morbidity¹⁰. It Occurs At All Age Groups, But Is More Prevalent In Pregnant Women and Children⁹. Especially, Young Children From Low Income Families Have A Higher Risk For Developing Anemia Due To Iron Deficiency That Occurs As A Result Of High Demand For Iron During The Period Of Rapid Growth¹². Globally, Anemia Affects 1.62 Billion (24.8%) Of The Population¹¹, And An Estimated 36% Of Developing World's Population Suffers From This Disease. Anemia Is Known To Be A Significant Global Problem Affecting 305 Million (25.4%) School Age Children (Sac)¹¹.

MATERIAL AND METHODS

This was a cross-sectional study in school going children aged 8-18 during the year June 2015 to June 2016. The school was having 900 students all the students were screened for anemia by sahli's hemoglobinometer. The diagnosis of anemia was done by who recommendation.

Age group	Non - anaemia*	Mild	Moderate	Severe
Children 8 - 11 years of age	11.5 or higher	11-11.4	8-10.9	Lower than 8
Children 12 - 14 years of age	12 or higher	11-11.9	8-10.9	Lower than 8
Girls (15-18)	12 or higher	11-11.9	8-10.9	Lower than 8
Boys (15-18)	13 or higher	11-12.9	8-10.9	Lower than 8

As per above criteria out of total 900 there were 87 students found anemic. All details of information like any symptoms, signs, associated factors like poor SES of parents assessed by (bg prasad's method), vegetarian diet. Nutritional status was assessed by growth charts of bmi for age as provided by who those who are less than 5th percentile were considered as underweight. H/o frequent ari and diarrheal infection (≥ 2 episode per month in last one year), worm infestation (stool examination done), h/o malaria etc. Was investigated by available health records and interrogation with parents/ teachers of the students.

RESULT

Out 900 students there were 87 patients found anemia so prevalence of anemia was 9.66%.

Table 1: Age wise distribution of the patients

Age group	No.	Percentage (%)
8-11	13	14.94
11-13	15	17.24
13-16	27	31.03
16-18	32	36.78
Total	87	100.00

The majority of the patients were in the age group of 16-18 i.e. 36.78% followed by 13-16 31.03%, 11-13-17.24, 8-11-14.94.

Table 2: Sex-wise distribution of the patients

Sex	No.	Percentage (%)
Male	24	27.58
Female	53	60.92
Total	87	100.00

The majority of the patients were Females i.e. 60.92% followed by Male 27.58.

Table 3: Distribution of the patients as per the Grade of Anemia

Grade of Anemia	No.	Percentage (%)
Mild	57	65.52
Moderate	23	26.44
Severe	7	8.05
Total	87	100.00

The majority of the patients were having Mild grade of Anemia i.e. 65.52% followed by Moderate-26.44%, Severe -8.05%.

Table 4: Distribution of the Patients as per the Clinical features

Clinical features	No. (n=87)	Percentage (%)
Symptoms		
Weakness	82	94.25
Fatigue	79	90.80
Decreased appetite	73	83.91
Headache	69	79.31
Shortness of breath	59	67.82
Sore tongue	48	55.17
Coldness in hands and feet	22	25.29
Signs		
Pale skin color (pallor)	79	90.80
Bald tongue	62	71.26
brittle nails	42	48.28
cracks in the sides of the mouth	33	37.93
Splenomegaly	12	13.79

The most common Symptoms observed were Weakness in 94.25%, followed by Fatigue in 90.80%, Decreased appetite in 83.91%, Headache in 79.31%, Shortness of breath in 67.82%, Sore tongue in 55.17%, Coldness in hands and feet in 25.29%. The most common signs were Pale skin color (pallor) in 90.80%, Bald tongue in 71.26%, brittle nails in 48.28%, cracks in the sides of the mouth in 37.93%, Splenomegaly in 13.79 %.

Table 5: Distribution of the patients as per the associated factors

Associated factors	No.	Percentage (%)
Poor SES of Parents	79	90.80
Vegetarian Diet	62	71.26
Underweight	59	67.82
Female sex	53	60.92
H/o frequent ARI and Diarrheal infection	42	48.28
H/o worm infestation	32	36.78
H/o Malaria	29	33.33

The most common associated factors were Poor SES of Parents in 90.80% followed by Vegetarian Diet in 71.26%, Underweight in 67.82%, Female sex in 60.92%, H/o frequent ARI and Diarrheal infection in 48.28%, H/o worm infestation in 36.78%, H/o Malaria in 33.33%.

DISCUSSION

Anemia in adolescence has serious implications for a wide range of outcomes, and nearly all of the functional consequences of iron deficiency are strongly related to the severity of anemia. It causes reduced resistance to infection, impaired physical growth and mental development, and reduced physical fitness, work capacity, and school performance.¹³⁻¹⁷ In our study we have found that, the prevalence of anemia was 9.66%, majority of the patients were in the age group of 16-18 i.e. 36.78% followed by 13-16. 31.03%, 11-13-17.24, 8-11-14.94. The majority of the patients were Females i.e. 60.92% followed by Male 27.58. The majority of the patients were having Mild grade of Anemia i.e. 65.52% followed by Moderate-26.44%, Severe -8.05%. The most common Symptoms observed were Weakness in 94.25%, followed by Fatigue in 90.80%, Decreased appetite in 83.91%, Headache in 79.31%, Shortness of breath in 67.82%, Sore tongue in 55.17%, Coldness in hands and feet in 25.29%. The most common signs were Pale skin color (pallor) in 90.80%, Bald tongue in 71.26%, brittle nails in 48.28%, cracks in the sides of the mouth in 37.93%, Splenomegaly in 13.79%. The most common associated factors were Poor SES of Parents in 90.80% followed by Vegetarian Diet in 71.26%, Underweight in 67.82%, Female sex in 60.92, H/o frequent ARI and Diarrheal infection in 48.28%, H/o worm infestation in 36.78%, H/o Malaria in 33.33%. These findings are similar to Melkam Tesfaye *et al*¹⁸ they found that The overall prevalence of anemia was 15.2% (62/408), of which 83.9% comprised mild anemia. Being female (adjusted odds ratio [AOR] =3.04, 95% confidence interval (CI) =1.41–6.57), household size \$5 (AOR =2.58, 95% CI =1.11–5.96) intestinal parasitic infection (AOR =5.37, 95% CI =2.65–10.87), and low body mass index (AOR =2.54, 95% CI =1.17–5.51) were identified as determinants of anemia among school adolescents. Also B.Sudhagandhi *et al*¹⁹ found The frequency of the prevalence of anemia was significantly higher amongst

girls as compared to the boys. Results of the study population reveal that 52.88% were anemic, girls (67.77%) were 32.2% higher than the boys (35.55%) and anemic children were underweight.

CONCLUSION

It can be concluded from our study that the most common Symptom was Weakness. The most common signs were Pale skin color (pallor). The most common Associated factors were Poor SES of Parents followed by Vegetarian Diet, Underweight, Female sex, H/o frequent ARI and Diarrheal infection, H/o worm infestation, H/o Malaria.

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