Original Research

Assessment of prevalence of iron deficiency anaemia among school going children

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A R T I C L E I N F O

A B S T R A C T

Background: To assess the prevalence of iron deficiency anaemia among school going children.

Materials & methods: 80 children were enrolled. Categorisation was done on the basis of characteristic variables. Assessment of prevalence rate of iron deficiency anaemia with BMI was done.

Results: Significant results were obtained. Anaemia is higher in the school going children. P- value is less than 0.001 which is significant. There are 14.1% of severe anaemic cases.

Conclusion: This study shows that the BMI and Hb levels play significant role. P-value of less than 0.001 was taken as significant.

Introduction:

Anaemia is defined as haemoglobin below two standard deviations of the mean for the age and gender of the patient. Iron is an essential component of the haemoglobin molecule. The most common cause of anaemia worldwide is iron deficiency, which results in microcytic and hypochromic red cells on the peripheral smear. Several causes of iron deficiency vary based on age, gender, and socioeconomic status.[1,2]

Anaemia is most common nutritional deficiency disorder in India and remains a formidable health challenge. It is a condition when haemoglobin (Hb) level goes <12g/dl in females and <13 g/dl in males of age 15 years and above. The iron needs are high in adolescent girls because of the increased requirements for expansion of blood volume associated with the adolescent growth spurt and the onset of menstruation.[3,4]

Causes of anaemia 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. Iron deficiency anaemia is a condition in which anaemia occurs due to lack of available iron to support normal red cell production.[5]

Materials & methods:

We conducted the present study to assess the prevalence of iron deficiency anaemia among school going children. A total of 80 subjects were enrolled. Information on sex, age, Hb concentration was obtained. School going children attending classes 7th, 8th and 9th standards were included in the study. Children who did not give the consent and who were absent at the time of data collection were excluded from the study. Categorisation was done and all the results were evaluated. P- value of less than 0.001 was taken as significant.

Results:

In this study, 58 (72.5%) out of 80 subjects of class 7th 8th and 9th participated. Participants were of age group 11 to 15 years and the mean age of 13.2 years. Majority of participants were underweight as per BMI-for age for

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subjects. Out of total, 9 children were severely anaemic.   Significant results were obtained.

Variables	Number	Percentage
Age (years)		
11-12	32	40
13-14	28	35
14-15	20	25
Class		
7th	36	45
8th	24	30
9th	20	25
BMI		
Normal	24	30
Underweight	56	70

Table 1: Distribution of study participants according to socio-demographic characteristics

Hb (gm/dl)	Severity of anaemia	Number (64)	Percentage
<7.8	severe	9	14.1
7.8-9.9	Moderate	23	35.9
10- 11.8	mild	32	50

Table 2: Distribution of anaemia according to severity among participants

Variables	Anaemia		Number	p-value
	Present	Absent		
BMI				

Normal	8	16	24	<0.001*
Underweight	40	16	56	

*: Significant

Table 3: Association of anaemia with study variables

Discussion:

Nutritional anaemia among adolescent girls is a key health concern and remains persistently high despite of various national programmes like national nutritional anaemia prophylaxis programme, national iron plus initiative, WIFS, etc.,[6]The present study highlights the magnitude of anaemia among school going children. The 2011 Ethiopia Demographic and Health Survey reported that the prevalence of anaemia among adolescents in the age range of 15–19 years was 13.4%. For the same age group, the prevalence of anaemia was 9.4% in Southern Nation's Nationalities and Peoples Region of Ethiopia.[7]This variation might be due to the difference in the study population that a larger age range of study participants (12–19 years) were included in this study. The prevalence of anaemia in this study was higher than studies among adolescents in Turkey (5.6%) and in Shimla, India (13.1%). This variation might be due to age group differences as 12–16 year and 10–19 years old adolescents were included in these two studies respectively.[8,9]In this study, 58 (72.5%) out of 80 subjects of class 7th, 8th and 9th participated.Participants were of age group 11 to 15 years and the mean age of 13.2 years.

A cross-sectional study including 417 individuals was conducted at hospital in the rural areas in Saudi Arabia to estimate the prevalence of anaemia among children and adolescents. The inclusion criterion for the study was that. Majority of participants were underweight as per BMI for age for subjects.[10] Out of total, 9 children were severely anaemic. Significant results were obtained. However, prevalence of anaemia in this study was much lower than studies conducted in Nepal (65%), Wardha (59.8%), and Cote d'Ivoire (53.1%). The lower prevalence of anaemia in this study might be due to the variation in geographical area and study participants.[11,12]

According to WHO, anaemia is a public health problem only when the prevalence exceeds 5% of the population.

The WHO classification for mild, moderate, and severe is when its prevalence exceeds 5, 20, or 40%, respectively. Thus, the meta-analysis revealed moderate prevalence of anaemia among school going children in Ethiopia. According to the WHO definition, five articles reported mild prevalence of anaemia, seven articles reported moderate prevalence of anaemia, and only one article reported severe prevalence of anaemia. According to this review, anaemia was a major public health problem for all population included in this study. The result was similar with systematic review conducted in Africa (Some of the included countries are South Africa, Nigeria, Cote d'Ivoire, Uganda, Rwanda, Kenya, Botswana, and Burkina Faso). The systematic review reported that the majority of the articles reported moderate prevalence of anaemia.[13,14,15] P-value was obtained and it was less than 0.001 which is significant.

Conclusion:

The present study revealed that there is higher prevalence of iron deficiency anaemia among the school going children. P-value of less than 0.001 was taken as significant.

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