ORIGINAL ARTICLE

Prevalence of Anaemia and its Association with Diet among the Adolescent Students of University of Sindh Jamshoro

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ABSTRACT

Aim: To evaluate the association of dietary habits and anaemia with nutritional deficiency in male adolescent student in University of Sindh Jamshoro.
Study Design: Cross sectional study.
Place & Duration: A cross sectional study was conducted from 12th September, 2014 to 24th October, 2014 among male adolescent students studying at University of Sindh Jamshoro.
Methodology: A total of 121 students studying at various departments of University of Sindh Jamshoro with anaemia due to nutritional deficiency were included in this study. Initial assessment and diagnosis was made by history which was subsequently confirmed by laboratory evaluation. The sociodemographic profile of the students, type of dietary habits all was recorded. The collected data was then evaluated for its statistical significance on SPSS version 19.
Results: The anaemia was observed in 39(32.23%) students out of total 121 students selected for the study. The prevalence of anaemia was 32.2% among the male adolescent students of the University. The mean haemoglobin among the students of University was 10 gm% with standard deviation of 1.26 with p value < 0.05.
Conclusion: The majority of students studying at various departments of University of Sindh were unaware of their dietary habits while the dairy products and the students who are not taking the breakfast properly were found to be more anaemic then the others.
Keywords: Anaemia, Adolescent, Haemoglobin, Dairy products, Nutritional deficiency.

INTRODUCTION

The anaemia is a clinical condition in which there is either less number of red blood cells (<4.2 millions/µl) or less haemoglobin level (<12 g/ml) in the blood[1]. During adolescence the major physiological changes are occurring in the bodies of both males and females because these are growing years[2,3]. The majority of evidences have proved that the prevalence of anemia is common in adolescent males due to dietary deficiency[4,5].

According to WHO worldwide 1.62 billion peoples are suffering from anaemia. In developing world every 9th out of 10 persons are affected by anaemia[6,7].

The term "adolescence" has been defined by WHO with ages between 10 to 19 years[8]. The world wide attention is towards the health of adolescent boys because adolescence is a significant period of human growth, maturation and reproduction[9,10]. So this study was planned to highlight the problem of anaemia in adolescent males and to study socio-demographic factors related to anaemia.

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The anemia was found not only in economically lower classes but also in upper classes of population due to their dietary deficiency and their adoptive dietary fads[11], because nutritional deficiency anemia occurs due to a poor diet which is deficient in iron, folate and Vitamin B12[12]. Anemia is a public health problem associated with an increased risk of morbidity and mortality, especially in young children and adolescents[13].

According to WHO reports from 1993 to 2005, in South East Asia, prevalence of iron deficiency anaemia in school aged children is 65.5%, in pregnant women 48.2% and in non pregnant women 45.7%[14,15]. Iron deficiency anemia is affecting 50% of population worldwide including Pakistan[16].

The majority of children around the world suffer from deficiency of nutrition[17,18]. The high percentage of these children dies due to the severe malnutrition, which is caused by extreme deficiency of protein and energy[19]. However, in the poor community, the diet of children has not met the criteria of WHO recommendation for diet, so the 36% of children in the world are underweight[20]. The main causes of malnutrition in the children are; poverty, ignorance, inadequate weaning practices, child abuse, cultural and social practices (i.e. Vegan, Low fat diets)[21,22].

The treatment of anemia of adults and children includes on foods either rich in vitamin supplements or minerals. The sources of food containing iron are meat, poultry, eggs, vegetables and fortified cereals[23].

MATERIALS AND METHODS

This study was cross sectional conducted in the department of physiology, university of Sindh, in collaboration with Pathology Laboratory Liaquat University of Medical and Health Sciences (LUMHS) Hyderabad, Sindh Pakistan. The study was included on 121 adolescent males (17-22 years of age) studying in various departments of university of Sindh. This study was conducted from June 2014 to December 2014. Further anemia was classified into three groups according to WHO, i.e. Hb values in mild anaemia were from 9.5 to 12 gm/dl, moderate anaemia from 8 to 9.5 gm/dl and severe anaemia < 8.0 gm/dl respectively[24]. Prevalence of adolescent age group in males was a unique outcome variable of interest in the study with cut-off values of Hb level < 10 gm/dl to diagnose anemia and WHO guideline was used for interpretation and classification of anemia[25].

RESULTS

This study was conducted from June, 2014 to December, 2014 among adolescent male students with age between 17 to 22 years studying at various departments of University of Sindh. The prevalence of anaemia was observed in 39 (32.23%) students out of 121 students selected to carry out study. Anaemia was absent in the remaining 82 (67.8%) students of the University. The mean hemoglobin among the adolescent male students was 11.3 gm % with standard deviation of 1.26, as shown in (Table1).

Table 1: Mean haemoglobin of adolescent male students

	Age in years	Hb g/dl
Mean	21.25	9.3
Total No	121	121
Std. Deviation	1.79	1.26

The mean haemoglobin among students was 9.3 g/dl with standard deviation of 1.26, variance in breakfast yes 90(anemic 33.4%) and 31 (non anemic 66.6%), in breakfast no (anaemic 29%) and (non anemic 71%). Dairy products rare 59(anemic 23.8%) and(non anemic 76.2%), dairy products frequent 60(anemic 41.7%) and(non anemic 58.3%). Fizzy drinks rare 52(anemic 46.2%) and(non anemic 53.8%), Fizzy drinks frequent 68 (anemic 28%) and (non anemic 72%). Junk food rare 44 (anaemic 34.1%) and (non anemic 65.9%). Junk food frequent 77 (anaemic 35.1%) and (non anaemic 64.9%), Meat/Chicken rare 48 (anemic 39.6%) and (non anemic 60.4%), Meat/Chicken frequent 71(anemic 28.2%) and (non anemic 71.8%) (Fig. 1).

Table 2: Percentage of anaemic and non-anaemic adolescent male students with different dietary habits

Dietary habits	Anaemic	Non-Anaemic
Breakfast Yes	33.4%	66.6%
Breakfast No	29%	71%
Dairy product rare	23.8%	76.2%
Dairy product frequent	71.7%	58.3%
Fizzy drink rare	46.2%	53.8%
Fizzy drink frequent	28%	72%
Junk food rare	34.1%	65.9%
Junk food frequent	35.1%	64.9%
Meat/chicken rare	39.6%	60.4%
Meat/chicken frequent	28.2%	71.8

Fig. 1

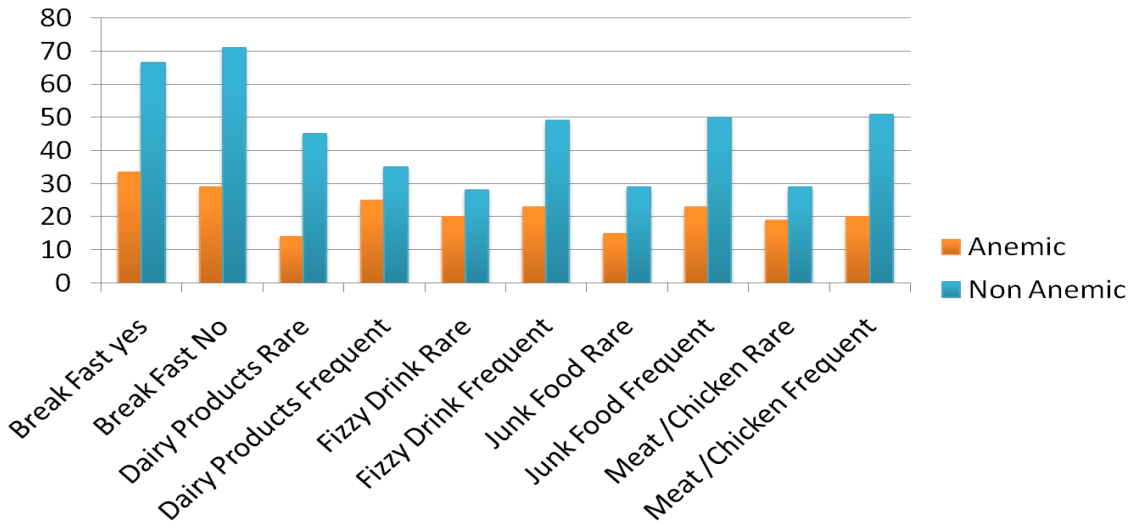
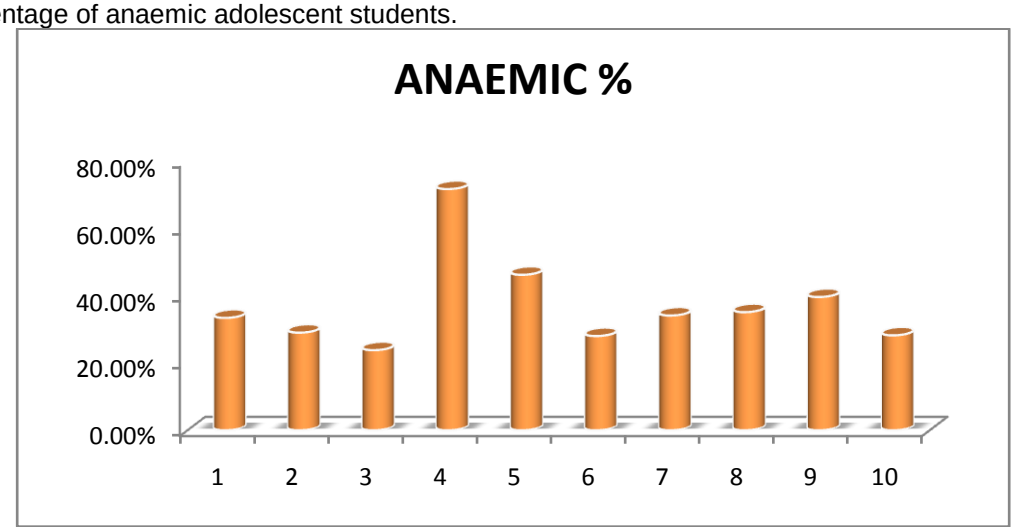


Fig. 2: Percentage of anaemic adolescent students.



DISCUSSION

Worldwide the most common cause of anaemia is the deficiency of nutrition. It occurs frequently due to inadequate intake of iron, folic acid, vitamin B2, chronic blood loss, malabsorption or a combination of all these factors[26]. It affects the development of organs, growth, resistance to infections and is a major cause of mortality among the youngers. Iron Deficiency Anaemia is also a form of Nutritional anaemia which is distributed universally; the most affected population groups are school-age children, female adolescents, pregnant women and nutritioning mothers[27].

In this study the prevalence of nutritional anaemia was 32.2% among the Students of University of Sindh. The mean hemoglobin among students of University was 9.3 gm/dl with standard deviation of 1.26. Out of 121 students 90 were taking breakfast, while 31 were not taking breakfast. Out of 90 students who were taking breakfast 30(33.4%) were anaemic and 60(66.6%) students were non anemic. Out of 31 students who were not taking breakfast 9(29%) students were anaemic and 22(71%) were non anaemic which is in agreement with Rukhsana N, et al. 2012 but not inconsistent with Rashid, et al.2012.

Dairy products rare 59 (anemic 23.8%) and (non anemic 76.2%), dairy products frequent 60 (anemic 41.7%) and (non anemic 58.3%). Fizzy drinks rare 52(anemic 46.2%) and (non anemic 53.8%), Fizzy drinks frequent 68(anemic 28%) and (non anemic 72%). Junk food rare 44(anemic 34.1%) and (non anemic 65.9%). Junk food frequent 77(anemic 35.1%) and (non anemic 64.9%), Meat/Chicken rare 48 (anemic 39.6%) and (non anemic 60.4%), Meat/Chicken frequent 71(anemic 28.2%) and (non anemic 71.8%). Our study further revealed that anemia was most commonly recorded in between the age of 17 to 22 years which is in agreement with Yerpude et al., 2013 but it is not in agreement with Pandey and Singh; 2013. In many studies it was found that the anemia is a common problem in adolescent age group due to intake of low diet and lack of awareness of nutrition is also main cause of anemia. There are many causes of anemia but IDA is the predominant cause of anaemia due to nutritional deficiency. Similar data was shown by NNMB (National Nutritional Monitoring Bureau, 2008) during the survey 2008 which showed that the iron and folic acid intake in all age groups was very low which is in agreement with Pandey and Singh but not in agreement with Yerpude et al., 2013. It affects development/growth, resistance to infection, associated with increased rates of mortality among children and adolescents.

In present study more similar results with the previous studies are analyzed and it was also found that the anaemia was more prevalent among the adolescent students who were not taking proper diets as per WHO protocols.

Therefore further studies are recommended to identify the individual specific risk factor for anaemia. It is also advised that nutritional knowledge and awareness among adolescent students, public and health workers may be conducted.

CONCLUSION

This study highlights the high prevalence of anemia among adolescent boys (age 17-22 year) studying at various departments of University of Sindh. There is an urgent need to conduct awareness programmes regarding the balanced nutrition as per WHO criteria along with iron, folic acid tablets and nutritional supplementation for the prophylaxis of anaemia

among the adolescent students studying in various departments of University of Sindh. Regular and repeated nutritional education sessions should be carried out to increase awareness among the adolescent male/female students regarding anemia. Further studies with large sample size are recommended.

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