PREVALENCE OF ANAEMIA IN COLLEGE GOING GIRL STUDENTS

Dr. Sulabha S. Lalsare
Assistant Professor
Department of Botany
M.V.P Samaj's Arts, Science and Commerce College Saikheda

Abstract : Anaemia is the most common nutritional deficit disorder in the world. About 40% of the world's population suffers from anaemia and college girls are one of the most vulnerable age group. The prevalence of anaemia is alarmingly high in India. No much data is available for the prevalence of anaemia in the youth population, especially in the college going youngsters in India. Hence the objective of this study was to determine the prevalence and distribution of anaemia among college going girl students of Nashik District, Maharashtra, India.

IndexTerms **- Prevalence, Anaemia, Urban young girls, Nashik, Maharashtra, India.**

Objective: The intent for conducting the present study was to verify the pervasiveness of anaemia in urban, educated, young, unmarried, college going girl students.

Material and methods: A cross-sectional study was conducted among the 122 urban, college going girl students in age group of 18-21 years. The haemoglobin was estimated by colorimetric "Drabkins" method.

INTRODUCTION

Anaemia is the most collective nutritional deficiency disorder and remains as a civic health problem worldwide. According to World Health Organization (WHO), probably 150 million individuals in the Eastern Mediterranean Region suffer from anaemia and about one third residents of the world are anaemic. Out of the entire world pervasiveness of anaemia in the South Asian countries is highest and out of the South Asian countries prevalence of anaemia is highest in India[1]. There are many reasons for anaemia; these may simply be attributed to acquired or congenital disorders. Over 2 billion people suffers from iron deficiency anemia i.e., nearly one third throughout the world have iron deficiency anaemia[2].According to the WHO, the highest number of individuals affected by anaemia is observed in nonpregnant women aged 15–49.99 years[3]. Women of childbearing age are having an additional risk of developing anaemia because of their monthly menstrual blood loss and nearly 50 percent of females in this age group are anaemic [4]. On average a healthy woman loses about 25–30 mL of blood monthly. Therefore, the body needs to produce blood in order to recompense for this loss and if the essential nutrients required for haemopoiesis are not supplied in their diet, anaemia will develop. Worldwide nearly 30.2% non-carrying women suffers from anemia out of which 33% are present in Asiai.e about 318.5 million in number. Out of the total nonpregnant anaemic individuals of the world, nearly reside in Asia. Anaemia among non-carrying women has become a public health problem in 191 countries out of the 192 member countries of WHO[3].The prevalence of anaemia is worryingly high in India due to the following reasons: (1) low nutritive intake of iron (less than 20 mg/day) and folic acid intake (less than 70 mg/day); (2) poor absorption of iron (only 3-4% bioavailable) in phytate and fibre-rich Indian diet; and (3) chronic blood loss due to infection such as malaria and hookworm infestations. The costs of anaemia for women and neonates include increased risk of low birth weight or prematurity, prenatal and neonatal mortality, inadequate iron stores for the new-born, increased risk of maternal death and lowered physical action, mental attentiveness, and output. Women with even mild anaemia may experience fatigue and

have reduced work capacity [5-8]. Very few studies have been conducted on anaemia prevalent in college going students from India. However little is known about anaemia among college female students. It is assumed that healthy intake of college going students is lower than that of the general population because they buy their stuff from the nearby food stalls or college canteen as food is available at considerably lower price which result in compromise on food quality and quantity, therefore quantity and the quality of this food items is thus compromised. Thus, these female undergraduates may not obtain nutrients to meet the requirement of the body and were likely to have a higher risk of developing anemia. Still the prevalence of anaemia is high as indicated by above cited national surveys and various researchers. Major work regarding prevalence of anaemia has been done in pregnant females, adolescents and young children. There are relatively few studies in college going youth population of our country. So in contemporaneous study we determined the incidences of anaemia in urban, educated, young, unmarried, girl students in age group 18-21 years.

MATERIAL AND METHOD

An methodical cross-sectional study was accomplished to determine the share and contributing factors to anaemia. The cross-sectional study was carried out on 122 urban, college going young, unmarried girl students within the age group range of 18-22 years of Nashik Area. . Ethical clearance for the study was obtained from Ethical Review Committee of the University, and the study protocol was devised and conducted according to the guidelines. Before starting the study, a consent form along with an information sheet giving details of the study (nature of the study, what will be expected from the participants, and expected risks and benefits) were provided to all female undergraduates who were randomly selected to the sample. The minutes things and procedure were also explained to the participating girls. Female undergraduates who provided written consent were included in the study.The subjects were made to sit comfortably and using all aseptic precautions blood sample was taken by capillary technique. After pricking fingertip with lancet, two drops of blood were discarded to ensure collection of pure blood sample in the capillary. Then one drop of blood was placed in the cuvette for haemoglobin measurement.

A simple random sample of 122 girls was drawn from the population of female undergraduates from the University. Numbers were assigned randomly by using blind draw method. The haemoglobin was estimated by colorimetric “Drabkins” method. All the data thus collected was compiled, tabulated and analysed statistically. The WHO classification of anaemia was used for classifying the subjects according to severity of anaemia as shown in Table-1.

Table-1: World health organization criteria for the classification of anaemia.

Anemia	Hemoglobin Level
No anaemia	>12 g/dl
Mild anaemia	10-11.99 g/dl
Moderate anaemia	7-9.99 g/dl
Severe anaemia	<7 g/dl

RESULT

The present study for the prevalence of anaemia among college going female students was conducted in Nashik District, Maharashtra, India. We had included 122 college girls within the age groupof 18-22years. A written consent was obtained from each student. General information about the participants was collected through a Questionnaire where they had to fill in their age, economic status of parents and geographical location of native place. Height and weight were measured to calculate BMI of each participant, according to WHO norms. The overall prevalence of Anaemia was 72.12% (88 nos.). The positive anaemic students have varied severity. Anaemia was absent in 27.88% (34) girl students. Out of the 72.12% anaemics, 67.21% were mildly anaemic i.e. haemoglobin (Hb) was in the range of 10-11.99 g, 4.09% was moderately anaemic i.e.Hb was in the range of 7-9.99 g and only 0.81%

was severely anaemic i.e. Hb was below 7 g. In the present study, only one subject was found to be severely anaemic. We have found 40 girls (32.79%) to be underweight, 19 girls (15.57%) were overweight and 63 girls (51.64%) were found to have normal BMI.

Table-2: Summary of study for prevalence of anaemia

Hemoglobin (g/dl)	Types of anaemia	Numbers (Percentage)
<7	Severe	1 (0.81%)
7.1-9.9	Moderate	5 (4.09%)
10-11.99	Mild	82 (67.21%)
>12	Normal (no anaemia)	34 (27.88%)

DISCUSSIONS

Anaemia is a major public health concern in pre-school children and pregnant women in the developing world. About 40% of the world's population suffers from anemia and college going girls are one of the most vulnerable age group. College going girls are at a high risk for anaemia and malnutrition. The present investigation was conducted on 122 college going girls (18-21 years) selected from Nashik District, Maharashtra. The study revealed overall prevalence of anaemia in 88 (72.12%) college going girl students where 1 girl (0.81%) was severely anaemic, 5(4.09%) girls were moderatelyanaemic and 82 (67.21%) girls were mildly anaemic. The reasons for the anaemia among the college girls are: Increased iron requirements because of growth, Menstrual loss, discrepancy between high iron need for haemoglobin formation and low intake of iron containing foods, Erratic eating habits, dislike for foods which are rich in iron, like green leafy vegetables.

There are lakhs of studies in adolescent girls in Northeastern India to compare the present result. However, a study on tea garden worker women,showed a prevalence of 74.5% anaemia, Das et al[9]. Another study in pregnant women by Bora et al found 50.4% anaemic patients from Guwahati, Assam.It was found more common in young and low socioeconomic people[10]. The prevalence of anaemia among the pregnant women in Lakhimpur district was found to be 92.8 %. Among the pregnant women, prevalence of moderate anaemia was found to be as high as 61.0%, followed by mild anaemia 29.5% and severe anaemia 2.3% [11]. It has been hypothesized that iron deficiency anaemia is a major cause of the high maternal and infant mortality in the state. Assam has the highest prevalence of iron deficiency anaemia among adolescent girls and pregnant women (67.8% & 73%, Indian National Family Health Survey 2005–2006)[12]. Studies from other part of India showed various result.

A study which was conducted in the rural areas of Tamil Nadu revealed that the prevalence of anaemia among the adolescent girls was 44.8% [13].A Study from Haryana showed prevalence of anaemia in college going youths in rural blocks and found that the overall prevalence of anaemia was 43.76%[14].

Study from Ahmedabad among school going girls revealed that 55.2% were mildly anaemic, 44.9% were moderately anaemic and that 0.6% were severely anaemic[15]. There are some more other studies from India that showed the prevalence of anameia in college going adolescent students[16-23].

Anaemia is common in underdeveloped countries. A study from semi urban Nepal, showed the prevalence of anemia in adolescent girls aged 11-18 years. It was found to be about 68.8% [24, 25]. Another study from Nepal showed the nutritional intake of Nepalese girl and anaemia[26]. Studies from Srilanka, Bangladesh, Peshawar, Peru, and Indonesia also showed mild to moderate anaemia in adolescent girls [27-30].

According to NFHS-32005-2006 data, prevalence of anaemia in women of reproductive age group was 55.3%. Out of these 39% were mildly anaemic, 15% moderately anaemic and 2% severely anaemic [31]. Dey et al., analysed the NFHS-3 2005-2006 data for the state of Meghalaya and found that prevalence of anaemia in women of reproductive age group was 49.6% [32]. They found that

the women of age group 20-24 years were at high risk of anaemia. In age group 20-24 years prevalence of anaemia was 65.8% while in age group 25-29 years it was 47.2%.

Results: The prevalence of anaemia was found to be 72.12% in the present study. Out of the 72.12% anaemics, 67.21% were mildly anaemic i.e. haemoglobin (Hb) was in the range of 10-11.99 g, 4.09% was moderately anaemic, i.e. theHb was in the range of 7-9.99 g and only 0.81% was severely anaemic, i.e.Hb was below 7 g. In the present study, only one subject was found severely anaemic. We have found 40 girls to be (32.79%) underweight, 19 girls to be (15.57%) overweight and63 girls (51.64%) with normal BMI.

CONCLUSION:

In conclusion, the present study revealed that anaemia is a major health problem among the college going girls in Nashik District, Maharashtra, India. The prevalence of anaemia was high. It was also found that many girl students do not have proper dietary habits. They are dependent on fast foodfor daily dietary requirement. There is a need to include iron rich food in the diet of college girls. Preventive measure is required for the target age group. Frequent screening of students for presence of anaemia should be done. Periodical and routine health check-ups and haemoglobin estimation of the students should be done. The students should be motivated and educated to take balanced diet rich in green leafy vegetables and fruits.Anaemia due to lack of proper nutrition can be completely prevented.

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