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IN A TERTIARY CARE INSTITUTION, ANAEMIA AMONG YOUNG PEOPLE IN THEIR TEENS AND EARLY 20S

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Abstract

Background - Preschoolers and women of reproductive age are the most afflicted by anaemia, which is a frequently seen healthcare problem in both India and the rest of the globe.
Objective-To better understand the severity, types, and causes of anaemia in the most productive age group in our region, we concentrated on the prevalence of anaemia in young people, excluding pregnant and nursing women.
Material and methods- A research was conducted on people between the ages of 15 and 30. Anaemia was classified based on haemoglobin measurement and a general blood picture.
Results and conclusion- According to WHO cut-off levels for diagnosis and severity of anaemia, 980 (39.2%) of the 2500 patients who had full blood counts/peripheral smear exams were anaemic. Compared to male patients (moderate category), female patients exhibited a greater prevalence (severe category of public health concern). The prevalence of anaemia in our area is very high, requiring intervention for prevention and control even after excluding out the more vulnerable group (pregnant/lactating women and small children) from our research.
Keyword- Anaemia, Teens, after 20 age, MCV, MCH

Introduction

Anaemia is a frequent medical ailment in India, especially in the countryside. Along with pregnant and nursing mothers, it affects children more frequently than either group. The prevalence varies between 50% and 90%.[1]
Anaemia is described by a drop in blood's haemoglobin concentration below what is considered normal for one's age, sex, physiological state, and height above sea level. [2]
According to WHO, over 2 million people worldwide are anaemic, with India having the highest rate of anaemia among South Asian nations. [3]
In low- and middle-income nations, anaemia has a high prevalence, which has negative effects on health, the economy, and physical productivity.[4]
Additionally, the most common nutritional shortfall in the world is anaemia. [5] iron deficiency Anaemia is the main cause of nutritional anaemia in India. [6] Numerous research have revealed that anaemia is prevalent among Indian women, which can lead to low birth weight, neonatal mortality, decreased physical and mental activity, diminished working ability, and fatigue. [7]
Nutrients including vitamin B12, folic acid, proteins, vitamins A, C, nicin, and panthotenic acid play a crucial part in maintaining haemoglobin levels.[8]

Table 1. Recommended haemoglobin values by the WHO for identifying anaemia at sea level

Gender	Age	Normal	Mild anaemia	Moderate anaemia	Severe anaemia
Males	≥ 15yrs	≥13 gm/dl	11-12.9	8-10.9	<8
females	≥ 15yrs	≥12 gm/dl	11-11.9	8-10.9	<8

Table 2. Basis of anemia classification

On the basis of red cell characteristics	On the basis of underlying mechanism	Based on peripheral loss/destruction
Microcytic hypochromic	Decreased bone marrow production	bleeding
macrocytic	Bone marrow aplasia	sequestration
Normocytic normochromic	Ineffective hematopoeisis (megaloblastic anaemia)	hemolysis
Leuco erythroblastic micro/macroangiopathic	Erythropoietin insuffienciency	

In order to promote iron and folic acid supplement compliance and intake, several initiatives are being carried out in locations like Odisha, India, [12, 13]. Between 2018 and 2022, the Prime Minister of India established the Anaemia Mukt Bharat (AMB) project, which seeks to reduce anaemia prevalence by 3 percentage points per year among children, adolescents, and women in the reproductive age range (15–49 years). [14]
Mass education and awareness programs should be advertised to increase utilization of ANC services, targeting women from low income, uneducated, and slum areas.[15]

Material and methods

This retrospective research includes information on the haemoglobin (Hb), mean corpuscular volume (MCH), and mean corpuscular haemoglobin (MCH) of all patients between the ages of 15 and 30 who had visited the hemotology laboratory for a complete blood cell count examination. While pregnant women were not included in the study, adolescents and young adults were. A total of 2500 samples were collected in EDTA vials, with 1000 samples coming from men and 1500 samples coming from women.Leishman stained slides were used to analyse all of the samples using a Sysmex 6 part haematology analyzer in our lab.ready to evaluate patients' peripheral smears In our lab, each sample was examined using a Sysmex 6 part haematology analyzer, and Leishman stained slides were created.

Results

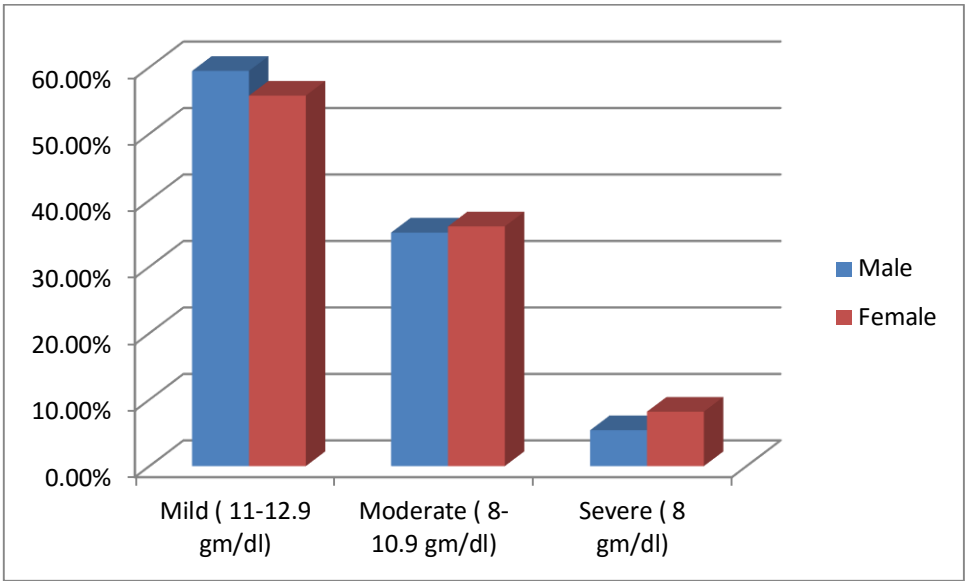
In this study prevalence of anemia was 39.2% (980/2500) and it was more prevalent in females (40%) than males (37%)
Mild anaemia patients had a higher haemoglobin level than those with moderate and severe anaemia, as indicated in Tables 3 and 4 for both males and females.

Table 3 Assessment of anaemia in males

Hb reference range-WHO	Number	percentage
Mild (11-12.9 gm/dl)	220	59.45%
Moderate (8-10.9 gm/dl)	130	35.13%
Severe (8 gm/dl)	20	5.40%

Table 4 Assessment of anaemia in females

Hb reference - WHO	number	percentage
Mild	340	55.73 %
Moderate	220	36.06%
severe	50	8.19%



The majority of female patients had microcytichypochromic anaemia, followed by normocyticnormochromic anaemia, and then macrocytic anaemia. The majority of the male patients had normocytic normochromic anaemia. The macrocytic form of anaemia was the second most common in male patients, followed by microcytichypochromic anaemia (Tables 5 and 6). These findings were likewise in line with the results of the peripheral smear exam ordered for the general blood picture.

Table 5 Mean corpuscular volume (MCV)

Reference range	Number of males	Number of females
<80	95 (25.6%)	270 (44.26%)
80-100	170 (45.94%)	250 (40.98%)
>100	85 (22.97%)	90 (14.75%)

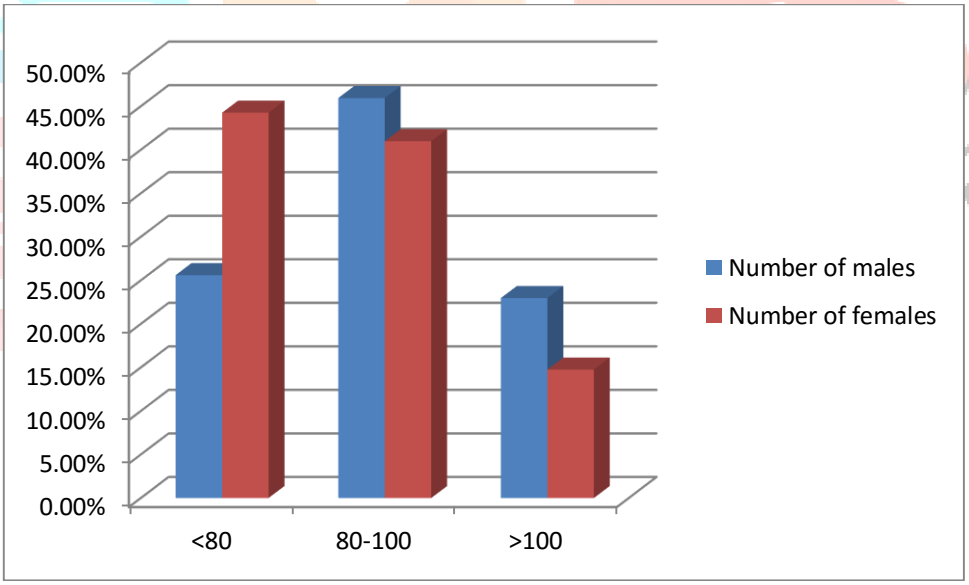
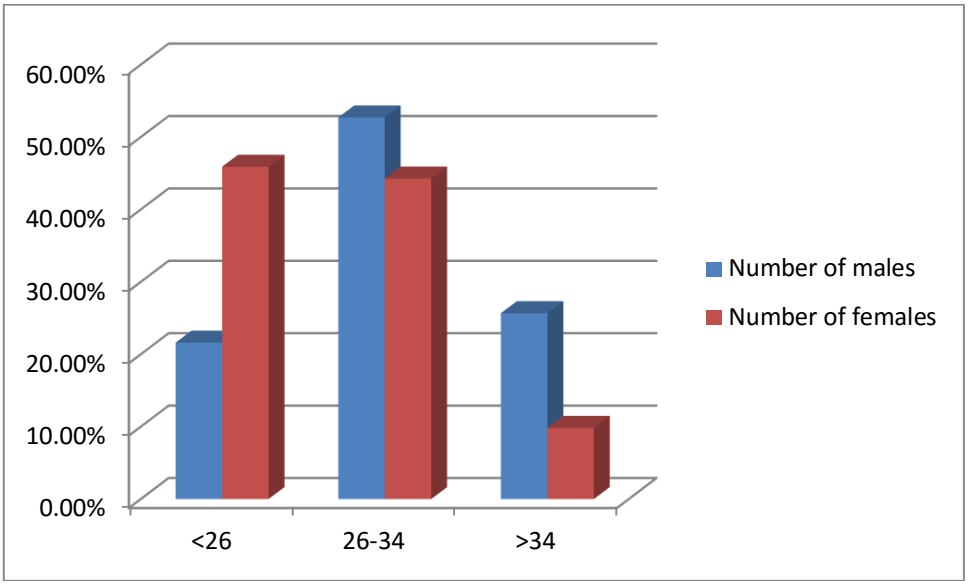


Table 6 Mean corpuscular haemoglobin (MCH)

Reference range	Number of males	Number of females
<26	80 (21.61%)	280 (45.90%)
26-34	195 (52.70%)	270 (44.26%)
>34	95 (25.67%)	60 (9.83%)



Discussion

The purpose of this study was to examine the frequency of anaemia in the young population. Previous studies in various regions of India have focused on pregnant women, nursing mothers, and kids. This study, which is the first of its sort in the sector, includes all adolescents and young adults (15–30 years old), with the exception of pregnant women. The WHO recommendations on anaemia diagnosis and severity assessment were used to compile the haemoglobin cut-off values for comparison.[10]

According to the survey, women (40%) had a greater frequency of anaemia than men (37%). 39.2% of people between the ages of 15 and 30 have anaemia. In their study, Malhotra et al.1 found that the prevalence rate was 50% in girls whereas it was 44.3% in males.1. Geraldo et al.4 showed in their study that anaemia prevalence increased by 50% after puberty. According to a research by Upadhya et al., 24% of Indian men had anaemia. It was shown that both boys and girls were more likely to have mild anaemia than moderate or severe anaemia. According to a research by Akula et al5, mild anaemia was shown to be more common in males than moderate anaemia in females.[5]

In a population, the WHO states that if the prevalence of anaemia (in%) is less than 4.9, it is not a public health concern.

health issue. It falls into the mild category for public health relevance for ages 5 to 19, and the moderate category for ages 20 to 39, respectively. A severe category of public health significance for prevalence is 40 or above.

WHO states that anaemia is not a public health risk if its prevalence (measured in percent) in a population is less than 4.9. For public health importance between 5 and 19.9, it belongs to the mild category, and for significance between 20 and 39.9, it belongs to the moderate category. A major category of public health significance is prevalence of 40.[8,10]

The most common kind of anaemia in females in the current study was macrocytic hypochromic, followed by normocytic normochromic, and microcytic types. Gerardo et al.'s research produced similar findings. Males had a higher prevalence of normocytic normochromicanemia. The study by Akula et al. and Patel et al. found that microcytic hypochromic anaemia was the most common kind overall. [2,5]

In our area, microcytic anaemia in females is associated with an increased frequency of iron deficiency. Menorrhagia and unusual uterine bleeding are other common female conditions. A sizable percentage of males with megaloblasticanemia (vitamin B12 and folate insufficiency), liver illness, and alcoholism show macrocytosis in the peripheral smear.

In order to identify the prevalence and types of anaemia and to adopt control and prevention measures, other research in different regions of India should be carried out in the same manner.

Conclusion

The total prevalence of anaemia in the 15-30 year old age range was determined to be 39.2 %, which is of considerable public health significance. Measures should be attempted to minimise the incidence of anaemia by addressing more prevalent causes in that region, allowing for an improvement in health condition and an increase in the productivity of the young population.

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