Anaemia: The Low Energy Era Nobody talk about

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Abstract—India has much higher Anaemia rates among women compared to the global In India per 10 women 6 are Anaemic.

Index Terms—Anaemia, Prevention, Adolescent girls, female, menstrual cycle, Diagnosis

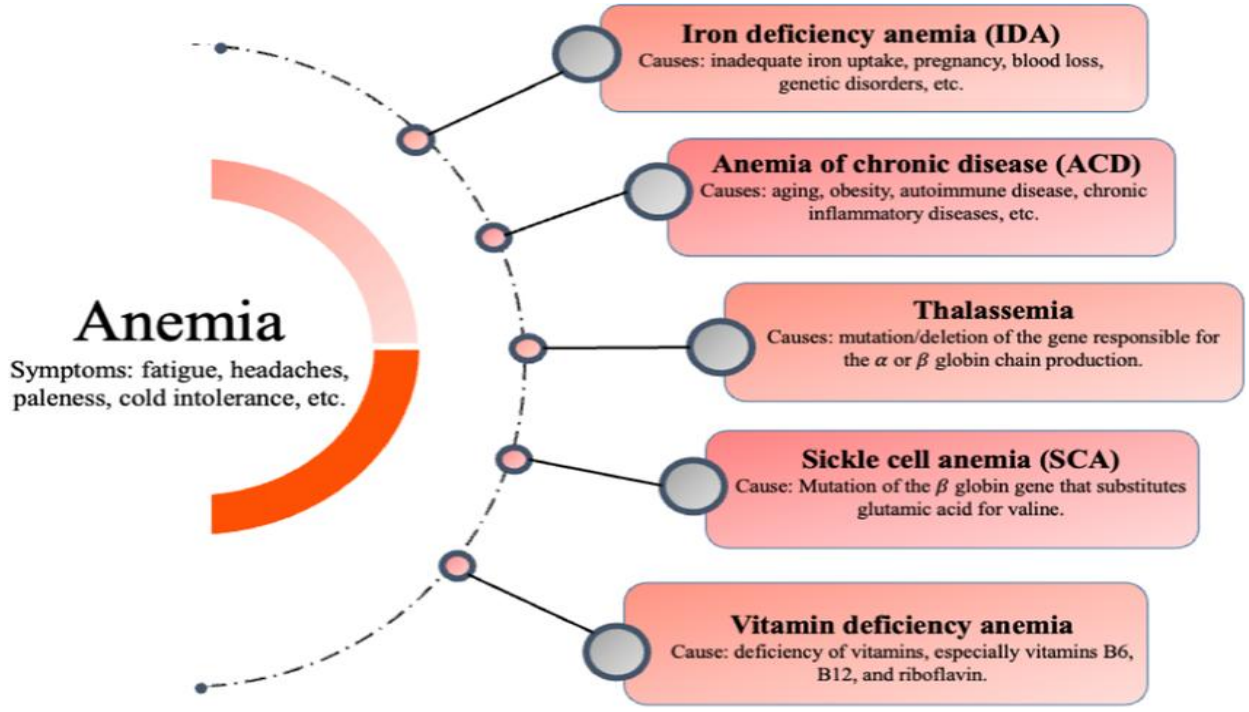
I. INTRODUCTION

WHAT IS ANAEMIA?
Anaemia is a major public health problem especially among women children and adolescents in Developing countries

Anaemia mostly occur in female of reproductive age group.

WHO IS AFFECTED & WHY?
About 57% of the women aged 15-49 are anaemic.
59% of the adolescent girls are anaemic
52-67% of pregnant women are anaemic
Most common cause of Anaemia is Nutritional cause, Lifestyle

TYPES



Pathophysiology

Cause (Iron / Vit B_{12} / Folic acid deficiency, blood loss, haemolysis)

⬇

decrease RBC count / decrease Haemoglobin

⬇

decrease Oxygen-carrying capacity of blood

⬇

decrease Tissue oxygenation (Hypoxia)

⬇

Cellular dysfunction

⬇

Clinical features: fatigue, pallor, weakness, breathlessness

⬇

Compensatory mechanisms: increase heart rate, increase respiration

Anaemia in female medical student

Female adolescents and adults are among the population groups who are most affected by iron deficiency. Thus, the aim of this study was to investigate the prevalence of iron deficiency and iron deficiency Anaemia in female students aged 18 to 25 years old from the Tehran University of Medical Sciences, Iran

Prevention of Anaemia in Adolescents girls

Anaemia remains a major public health problem, especially in low- and middle-income countries. The World Health Organization recommends several interventions to prevent and manage Anaemia in vulnerable population groups, including young children, menstruating adolescent girls and women, and pregnant and postpartum women. Daily iron supplementation reduces the risk of Anaemia in infants, children, and pregnant women, and intermittent iron supplementation reduces Anaemia risk in menstruating girls and women. Micronutrient powders reduce the risk of Anaemia in children. Fortifying wheat flour with iron reduces the risk of Anaemia in the overall population, whereas the effect of fortifying maize flour and rice is still uncertain. Regarding non-nutrition-related interventions, malaria treatment and deworming have been reported to decrease Anaemia prevalence. Promising interventions to prevent Anaemia include vitamin A supplementation, multiple micronutrient supplementation for pregnant women, small-quantity lipid-based supplements, and fortification of salt with iodine and iron.

Relation of Anaemia and menstrual

To find out prevalence and pattern of menstrual abnormalities and its contribution to Anaemia in teen age students and compare it with other causes of Anaemia in them.

Psychological / Neuropsychiatric Effects:

Easy fatigability and mental tiredness

Reduced attention and concentration

Impaired cognitive function

Headache, dizziness, and faintness

Irritability and mood changes

In severe or chronic Anaemia → confusion, lethargy, and depression

Mechanism (Robbins):

Decreased oxygen-carrying capacity of blood → cerebral hypoxia → impaired neuronal metabolism → psychological and cognitive symptoms

Symptoms of Anaemia can also be similar to symptoms of depression.

Diagnosis:

1) Initial Laboratory Evaluation
a) Haemoglobin & Haematocrit
2) Confirms presence and severity of Anaemia
a) Red Cell Indices
3) MCV (Mean Corpuscular Volume) – most important index
4) MCH, MCHC
5) RDW (variation in RBC size)
6) Morphological Classification (Based on MCV)
7) Type of Anaemia MCV Common Causes (Robbins)
8) Microcytic ↓ Iron deficiency, Thalassemia, Sideroblastic Anaemia
9) Normocytic Normal Acute blood loss, Haemolytic Anaemia, Aplastic Anaemia
10) Macrocytic ↑ Vitamin B12 deficiency, Folate deficiency
11) Peripheral Blood Smear Examination Robbins stresses morphology as a key diagnostic tool.
12) Microcytic hypochromic RBCs → Iron deficiency
13) Macro-ovalocytes + hyper segmented neutrophils → Megaloblastic Anaemia

14) Reticulocyte Count
15) Used to assess bone marrow response:
16) Low reticulocyte count → Decreased RBC production
17) High reticulocyte count → Haemolysis or blood loss

AIMS: The primary aim of this study is to assess the prevalence of Anaemia and evaluate the level of awareness regarding its management and government-led intervention programs among menstruating adolescent females.

OBJECTIVE: To estimate prevalence, to identify primary awareness sources, to evaluate programme awareness, to gauge Educational Interest

II. MATERIALS AND MATHODOLOGY

Source of Data	A Google Form was used to collect data.
Inclusive Categories	The participants were adolescent females who have the capacity for reproduction (menstruating females).
Exclusive Categories	Males and females who did not meet the specified criteria were not included.
Topic	The study aims to collect the number of people affected by Anaemia.
Duration of Study	The study was conducted for 1 month.
Number of Participant	69

III. OBSERVATION

1.Formal education through schools serves as the primary source of Anaemia awareness among participants, with 75.4% reporting this method.

2.The data indicates a significant prevalence of Anaemia, as 31.9% of respondents have been diagnosed.

3. Awareness of government iron supplementation programs is not universal, with 34.9% of participants unaware or unsure.

4. A strong interest in further education on iron management exists, with 95.6% expressing interest or potential interest.

III. RESULT: (STATISTICAL CONCLUSION)

The survey reveals that overall awareness of Anaemia is high (94.2%), but detailed and applied knowledge remains insufficient.

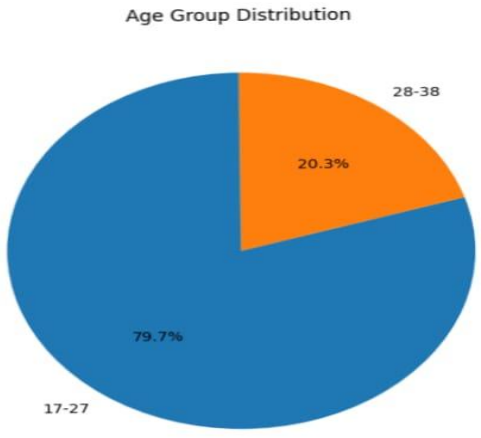
A significant proportion (31.9%) of young women are already suffering from Anaemia.

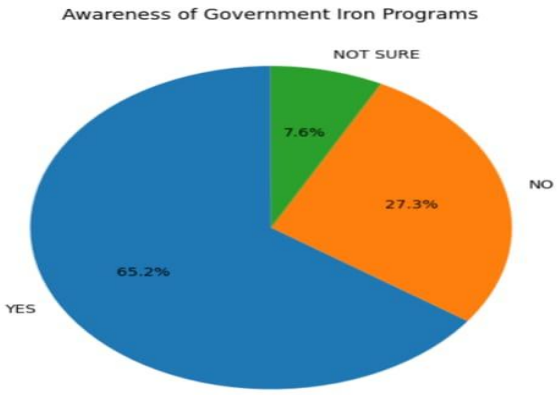
Psychological consequences such as fatigue, poor concentration, and low energy were indirectly supported by the high prevalence and awareness trends.

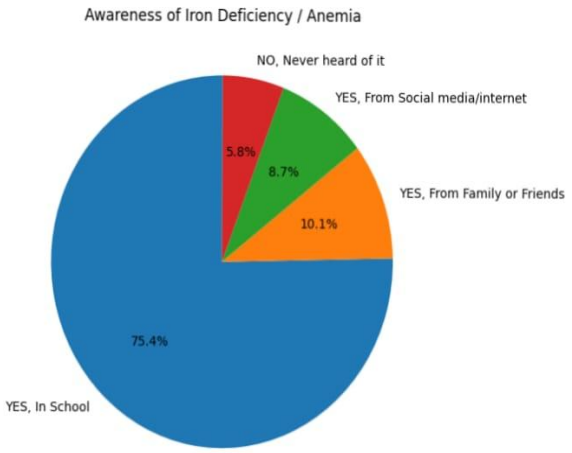
Although 65.2% knew about government programs, over one-third lacked clear awareness, highlighting a communication gap.

The high interest level (95.6% willing or possibly willing to learn more) indicates that educational interventions will be highly effective.

IV. ANALYSIS OF DATA







V. DISCUSSION / CONCLUSION

The study concludes that although awareness of anaemia exists among young women, focused educational interventions are required to improve prevention, early diagnosis, and psychological well-being.Based on a one-month study of 69 menstruating adolescent females, while 75.4% reported formal education as their primary source of anaemia awareness, a significant prevalence of 31.9% were diagnosed with the condition. A knowledge gap exists regarding government iron supplementation programs, with 34.9% of participants unaware or unsure, yet 95.6% expressed interest in further education on iron management.

CONFLICT OF INTEREST - None

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