



Prevalence of Anemia Among Young Adults Residents of Urban Region from Age 15-35 Years

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KEYWORDS

Anemia, adults, prevalence, urban area, hemoglobin.

ABSTRACT:

Anemia is the most major public health problem due to deficiency of micronutrient and iron deficiency it affect young children, menstruating adolescent girl, adults and women. The median hemoglobin concentration was 10.5g/dl interquartile range IQR 7.5-11.0g/dl reproductive women are more affected by anemia due to improper dietary intake and iron loss during menstruation and pregnancy due to this maternal death and morbidity increase by this it affect the social economic growth. The result of this study can be used by public health programs to design target intervention aimed to reducing the huge burden of anemia in India. This research aims to investigate the prevalence of anemia in urban populations and identify key socioeconomic factors influencing its occurrence. Through a cross-sectional study conducted in diverse urban settings, we will analyze the relationship between anemia and variables such as income, education, and access to healthcare. The findings from this research will contribute valuable insights into addressing anemia in urban areas, guiding public health interventions to mitigate its impact and improve overall community well-being.

INTRODUCTION

Anemia poses a significant global health challenge, impacting approximately two billion individuals, equivalent to 30% of the world's populace. The majority of those affected hail from developing nations. 1The definition for anemia refers to an abnormally low hemoglobin level due to pathological condition related to nutritional and non-nutritional factors. 2 According to WHO World Health Organization. Hemoglobin concentration is considered low if it falls below 130g/L for men, 120g/L for non-pregnant women, and below 10g/L in pregnant women. Nonetheless, the standard range for healthy blood hemoglobin levels can differ based on factors such as gender, age, ethnicity, lifestyle choices, and geographical location. 3 The cause of anemia are manifold bt iron deficiency is by far the most important cause of nutritional anemia worldwide. 4 in families with limited resources, both female and male children are at a higher risk of neglect, facing challenges in accessing quality nutrition, education, and essential resources. Various factor poverty, repeated birth, poor living condition and limited health care facility which are commonly encountered in urban area. Anemia affect mental and physical development of an

individual leading to decrease the work capacity by which it turn affect the development of the country. To prevent anemia in urban areas, several strategies can be implemented based on the available evidence: Nutritional Interventions: Promoting appropriate complementary feeding for infants and young children can help prevent iron deficiency and anemia Encouraging the consumption of iron-rich foods such as leafy greens, seafood, and meat, or providing iron supplements when necessary, is essential for addressing nutritional causes of anemia. Health Education: Raising awareness about anemia and the importance of a balanced diet rich in essential nutrients, especially among women and adolescent girls, can help prevent nutritional deficiency anemia. Community Participation: Involving the community in programs aimed at preventing anemia, including regular hemoglobin testing and providing necessary interventions, is crucial for the success of prevention efforts. Socio-Economic Support: Addressing socio-economic factors such as literacy, access to nutrition information, and household wealth can help reduce the risk of anemia in urban areas. Public Health Interventions: Implementing public health initiatives to



target specific demographic groups, such as women and adolescent females, can help reduce the prevalence of anemia in urban areas. By implementing these strategies, it is possible to reduce the burden of anemia in urban areas and improve the overall health and well-being of the population.

MATERIAL AND METHODS-

SAMPLE SIZE-

A study will be conducted on a random sample of 1396. whole blood specimen, with 571 identified as anemic. The 571 anemic sample will be studied at the hematology lab of School of health sciences CSJMU Kanpur, and GSVM Medical College Kanpur.

DURATION OF STUDY-

This study was done in duration of 6 months.

STUDY PLACE-

Study were conducted at the school of health sciences CSJMU Kanpur in collaboration with the department of pathology GSVM Medical College Kanpur.

STUDY DESIGN-

Cross-sectional study subjects. All cases whole blood sample has been sent to the department of pathology school of health sciences CSJMU Kanpur and GSVM Medical College Kanpur for complete haemogram investigation.

DATA COLLECTION, SAMPLING COLLECTION AND STORAGE-

From young adults male and female enrolled in the study. information regarding age, occupation, education they were collected. 2ml of peripheral venous blood were collected by appropriated venipuncture technique from each patient, and placed in an EDTA anticoagulant tube for hematological investigation including complete blood count, blood film, and reticulocyte count.

GENERAL LABORATORY EQUIPMENT-

Summarizes the general laboratory equipment / instruments used in this study with the name of their manufacture and country of origin.

S.NO.	INSTRUMENT	MANUFACTURE	COUNTRY OF ORIGIN
1	REFRIGERATOR	SAMSONG	JAPAN
2	MICROSCOPE	OLYMPUS EX31	JAPAN
3	MICROPIPETTE	ERBA	INDIA
4	GLASS SLIDE	SUPERTEK	INDIA
5	EDTA TUBE	B D VACCUTANER	INDIA

INVESTIGATION-

BLOOD COUNTS-

Well mixed K2-EDTA blood sample had their red cell indices including Hb , PCV, RBC, RDW, MCH, MCV, MCHC, determined by electronic hematology analyzer (Horiba ABX micros 60 – Japan) . Calibration of the analyzer and processing of the samples were done according to the manufacture instruments.

RETICULOCYTE COUNT-

Reagent use for reticulocyte count-

New methylene blue 1%, already prepared by manufacture from new methylene blue 1% with sodium chloride 0.72% and sodium citrate 0.6%.

BLOOD FILM-

Blood films prepared using fresh blood, stained by Leishman stain (Rabans Lane Ind-UK) for red cell morphology assessment.



RESULT-

*On the basic of occupation-

Occupation	Anemic Percentage
Students	25.3%
Employed	23.2%
Unemployed	51.4%

*On the basis of Age group-

Age	Number of patient	In Percent
15-19	103	18.0%
20-24	132	23.1%
25-29	156	27.3%
30-35	180	31.5%

*On the basic of grading of anemia –

Type	In numbers	In Percent
Severe anemia	12	2.10%
Moderate anemia	96	16.81%
Mild anemia	197	34.50%
Anemic	266	46.58%

FACTOR ASSOCIATED WITH ANEMIA-

In the ultimate logistic regression model, the prevalence of anemia was observed to be greater among those who were unemployed compared to students and individuals who were employed..

DISCUSSION-

This study focused on assessing the prevalence of anemia among urban residents, revealing an overall prevalence of 40.9%. This underscores the significance of anemia as a substantial public health concern in the examined region. the most affected are unemployed people 51.4% student are 25.3% and employed are 23.2% in study area.

Where according to finding the anemia is 2.10% is severe anemia, 16.81% is moderate anemia, 34.50 % is mild anemia and 46.58% is anemic.

CONCLUSION-

Within the current investigation, the elevated occurrence of anemia among young adults signifies a significant health challenge necessitating corrective actions to diminish its prevalence in this demographic.

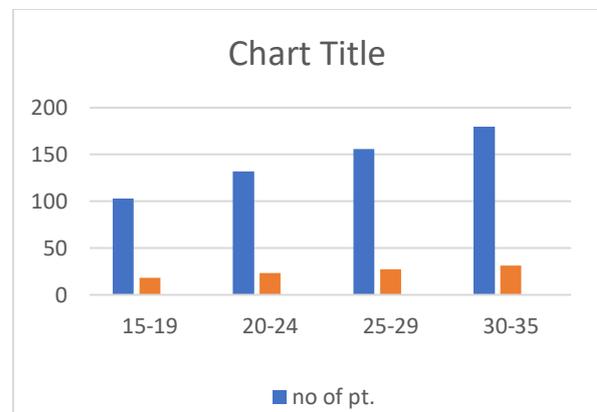
Enhancing the nutritional status of adults through counseling and health education is imperative. Factors like literacy, age, and employment play pivotal roles in influencing anemia prevalence, and the family's socio-economic status is intertwined with the occurrence of anemia.

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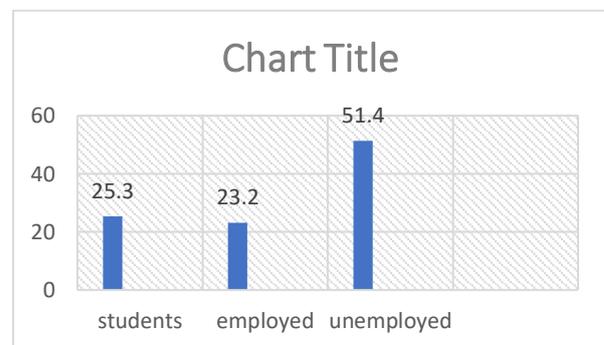
TOTAL NUMBER OF ANEMIC PATIENT =571

According to age group.



According to their occupation.

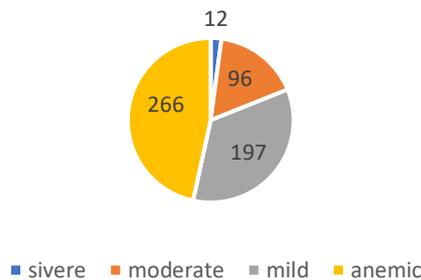
NUMBER OF ANEMIC PATIENT = 571



Number of anemic patient according to type of anemia.



Number of Anemic patient.



Type	Number of patient	In Percentage
Severe anemia	12	2.10%
Moderate anemia	96	16.81%
Mild anemia	197	34.50%
Anemic	266	46.58%

REFERENCES

1. Tesfaye TS, Tessema F, Jarso H. Prevalence of Anemia and Associated Factors Among "Apparently Healthy" Urban and Rural Residents in Ethiopia: A Comparative Cross-Sectional Study. *J Blood Med.* 2020 Mar 11;11:89-96. doi: 10.2147/JBM.S239988. PMID: 32210654; PMCID: PMC7073428.
2. Malhotra P, Kumari S, Kumar R, Varma S. Prevalence of anemia in adult rural population of north India. *J Assoc Physicians India.* 2004 Jan;52:18-20. PMID: 15633712.
3. Chaudhary SM, Dhage VR. A study of anemia among adolescent females in the urban area of nagpur. *Indian J Community Med.* 2008 Oct;33(4):243-5. doi: 10.4103/0970-0218.43230. PMID: 19876498; PMCID: PMC2763695.
4. Kurniawan YA, Muslimatun S, Achadi EL, Sastroamidjojo S. Anaemia and iron deficiency anaemia among young adolescent girls from the peri urban coastal area of Indonesia. *Asia Pac J Clin Nutr.* 2006;15(3):350-6. PMID: 16837427.
5. Bharati P, Som S, Chakrabarty S, Bharati S, Pal M. Prevalence of anemia and its determinants among nonpregnant and pregnant women in India. *Asia Pac J Public Health.* 2008;20(4):347-59. doi: 10.1177/1010539508322762. PMID: 19124329.
6. Anand T, Rahi M, Sharma P, Ingle GK. Issues in prevention of iron deficiency anemia in India. *Nutrition.* 2014 Jul-Aug;30(7-8):764-70. doi: 10.1016/j.nut.2013.11.022. Epub 2013 Dec 10. PMID:
7. Sharif N, Das B, Alam A. Prevalence of anemia among reproductive women in different social group in India: Cross-sectional study using nationally representative data. *PLoS One.* 2023 Feb 2;18(2):e0281015. doi: 10.1371/journal.pone.0281015. PMID: 36730352; PMCID: PMC9894404.
8. Chowdhury, Swapan Kumar et al. "Status of Iron Deficiency Anemia among Bangladeshi Children: Urban and Rural Settings." *Acta Scientific Paediatrics* (2019): n. pag.
9. Sharma, Krishna Prasad et al. "Knowledge and attitude of urban and rural adolescent girls regarding anemia." *The Pharma Innovation Journal* 8 (2019): 1141-1145.
10. Kulkarni, Meenal V. et al. "PREVALENCE OF ANEMIA AMONG ADOLESCENT GIRLS IN AN URBAN SLUM." (2012).
11. Noer, Etika Ratna et al. "Is Iron Deficiency Anemia still Becoming Community Health Problem in Urban Area?" *Open Access Macedonian Journal of Medical Sciences* (2022): n. pag.
12. Anderson WAD, Kissane JM: *Pathology*, 9th ed. St Louis, The CV Mosby Company, 1977.
Boyd, William: *Pathology—Structure and Function in Diseases*, 8th ed. Philadelphia, Lea & Febiger, 1970.
Dacie JV, Lewis SM: *Practical Haematology*, 7th ed. London, Churchill Livingstone, 1991.
Fauci AS et al: *Harrison's Principles of Internal Medicine* (2 vols), 17th ed. New York, McGraw-Hill Medical, 2008.
Gilbert-Barness E: *Potter's Pathology of the Fetus and Infant* (2 vols). St Louis, Mosby, 1997.
Greer JP et al: *Wintrobe's Clinical Haematology* (2 vols), 11th ed. Philadelphia, Lippincott Williams & Wilkins, 2004.
Henry JB: *Clinical Diagnosis and Management by Laboratory Methods*, 20th ed. New Delhi, Harcourt (India) Pvt Ltd, 2001.
Wallach J: *Interpretation of diagnostic tests*, 8th ed. New Delhi, Wolters Kluwer (India) Pvt Ltd, 2007.
16. Mohan Shinde, Anita Shinde, Ashok Shrivastava. "Prevalence of Anemia among Adolescent Girls in Urban Area of Central Madhya Pradesh". *Journal of Evolution of Medical and Dental Sciences*



2015; Vol. 4, Issue 56, July 13; Page: 9750-9754,
DOI: 10.14260/jemds/2015/1407

17. Bharati P, Som S, Chakrabarty S, Bharati S, Pal M. Prevalence of anemia and its determinants among nonpregnant and pregnant women in India. *Asia Pac J Public Health*. 2008;20(4):347-59. doi: 10.1177/1010539508322762. PMID: 19124329.
18. Kurniawan YA, Muslimatun S, Achadi EL, Sastroamidjojo S. Anaemia and iron deficiency anaemia among young adolescent girls from the peri urban coastal area of Indonesia. *Asia Pac J Clin Nutr*. 2006;15(3):350-6. PMID: 16837427.
19. Tesfaye TS, Tessema F, Jarso H. Prevalence of Anemia and Associated Factors Among "Apparently Healthy" Urban and Rural Residents in Ethiopia: A Comparative Cross-Sectional Study. *J Blood Med*. 2020 Mar 11;11:89-96. doi: 10.2147/JBM.S239988. PMID: 32210654; PMCID: PMC7073428.
20. WHO. World Health Organization: The Global Prevalence of Anemia in 2011. Geneva; 2015