

Prevalence of Iron Deficiency Anemia among Cobblers of Known Population: A Cross-Sectional Study

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ABSTRACT

Background: Anemia is a public health problem that is widely prevalent worldwide. Cobblers represent a significant proportion of working lower class in our society. Hence; we planned the present study to assess the prevalence of iron deficiency anaemia among cobblers of known population.

Materials & Methods: A total of 450 cobblers were included in the present study. Blood samples were taken from all the subjects and blood haemoglobin levels were checked. Subjects were classified as anaemic or non-anaemic. All the results were analysed by SPSS software.

Results: Iron deficiency anaemia was found to be present in 58.44 percent of the subjects (263 subjects), while it was absent in 41.56 percent of the subjects (187 subjects).

Conclusion: Iron deficiency anaemia is prevalence in significant proportion of cobbler population.

Keywords: Cobbler, Iron Deficiency Anemia, Prevalence.

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INTRODUCTION

Anemia is a public health problem that is widely prevalent worldwide. It has major consequences on individuals' well-being and the socioeconomic development of societies.^{1,2}

The World Health Organization (WHO) estimated that approximately 25% of the earth's population is anemic. Anemia can be attributed to a wide variety of etiologies, such as malnutrition, acute and chronic infections, and genetic hemoglobin (Hb) defects. Iron deficiency (ID) is the most common malnutrition disorder around the world.^{3,4}

"Dalit" is a socio-religious excluded community often considered as "untouchable" in the societies they live in different regions of South Asia. People of this community are deprived, partly by religious sanctions and partly by socio-economic discrimination. Cobblers belong to this part of society, which is usually undernourished.^{5,6}

Hence; we planned the present study to assess the prevalence of iron deficiency anaemia among cobblers of known population.

MATERIALS & METHODS

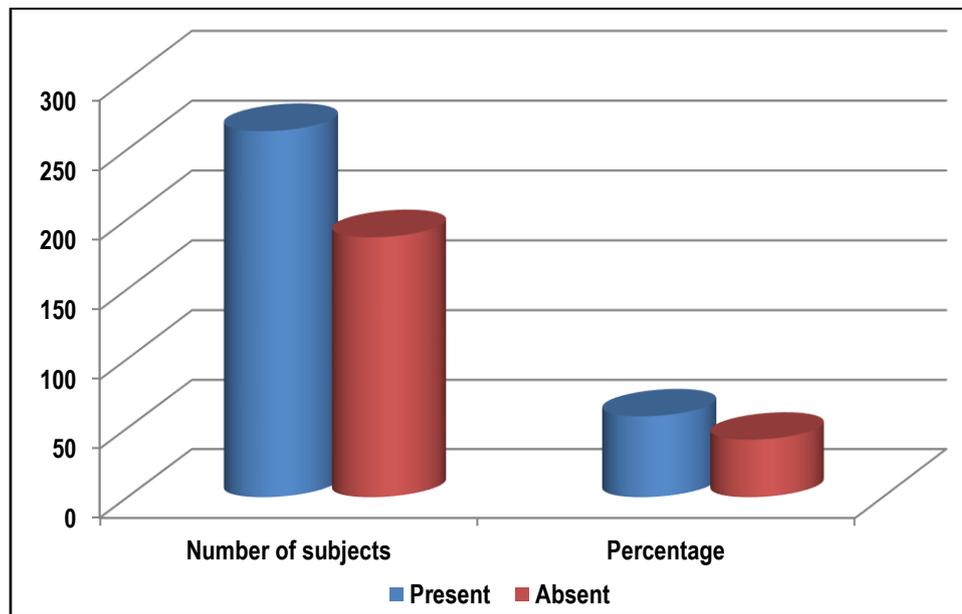
The present study was conducted with the aim of assessing the prevalence of iron deficiency anaemia among cobblers of known population. Ethical approval was obtained from the ethical community of the institutional in written before starting of the

study. A total of 450 cobblers were included in the present study. Blood samples were taken from all the subjects and blood haemoglobin levels were checked. The World Health Organization defines anemia as blood hemoglobin values of less than 7.7 mmol/l (13 g/dl) in men and 7.4 mmol/l (12 g/dl) in women. Iron studies diagnostic for iron deficiency anemia consist of a low hemoglobin (<7.7 mmol/l in men and 7.4 mmol/l in women), a low serum iron (<7.1 µg/l), a low serum ferritin (storage form of iron) (<30 ng/l), a low transferrin saturation (<15%), and a high total iron-binding capacity (>13.1 µmol/l).⁷

The same criteria was used for diagnosing subjects as suffering from iron deficiency anemia. All the results were analysed by SPSS software.

RESULTS

A total of 450 cobblers were analysed in the present study. Majority of these subjects were between 25 to 45 years of age (253 subjects). 99 subjects were less than 25 years of age and 98 subjects were more than 45 years of age. 444 subjects among the total subjects were males while the remaining 6 subjects were females. Iron deficiency anaemia was found to be present in 58.44 percent of the subjects (263 subjects), while it was absent in 41.56 percent of the subjects (187 subjects).



Graph 1: Prevalence of anaemia

Table 1: Age-wise distribution of subjects

Parameter	No.	
Age group (years)	Less than 25	99
	25 to 45	253
	More than 45	98
Total	450	

Table 2: Gender-wise distribution of subjects

Gender	No
Males	444
Females	6
Total	450

Table 3: Prevalence of anaemia

Anaemia	No.	%
Present	263	58.44
Absent	187	41.56
Total	450	100

DISCUSSION

Iron deficiency is associated with upregulation of iron absorption from the gut by way of an increase in the production of key proteins, such as duodenal cytochrome b, divalent metal transporter 1, and ferroportin. Hypoxia-inducible, factor-mediated signalling and iron regulatory proteins also play critical roles in the local regulation of iron absorption. Hypoxia-inducible factor-signalling upregulates the expression of duodenal cytochrome b and divalent metal transporter 1; iron regulatory proteins upregulate the expression of divalent metal transporter 1 and ferroportin.⁸ A total of 450 cobblers were analysed in the present study. Majority of these subjects were between 25 to 45 years of age (253 subjects). 99 subjects were less than 25 years of age and 98 subjects were more than 45 years of age. 444 subjects among the total subjects were males while the remaining 6

subjects were females. Anemia has diverse consequences and different subgroups of the population have varying vulnerabilities to its complications, such as fatigue and congestive cardiac failure; the rate and severity increasing with the severity of anemia. Conditions resulting in anemia act largely through either reduced red cell production or increased red cell loss, but the former is more often implicated in the etiology of severe anemia. Although different risk factors influence anemia independently, they commonly exist concomitantly, making it challenging to single out a definitive cause especially in resource-poor settings where access to advanced diagnostic tools is limited. Important causes of anemia in developing countries include micronutrient deficiencies, infectious diseases, hemoglobinopathies, and maternal blood loss. In terms of presentation, iron deficiency anemia is typically microcytic hypochromic, and anemia from chronic diseases is normocytic normochromic, whereas macrocytic anemia is commonly associated with B12 and folate deficiencies, or drug and alcohol toxicities, though overlap is common. Intricate relationships between economic, political, demographic, sociocultural and biological factors influence the patterns of underlying causes, vulnerability to, and distribution of anemia severity and consequences.⁹⁻¹²

In the present study, Iron deficiency anaemia was found to be present in 58.44 percent of the subjects (263 subjects), while it was absent in 41.56 percent of the subjects (187 subjects). To the best of our knowledge, this is the first study to assess the anaemia status among cobblers. The prognosis for anemia is generally very good. Therapy with substrate replacement (iron, B12, folate) should begin immediately and be continued for at least 6 months after the patient's iron levels return to normal. Patients requiring transfusions should be placed onto iron, B12, and folate; although, their iron levels will need careful monitoring if they undergo subsequent transfusions, as they are at risk of iron toxicity.¹³

CONCLUSION

From the above obtained results, it can be concluded that anaemia is prevalence in significant proportion of cobbler population. However; further studies are recommended.

REFERENCES

1. McLean E, Cogswell M, Egli I, Wojdyla D, de Benoist B. Worldwide prevalence of anaemia, WHO vitamin and mineral nutrition information system, 1993-2005. *Public Health Nutr.* 2009;12:444-54.
2. Leung AK, Chan KW. Iron deficiency anemia. *Adv Pediatr.* 2001;48:385-408.
3. Walter T, De Andraca I, Chadud P, Perales CG. Iron deficiency anemia: Adverse effects on infant psychomotor development. *Pediatrics.* 1989;84:7-17.
4. De Benoist B, McLean E, Egli I, Cogswell M, Cogswell M. WHO Global Database on Anaemia. Geneva: World Health Organization; 2008. pp. 1993-2005.
5. Kassebaum NJ, Jasrasaria R et al. Asystematic analysis of global anemia burden from 1990 to 2010. *Blood.* 2014;123:615-24.
6. Zaman TU, Goswami HD, Hassan Y. The Impact of Growth and Development of Slums on the Health Status and Health Awareness of Slum Dwellers. *International Journal of Medical Research & Health Sciences*, 2018, 7(3): 55-65.
7. Johnson-Wimbley TD, Graham DY. Diagnosis and management of iron deficiency anemia in the 21st century. *Therap Adv Gastroenterol.* 2011;4(3):177-84.
8. Zhang AS, Enns CA. Molecular mechanisms of normal iron homeostasis. *Hematology Am Soc Hematol Educ Program.* 2009; 1: 207-214
9. Balarajan Y, Ramakrishnan U, Ozaltin E, Shankar AH, Subramanian SV. Anaemia in low-income and middle-income countries. *Lancet.* 2011;378:2123-35.
10. van Hensbroek MB, Jonker F, Bates I. Severe acquired anaemia in Africa: new concepts. *Br J Haematol.* 2011;154:690-5.
11. Munasinghe S, van den Broek N. Anaemia in pregnancy in Malawi - a review. *Malawi Med J.* 2006;18:160-75.
12. Yip R, Ramakrishnan U. Experiences and challenges in developing countries. *J Nutr.* 2002;132(Suppl 4):827-30.
13. Turner J, Bhimji SS. Anemia. [Updated 2018 Oct 27]. In: Stat Pearls. Treasure Island (FL): Stat Pearls Publishing; 2018 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499994/>

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