

29. PREVALENCE AND RISK FACTORS OF ANEMIA AMONG CONFLICT-AFFECTED POPULATIONS IN SUDAN: A CROSS-SECTIONAL STUDY

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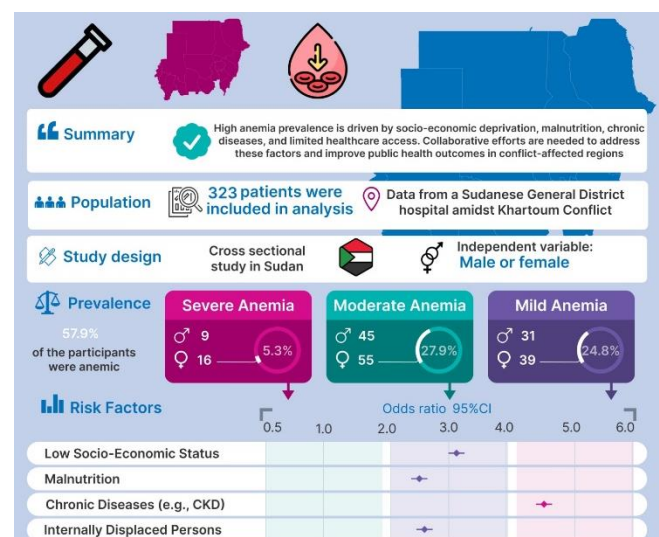
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BACKGROUND: Anemia is a significant public health concern, particularly in conflict-affected regions, where poor nutrition, limited access to healthcare, and displacement exacerbate its prevalence. Political tension between the leading military force in the nation, the Sudanese Armed Forces (SAF), and the Rapid Support Forces (RSF), which began on April 15, 2023, is currently ongoing mainly in Khartoum State. Despite the impact of the conflict on the region, there is a lack of data regarding the nutritional status of the residents. The aim of this study is to assess the prevalence, severity, and risk factors of anemia in populations affected by the ongoing armed conflict in Sudan. **METHODS:** We conducted a cross-sectional study among residents of Khartoum State at a regional hospital in Sudan between May 12 and July 26, 2024. We included 323 participants selected through a systematic random sampling method. We used a modified validated standard questionnaire to collect demographic information. We reviewed medical records to gather the participant's chronic and infectious disease history. We collected blood samples for laboratory assessments, including hemoglobin, serum iron, and vitamin B12 levels. The study also considered socio-economic status, dietary intake, and healthcare access. We analyzed the data using SPSS version 26.0. We used descriptive statistics to determine the prevalence and severity of anemia, and logistic regression was employed to identify predictors of anemia among the study population. A p-value of 0.05 or less was considered statistically significant. **RESULTS:** Out of the 323 participants in the study, 57.9% (95% CI: 52.7%-63.1%) were anemic, with 24.8% having mild anemia, 27.9% moderate, and 5.3% severe. The mean hemoglobin level was 10.4 g/dL (SD: 1.8). Anemia was significantly more prevalent among internally displaced persons (IDPs), accounting for 35.6%, with a strong association between displacement status and anemia (OR 2.6, 95% CI: 1.7-4.2). Socio-economic factors had an important role in the prevalence of anemia, with low income being a significant predictor (OR 3.2, 95% CI: 1.9-5.1). Participants with inadequate caloric intake (43.3%) were also more likely to be anemic (OR 2.5, 95% CI: 1.6-4.0).

Furthermore, chronic diseases such as chronic kidney disease (9.3%) and diabetes (14%) were associated with higher odds of anemia (OR 4.5, 95% CI: 2.1-9.6 for chronic kidney disease). Infectious diseases, particularly malaria (12.4%), also increased the risk of anemia (OR 2.8, 95% CI: 1.5-5.2). Nutritional deficiencies were prevalent, with 60.4% having low serum iron levels and 18.6% deficient in vitamin B12. Malnutrition was another factor, with 23.2% being underweight and 17% being severely malnourished. Access to healthcare was limited; 44.9% of participants reported no access to iron supplements, and 10.8% had received blood transfusions due to anemia. **CONCLUSION:** This study highlights that anemia is prevalent among Khartoum residents during the conflict in Sudan, with socio-economic deprivation, malnutrition, chronic and infectious diseases, and limited healthcare access being key contributors. Addressing the anemia situation in Sudan requires collaborative efforts from healthcare providers, government agencies, and international organizations to implement effective interventions that reduce the burden of anemia and improve the overall health of populations affected by conflict.

Figure: Prevalence and Risk Factors of Anemia in Conflict-Affected Populations in Sudan: A Cross-Sectional Analysis.



Key Words: Anemia, Conflict-Affected Populations, Sudan, Prevalence, Socio-Economic Factors, Malnutrition, Healthcare Access.