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PREVALENCE AND RISK FACTORS OF ANEMIA AMONG WOMEN IN THE WORLD

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Abstract
Anemia is a significant global health concern, particularly among women of reproductive age, with higher prevalence rates in low- and middle-income countries (LMICs). This literature review highlights key findings on anemia prevalence, associated factors, and regional disparities. Studies report that anemia affects 24.8% of the global population, with 38.2% of pregnant women in developing countries being particularly susceptible. Iron deficiency anemia is the most common form, significantly contributing to maternal mortality. Prevalence rates vary widely, with South Asia exhibiting some of the highest rates, such as 52.2% in India and 50% in southern rural Bangladesh. Key contributing factors include socioeconomic status, education, healthcare access, dietary diversity, and personal habits like tobacco or alcohol use. While prevalence decreased globally between 2000 and 2013, it has risen since 2013, particularly in LMICs. Regional disparities persist, with African countries showing the highest rates and American and European countries the lowest. These findings emphasize the urgent need for targeted, evidence-based interventions addressing education, socioeconomic empowerment, and healthcare access to reduce anemia prevalence. Innovative global and regional strategies must prioritize resource allocation to the most affected regions to meet the WHO Global Nutrition Target of reducing anemia by 50% by 2030.

Keywords: Anemia, prevalence, women, iron deficiency, nutritional anemia, public health.

Introduction

Anemia is a widespread public health challenge, disproportionately affecting women of reproductive age (15-49 years), particularly in low- and middle-income countries (LMICs). Characterized by a deficiency in hemoglobin or red blood cells, anemia results in impaired oxygen transport, with significant consequences for maternal and child health, productivity, and overall well-being. Globally, anemia affects 24.8% of the population, with pregnant women facing the highest burden due to increased nutritional demands. Iron deficiency anemia, the most common type, accounts for a significant proportion of cases and contributes to maternal mortality and morbidity.

Despite global efforts to reduce anemia prevalence, progress remains uneven, with substantial disparities across regions, socioeconomic groups, and demographic categories. South Asia, Sub-Saharan Africa, and Southeast Asia consistently report the highest prevalence rates, driven by factors such as poverty, limited access to healthcare, dietary deficiencies, and poor educational attainment. Conversely, higher human development index (HDI) regions like Europe and the

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Americas report lower rates. This paper reviews recent literature to examine the prevalence, predictors, and disparities of anemia among women of reproductive age, with a focus on vulnerable populations in LMICs. By identifying key risk factors and intervention gaps, the review underscores the need for targeted strategies to address the persistent burden of anemia and achieve global health objectives, including the WHO Global Nutrition Target of halving anemia rates by 2030

Anemia is highly prevalent among women, particularly pregnant women in India, with a prevalence rate of 52.2%. It is notably higher among adolescents (61.5%), those with no education (59.2%), and women from the poorest wealth index (61.9%). Additionally, women with habits of smoking, tobacco, or alcohol (63.0%) and shorter birth intervals (59.7%) are more affected. The study highlights the need for targeted interventions to address the high burden of anemia among these vulnerable groups[1].

Anemia is a significant global health issue among women of reproductive age, particularly in low- and middle-income countries (LMICs). The study found a prevalence of 45.20% in pregnant women and 39.52% in non-pregnant women. Factors such as educational status, wealth, family size, media exposure, and residence were significantly associated with anemia in both groups. The high prevalence underscores the need for targeted interventions and a reassessment of global strategies to combat anemia in these populations [2].

The study found a significant prevalence of anaemia among women in southern rural Bangladesh, with 50% of pregnant women and 46% of lactating women affected. Factors contributing to anaemia included dietary diversity, hygiene practices, and healthcare access, such as receiving at least four antenatal care visits. Non-Muslim lactating women had a higher risk of anaemia (aOR = 3.75). The findings highlight the urgent need for improved strategies to address micronutrient deficiencies and enhance women's health in the region [3].

Factors such as education level, income, and access to healthcare play crucial roles in determining nutritional status and health outcomes. Women with lower education and income levels often have limited access to iron-rich foods and healthcare services, exacerbating nutritional deficiencies. Additionally, socioeconomic barriers can hinder effective interventions, making it essential to address these factors to reduce anemia prevalence and improve women's health and productivity [4].

The study found that socio-economic factors significantly influence the prevalence of anemia in pregnant women. Anemia was associated with various factors, including occupational status, level of education, type of family (nuclear vs. joint), and personal habits such as tobacco and betel nut consumption. The analysis revealed that women from lower socio-economic backgrounds and those with less education had higher rates of anemia, highlighting the critical role of socio-economic conditions in maternal health outcomes [7].

The study found that geographical location, level of education, and wealth index are strongly associated with anemia among pregnant women. Women with higher education and better socioeconomic status tend to have lower rates of anemia. Enhancing education and improving socioeconomic conditions are suggested as viable strategies to mitigate the prevalence of anemia, highlighting the importance of addressing these factors in anemia prevention and management efforts [8].

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Anemia remains a major global public health issue, affecting around 24.8% of the world's population in both developing and developed countries. Pregnant women in developing countries are particularly susceptible, with 38.2% affected worldwide. Anemia is also a major contributor to maternal mortality, with 510,000 maternal deaths globally, of which 20% occur in developing countries and are related to anemia. Iron deficiency anemia is the most prevalent form, impacting 1.3 to 2.2 billion individuals, with 50% being women of reproductive age [9].

From 2000 to 2019, the prevalence of anemia among women aged 15-49 initially decreased but saw an increase from 2013 to 2019. Severe anemia, however, consistently decreased during this period (DeLoughery, 2024). In LMICs, the prevalence of anemia is notably high, with 45.20% among pregnant women and 39.52% among non-pregnant women (Alem et al., 2023). In South and Southeast Asia, the prevalence ranges from 13.3% in the Philippines to 70.3% in Nepal, with an average of 50.17% ("Prevalence and Predictors of Anaemia Among Women of Reproductive Age in South and Southeast Asia", 2023).

Regional Disparities

African countries exhibit the highest prevalence of anemia, while American and European countries have the lowest rates (DeLoughery, 2024).

Within LMICs, significant subnational disparities exist, with only a few countries likely to meet the WHO Global Nutrition Target of reducing anemia by half by 2030(Kinyoki et al., 2021).

Contributing Factors

Factors such as educational status, wealth, family size, media exposure, and rural residence are significantly associated with anemia prevalence(Alem et al., 2023) ("Prevalence and Predictors of Anaemia Among Women of Reproductive Age in South and Southeast Asia", 2023). In South and Southeast Asia, younger age, lower educational attainment, and lower household wealth are linked to higher anemia rates("Prevalence and Predictors of Anaemia Among Women of Reproductive Age in South and Southeast Asia", 2023). Despite efforts to reduce anemia prevalence, challenges remain, particularly in LMICs where socioeconomic factors heavily influence health outcomes. The persistence of high anemia rates underscores the need for innovative, evidence-based interventions and policies that address the root causes of anemia, including education and socioeconomic empowerment. Global and national leaders must prioritize resource allocation to the most affected regions to achieve meaningful progress(Hasan et al., 2022). The prevalence of anemia among women of reproductive age (15-49 years) worldwide decreased from 2000 to 2013 but increased from 2013 to 2019. Throughout this period, African countries exhibited the highest prevalence of anemia and severe anemia, while American and European countries had the lowest rates. Additionally, a significant correlation was found between decreasing human development index (HDI) categories and increasing prevalence of total anemia, indicating a greater burden in lower HDI countries [10].

Conclusion

Anemia remains a pervasive and complex global health challenge, disproportionately affecting women of reproductive age in low- and middle-income countries. The literature underscores a

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multifaceted issue driven by socioeconomic, educational, dietary, and healthcare-related factors. Regional disparities in prevalence—from the high rates in South Asia and Sub-Saharan Africa to the relatively lower rates in developed nations—highlight the influence of socioeconomic development and infrastructure on health outcomes.

The persistence of high anemia rates, even in the face of global efforts, calls for a reassessment of existing strategies. To make meaningful progress, interventions must address the underlying determinants of anemia, such as poverty, limited education, inadequate healthcare access, and poor dietary practices. Empowering women through education and socioeconomic initiatives can play a transformative role in reducing anemia prevalence and its associated burdens.

Furthermore, targeted policies and programs should focus on improving nutritional practices, enhancing healthcare delivery, and addressing cultural and behavioral factors that contribute to anemia. Collaboration among governments, non-governmental organizations, and international agencies is crucial to ensure adequate resource allocation and effective implementation of strategies.

Achieving the WHO Global Nutrition Target of halving anemia prevalence by 2030 will require sustained commitment, innovation, and coordinated efforts at the global and local levels. Success in this endeavor would not only improve maternal and child health outcomes but also enhance the economic productivity and quality of life for millions of women worldwide. Ultimately, tackling anemia is essential for advancing global health equity and fostering sustainable development.

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