# DRIVERS OF ANAEMIA REDUCTION AMONG WOMEN OF REPRODUCTIVE AGE IN EASTERN AND UPPER WEST GHANA, 2009–2020


## ABSTRACT

Maternal anaemia significantly affects the well-being of women of reproductive age (WRA), contributing to low productivity, increased morbidity and mortality. Globally, one in three WRA are anaemic. In Ghana, anaemia prevalence among WRA decreased from 59% to 42% between 2008 and 2014, with the Upper West and Eastern regions showing greater reductions of 36% and 19%, respectively. Understanding the factors behind this decline is crucial for developing effective interventions.

This study identified and characterised the drivers of the decline in anaemia prevalence among WRA in the Eastern and Upper West regions of Ghana between 2009 and 2020. The study used a mixed-methods design, integrating primary and secondary data sources guided by an enabling environment framework for malnutrition. Primary data were collected through 50 in-depth interviews (IDIs), 34 focus group discussions (FGDs), and 2 stakeholder net-map group interviews, all audio-recorded and transcribed verbatim. IDIs and FGDs were coded in NVivo 2020, using *a prior* codes on the study framework. New themes that emerged were added and categorised using thematic analysis. Net-Map data were archived in Excel and analysed using VisuaLyzer 2.2. Secondary data included an integrated desk review of institutional documents from 2009 to 2020, with coding in NVivo 2020, and decomposition analysis of the Ghana Demographic and Health Surveys (GDHS) for 2008 and 2014. Secondary data also included an assessment of trends in routine institutional maternal services, with antenatal care (ANC) data from the District Health Information Management System 2 (DHIMS2) for 2014 to 2020.

Decomposition analysis explained only about 5.99% (Eastern region) and 5.48% (Upper West region) of the variation in anaemia prevalence from the GDHS data (2008 and 2014). Key drivers in the Eastern region included maternal age, education, body mass index (BMI), hormonal contraceptive use and wealth index, while in the Upper West region, maternal education, BMI, and household access to improved water were key drivers. Net-Map analysis highlighted Ghana Health Service's critical role in mobilising key stakeholder groups of networks to address anaemia. Net-Map revealed 39 stakeholders connected by 275 links in the Eastern region (66.3% degree centralisation) and 33 stakeholders and 182 links in the Upper West region (degree centralisation of 73.6%). A total of 799,622 ANC registrants were included in the DHIMS2 analysis. Despite high initial ANC engagement, with 81.8% of registrants having their haemoglobin (Hb) checked at registration, follow-up Hb testing at ≥36 weeks decreased to 34.4%. Findings from IDIs, FGDs and document review revealed both regions implemented health, education, and agricultural programs through government and NGOs, with key drivers for anaemia reduction being access to iron-folic acid supplementation, food fortification, malaria prevention, and nutrition education, all of which were supported by institutional commitment and community engagement. However, barriers such as inconsistent program coverage and capacity gaps persisted. Key themes that emerged from FGD included: awareness and knowledge of anaemia; perceptions of anaemia and misperceptions about its causes; experiences with treating anaemia, and prevention strategies. Participants identified iron deficiency and poor diet as causes, with awareness of the risks of anaemia. Misperceptions about its causes included exposure to harsh working conditions/ sun, and chemicals in food. Perceived effect of anaemia was mortality and morbidity. Health-related information was mainly sourced from healthcare providers, with additional information from family traditions, cultural knowledge, and media in the Eastern region. Common treatments included herbs, and measures to combat anaemia focused on malaria prevention and nutrition education.

This research identified drivers for reducing anaemia prevalence among WRA, including maternal factors (age, BMI, education, and hormonal contraception use) and household characteristics (wealth index and household access to improved water). Others were stakeholders involved in anaemia programming, their connections and engagements, highlighting the importance of multi-sectoral coordination and access to IFA supplementation, food fortification, malaria prevention, and nutrition education. The findings stress the need for tailored strategies, improved ANC service coverage, and the addressing of systemic and community-level challenges to achieve anaemia reduction targets through sustained collaboration and investment in context-specific approaches.