

# Knowledge and Perception of Anaemia Among Pregnant Women Attending Antenatal Care at Kenyasi Hospital, Ghana: A Cross-Sectional Study

Josephine Atta-Nsiah

Catholic University of Ghana, Ghana

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## ABSTRACT

Anaemia in pregnancy remains a major global public health problem, particularly in low- and middle-income countries such as Ghana, despite iron–folic acid supplementation, routine haemoglobin screening, and malaria control. This study examined knowledge and perceptions of anaemia, dietary practices, and pregnancy-related factors among pregnant women attending antenatal care (ANC) at Kenyasi Hospital in the Asutifi North District, Ghana. A facility-based descriptive cross-sectional study was conducted among 258 conveniently sampled pregnant women. Data were collected using a structured interviewer-administered questionnaire on sociodemographics, anaemia knowledge and perceptions, pregnancy-related health conditions, and dietary practices assessed with a 24-hour recall. Data were analysed in STATA version 16, with results presented as frequencies and percentages. Nearly half (46.5%) of respondents had good knowledge of anaemia in pregnancy, but misconceptions about its causes, prevention, and effects were common. Diets were low in iron-rich and micronutrient-dense foods, especially animal-source foods and vitamin C-rich fruits. About 15% reported pregnancy-related conditions such as malaria and persistent vomiting that may increase anaemia risk. The study concludes that although awareness of anaemia was relatively high, major gaps remain in accurate knowledge, diet, and preventive behaviours. Strengthening nutrition education, encouraging early ANC attendance, and improving adherence to iron–folic acid supplementation are crucial to reducing anaemia in pregnancy.

**Keywords:** Anaemia in pregnancy; antenatal care; maternal nutrition; knowledge; Ghana

## INTRODUCTION

Anaemia in pregnancy is a major public health problem worldwide and remains a leading contributor to maternal and perinatal morbidity and mortality. The World Health Organization (WHO) defines anaemia in pregnancy as a haemoglobin concentration below 11.0 g/dL and classifies it as mild, moderate, or severe based on haemoglobin levels (World Health Organization [WHO], 2011). Globally, anaemia affects over 1.6 billion people, with pregnant women and young children representing the most vulnerable population groups (McLean et al., 2009; WHO, 2018). The burden of anaemia is disproportionately higher in low- and middle-income countries, where poverty, food insecurity, infectious diseases, and limited access to quality maternal health services intersect to exacerbate nutritional deficiencies (Balarajan et al., 2011; Black et al., 2013).

Sub-Saharan Africa bears the greatest burden of anaemia in pregnancy, with prevalence estimates exceeding 50% in many countries (WHO, 2018). In Ghana, anaemia among pregnant women remains a severe public health concern. Data from the Ghana Demographic and Health Survey (GDHS) consistently indicate that more than 40% of pregnant women are anaemic, exceeding the WHO threshold for a severe public health problem (GSS, GHS, & ICF, 2015; GSS, GHS, & ICF, 2023). Recent analyses of national data further demonstrate persistent regional and socio-economic disparities in anaemia prevalence among women of reproductive age, including pregnant women (Yeboah et al., 2025).

Anaemia in pregnancy is associated with adverse maternal outcomes such as fatigue, reduced work capacity, increased susceptibility to infections, and maternal mortality. For the fetus and newborn, anaemia increases the risk of low birth weight, preterm delivery, intrauterine growth restriction, stillbirth, and impaired cognitive and physical development (Black et al., 2013; WHO, 2016). Pregnancy substantially increases iron and micronutrient

requirements due to expanded maternal blood volume, placental development, and fetal growth. When these increased demands are not met through adequate dietary intake or supplementation, pregnant women become highly susceptible to iron deficiency anaemia (Balarajan et al., 2011; Adu-Afarwuah et al., 2020).

In Ghana, rural women, migrant female head porters (*kayayei*) and low-educated women constitute some of the most nutritionally vulnerable groups in Ghana and experience a disproportionately high burden of anaemia, largely driven by persistent poverty and social disadvantage (Avoada et al., 2021). Among rural women, poverty limits access to diversified diets, quality health services, and essential maternal nutrition interventions, resulting in inadequate intake of iron and other critical micronutrients. Seasonal food insecurity, low household income, and reliance on subsistence farming further exacerbate nutritional deficiencies and increase susceptibility to anaemia (Anlimachie, et al., 2022; Avoada et al., 2021). ). Similarly, migrant *kayayei*, many of whom migrate from impoverished rural communities to urban centres in search of livelihood opportunities, often live and work under precarious conditions characterised by extreme poverty, food insecurity, and limited access to healthcare. Their dependence on low-cost, nutrient-poor foods, irregular meal patterns, and exposure to infections such as malaria and parasitic infestations significantly heighten their risk of iron deficiency anaemia (Avoada et al., 2021). The high prevalence of anaemia among both rural women and *kayayei* reflects broader structural inequalities, where poverty, gender, migration status, and limited social protection intersect to undermine nutritional status and maternal health, particularly among women of reproductive age and pregnant women (Avoada et al., 2021).

In Ghana, the Ghana Health Service has implemented several evidence-based interventions to reduce anaemia in pregnancy. These include routine haemoglobin screening during ANC visits, free iron–folic acid supplementation, intermittent preventive treatment of malaria in pregnancy, deworming, and nutrition education (WHO & UNICEF, 2017; WHO, 2016). Despite these efforts, anaemia prevalence remains high, suggesting persistent gaps in knowledge, perception, dietary practices, adherence to supplementation, and health-seeking behaviour (Anlaaku & Anto, 2017; Wemakor, 2019).

Knowledge and perception of anaemia play a critical role in shaping pregnant women’s dietary choices, utilisation of ANC services, and compliance with preventive measures such as iron–folic acid supplementation. However, empirical data on these factors remain limited in many districts of Ghana, including the Asutifi North District of the Ahafo Region. This study therefore aimed to assess the knowledge and perception of anaemia, dietary practices, and pregnancy-related factors associated with anaemia among pregnant women attending ANC at Kenyasi Hospital.

## METHODS

### Study Design and Setting

A descriptive cross-sectional study was conducted at Kenyasi Hospital, a Ghana Health Service facility and the main referral hospital in the Asutifi North District of the Ahafo Region. The hospital serves both urban and rural communities and provides routine antenatal care services five days a week. The district is predominantly agrarian, with a significant proportion of women engaged in informal economic activities, which may influence dietary diversity and access to healthcare services.

### Study Population and Sampling Technique

The study population comprised pregnant women attending antenatal care at Kenyasi Hospital during the study period. Women who were critically ill or in labour at the time of data collection were excluded to ensure participant comfort and data quality. The sample size was determined using Yamane’s formula based on an estimated ANC population of 2,152 pregnant women. Although an initial sample size of 374 was calculated, logistical and time constraints resulted in the successful recruitment of 258 respondents. Convenience sampling was employed due to the facility-based nature of the study, a method commonly used in similar ANC-based studies in Ghana (Anlaaku & Anto, 2017; Wemakor, 2019).

### Data Collection Instrument

Data were collected using a structured interviewer-administered questionnaire developed from relevant literature and previous studies on anaemia in pregnancy (Owiredu et al., 2012; Nonterah et al., 2019). The questionnaire

consisted of four sections: socio-demographic characteristics, knowledge and perception of anaemia, pregnancy-related health conditions and dietary practices assessed through a 24-hour dietary recall

The tool was pretested among pregnant women attending ANC at a nearby health facility to ensure clarity and cultural appropriateness. Interviews were conducted in English or translated into Twi where necessary.

### **Data Analysis**

Completed questionnaires were coded and entered into Microsoft Excel before being exported to STATA version 16 for analysis. Descriptive statistics, including frequencies and percentages, were used to summarise sociodemographic characteristics, knowledge levels, dietary practices, and pregnancy-related health conditions.

### **Ethical Considerations**

Ethical approval was obtained from the management of Kenyasi Hospital. Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were strictly maintained throughout the study.

## **RESULTS**

### **Socio-Demographic Characteristics**

The majority of respondents were below 30 years of age, reflecting the reproductive age distribution typical of ANC attendees in Ghana. A substantial proportion had attained secondary education, while a smaller proportion had no formal education. Most participants were married and engaged in self-employment or informal economic activities, consistent with the socio-economic profile of the district (GSS et al., 2023).

### **Knowledge and Perception of Anaemia**

Approximately 46.5% of respondents demonstrated good knowledge of anaemia in pregnancy, correctly identifying it as a condition related to low blood levels. Many respondents recognised paleness, fatigue, and dizziness as common symptoms of anaemia. However, misconceptions regarding causes and prevention were evident. Some respondents attributed anaemia primarily to inappropriate eating behaviours or spiritual causes rather than micronutrient deficiency, infections, or increased physiological demands during pregnancy. Similar misconceptions have been reported in other studies in Ghana and sub-Saharan Africa (Anlaaku & Anto, 2017; Nonterah et al., 2019).

### **Pregnancy-Related Health Conditions**

About 15% of respondents reported experiencing pregnancy-related health conditions, including malaria, persistent vomiting, dizziness, and hypertension. These conditions are known risk factors for anaemia and may worsen maternal outcomes when not promptly managed, particularly in malaria-endemic settings (AduAfarwuah et al., 2020; Asare et al., 2024).

### **Dietary Practices**

Dietary assessment revealed high consumption of cereals and oils but low intake of iron-rich foods such as meat, fish, and other animal-source foods. Consumption of fruits and vegetables rich in vitamin C was infrequent, potentially reducing iron absorption. These findings align with previous studies highlighting poor dietary diversity among pregnant women in Ghana (Owiredu et al., 2012; Wemakor, 2019).

## **DISCUSSION**

The findings of this study indicate that while a moderate proportion of pregnant women attending ANC at Kenyasi Hospital possess basic knowledge of anaemia, significant gaps remain in accurate understanding and preventive practices. The level of knowledge observed is comparable to findings from similar studies conducted in Ghana and other sub-Saharan African countries (Anlaaku & Anto, 2017; Nonterah et al., 2019). This suggests

that routine ANC education has improved general awareness but remains insufficient to correct misconceptions and promote effective prevention.

Dietary inadequacy emerged as a major concern, with limited consumption of iron-rich foods and vitamin C-rich fruits. Economic constraints, cultural food preferences, and limited nutrition counselling may explain these patterns (Balarajan et al., 2011; Adu-Afarwuah et al., 2020). Pregnancy-related illnesses such as malaria further compound the risk of anaemia, particularly in malaria-endemic regions (Asare et al., 2024; Kwakye-Nti et al., 2025).

## CONCLUSION

Anaemia in pregnancy remains a significant public health problem among pregnant women attending antenatal care at Kenyasi Hospital. Although a considerable proportion of respondents demonstrated general awareness of anaemia, gaps in accurate knowledge, dietary practices, and preventive behaviours persist. Poor dietary diversity, pregnancy-related illnesses, and delayed utilisation of antenatal services were identified as key contributing factors.

## Study Limitations and Affordances for Future Research

This study was limited by its cross-sectional design and convenience sampling approach, which restrict causal inference and generalisability. The absence of biochemical measurements prevented objective assessment of anaemia prevalence. Future studies should incorporate longitudinal designs, biochemical assessments, and qualitative methods to explore cultural beliefs and health system barriers influencing anaemia prevention.

## RECOMMENDATIONS

Strengthening antenatal nutrition education, promoting early ANC attendance, reinforcing adherence to iron-folic acid supplementation, and enhancing malaria prevention strategies are critical to reducing anaemia in pregnancy. Community-based health promotion initiatives involving local leaders and media should be leveraged to address persistent misconceptions and improve maternal nutrition practices.

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