

Research Article

Predictive Factors of Malnutrition Among Pregnant Women in Cape Coast Teaching Hospital

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Abstract

Maternal malnutrition remains a critical public health concern in many low- and middle-income countries, including Ghana, where it contributes to adverse pregnancy outcomes such as anemia, low birth weight, preterm delivery, and increased maternal mortality. This study investigated the predictive factors of malnutrition among pregnant women attending antenatal care at the Cape Coast Teaching Hospital (CCTH). Guided by the Social Determinants of Health (SDH) framework, the research examined the influence of socio-cultural norms, economic determinants, and healthcare accessibility and quality on maternal nutritional status. A descriptive cross-sectional design was employed, involving 100 pregnant women selected purposively from an estimated population of 245 attending antenatal care at CCTH in 2024. Data were collected using structured questionnaires covering socio-demographic characteristics, socio-cultural beliefs, economic challenges, and healthcare service access. Descriptive and inferential statistics were conducted using the Statistical Package for the Social Sciences (SPSS). Findings revealed that economic constraints were the most significant predictors of malnutrition. Financial limitations, high food costs, and unstable employment reduced women's ability to afford nutrient-rich foods, despite awareness of recommended dietary practices. Socio-cultural factors such as food taboos and family influences persisted but had a moderate effect compared to economic barriers. Notably, many women reported adhering to balanced dietary advice from healthcare professionals, reflecting the growing impact of health education in urban settings. Healthcare accessibility was relatively high, with most respondents attending regular prenatal visits; however, gaps in the adequacy and consistency of nutritional counseling limited its effectiveness in mitigating cultural and financial barriers. The study concludes that malnutrition among pregnant women in Cape Coast is shaped by a complex interplay of economic hardship, cultural practices, and healthcare service quality. Integrated interventions, including targeted financial support, culturally sensitive nutrition education, and strengthened prenatal counseling, are recommended to improve maternal and child health outcomes.

Keywords

Malnutrition, Pregnant, Women, Antenatal, Economic, Predictors, Healthcare

1. Introduction

Nutrition during pregnancy plays a pivotal role in safeguarding the health and well-being of both mothers and their unborn children. Adequate intake of macronutrients and es-

sential micronutrients, including iron, folic acid, calcium, and vitamins, is critical for fetal development and for reducing complications such as low birth weight, preterm birth, con-

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genital anomalies, and maternal mortality [23, 1]. Despite widespread awareness of these nutritional requirements, malnutrition among pregnant women remains a persistent challenge, particularly in low- and middle-income countries (LMICs) where socioeconomic inequalities, cultural beliefs, and systemic healthcare barriers converge to undermine maternal health outcomes.

In Ghana, maternal malnutrition continues to be a significant public health issue. The [6, 22] reports notable rates of anemia and other micronutrient deficiencies among pregnant women. Factors contributing to this challenge are multifaceted: economic limitations restrict access to diverse, nutrient-rich foods; cultural food taboos influence dietary choices; and gaps in the accessibility and quality of prenatal healthcare services often leave women without adequate nutritional counseling [21, 9]. These determinants underscore the importance of localized research to identify the most pressing predictive factors of malnutrition, particularly in urban centers where the pressures of modern living intersect with traditional practices.

Cape Coast, a coastal city in Ghana's Central Region, illustrates this complexity vividly. The Cape Coast Teaching Hospital, as a major referral facility, serves a diverse population that includes both indigenous residents and migrants. While the region benefits from access to coastal foods like fish, studies suggest that economic hardships, cultural beliefs about food consumption during pregnancy, and limited educational attainment continue to contribute to nutritional deficiencies among pregnant women [21, 19].

Despite existing literature highlighting the global and national drivers of maternal malnutrition, there remains a notable gap in empirical data specifically focused on the Cape Coast Teaching Hospital. Understanding localized socio-cultural norms, economic constraints, and healthcare accessibility challenges is essential to designing effective interventions that address malnutrition in contextually relevant ways.

This study therefore seeks to investigate the predictive factors of malnutrition among pregnant women attending antenatal care at Cape Coast Teaching Hospital. Specifically, it examines the extent to which socio-cultural norms, economic determinants, and the quality and accessibility of healthcare services contribute to malnutrition. By shedding light on these factors, the study aims to inform targeted policy and programmatic interventions to improve maternal nutrition and ultimately, maternal and child health outcomes in Cape Coast and similar urban settings.

2. Literature Review

2.1. Theoretical Framework

The study is grounded in the Social Determinants of Health (SDH) model proposed by the [23]. The SDH model posits that health outcomes are shaped not solely by biological fac-

tors but significantly by the social, economic, and environmental contexts in which individuals live. According to this framework, malnutrition among pregnant women is not just a matter of individual choice or biological need but is profoundly influenced by a web of interconnected external factors. With regards to this study, three central theoretical domains derived from the SDH model guide the exploration of predictive factors of malnutrition. These are socio-cultural factors, economic issues and healthcare accessibility and quality.

Rooted in cultural theories, the socio-cultural factors explain how shared beliefs, traditions, and norms shape individual behavior, this component assumes that food taboos, family influence, and traditional dietary practices directly and indirectly affect pregnant women's nutritional choices. For instance, restrictions against consuming eggs or fish common in some Ghanaian communities can limit dietary diversity and contribute to micronutrient deficiencies. In addition, the economic determinants are based on economic theories of resource allocation and household food security. This domain posits that household income, employment status, and food prices significantly influence pregnant women's ability to access and afford nutritious foods. Low income and high food costs can force households to prioritize cheaper, less nutritious options, directly increasing malnutrition risk. Furthermore, healthcare accessibility and quality are informed by health services utilization theory which recognizes that even when women have knowledge about proper nutrition, the quality and accessibility of healthcare services including prenatal nutritional counseling are critical. Consistent, culturally sensitive counseling and supplementation can buffer the effects of economic hardship and cultural restrictions.

It must be noted that these domains are theorized to interact dynamically rather than act in isolation. Economic hardship can amplify the effect of harmful socio-cultural norms if women cannot afford alternative nutritious foods. High-quality, accessible healthcare services may help mitigate cultural taboos and economic barriers by equipping women with knowledge and supplements. Socio-cultural factors can moderate how women perceive and act on health information from healthcare providers. By applying the SDH model, this study conceptualizes malnutrition among pregnant women at Cape Coast Teaching Hospital as an outcome shaped by multi-level social, economic, and healthcare-related factors.

2.2. Conceptual Issues

2.2.1. Maternal Malnutrition: A Global and Local Concern

Malnutrition during pregnancy remains a significant global health issue, particularly in low- and middle-income countries (LMICs), where it contributes to adverse maternal and neonatal outcomes, including anemia, low birth weight, preterm birth, and increased maternal mortality [10, 23]. Maternal malnutrition includes undernutrition, micronutrient deficien-

cies, and, increasingly, over nutrition due to changing dietary patterns [10, 5]. In Ghana, the [6] highlights persistent nutritional challenges, with many pregnant women experiencing iron deficiency and inadequate dietary diversity.

2.2.2. Socio-cultural Determinants of Malnutrition

Socio-cultural factors, such as food taboos, traditional dietary practices, family norms, and social pressure, often shape maternal dietary behavior [19]. In many Ghanaian communities, pregnant women may avoid nutrient-rich foods like eggs, fish, or meat due to beliefs that these foods could harm the fetus or complicate delivery [21]. Studies show that family members, particularly elders, may reinforce these practices, limiting dietary diversity and contributing to micronutrient deficiencies [8]. However, evidence also indicates that education and exposure to modern healthcare messages can mitigate these cultural influences, particularly in urban areas [2, 6].

2.2.3. Economic Determinants of Malnutrition

Economic hardship is a major barrier to adequate maternal nutrition. Limited household income, high food prices, and inflation constrain pregnant women's ability to purchase nutrient-dense foods, leading to dietary inadequacies [15, 24]. Food insecurity remains prevalent, especially among low-income households in urban Ghana, exacerbating the risk of undernutrition and micronutrient deficiencies [23]. Stable employment and economic empowerment initiatives, such as cash transfer programs, have been shown to improve maternal nutrition by increasing purchasing power and dietary diversity [16, 18].

2.2.4. Healthcare Accessibility and Quality

Access to quality prenatal care is essential for preventing and managing malnutrition. Adequate healthcare services provide opportunities for nutritional counseling, supplementation (e.g., iron and folic acid), and monitoring [12, 23]. However, in many LMIC contexts, including parts of Ghana, challenges such as inconsistent nutritional counseling, limited resources, and distance to health facilities reduce the effectiveness of prenatal care [4, 7]. Studies emphasize that when healthcare services integrate consistent, culturally sensitive nutrition education, maternal dietary practices improve [17].

2.2.5. Interventions and Integrated Approaches

Addressing malnutrition requires multisectoral strategies. Direct interventions, such as micronutrient supplementation and food fortification, have been successful in reducing anemia and certain birth defects [9]. Social protection measures, including food assistance and conditional cash transfers, reduce economic barriers [18]. Education and behavioral change communication campaigns targeting harmful cultural beliefs have also shown promise [20]. Finally, integrating nutrition services into primary healthcare and com-

munity programs enhances reach and sustainability [3]. While global and national studies have identified broad determinants of maternal malnutrition, there remains limited localized evidence specific to the Cape Coast Teaching Hospital and similar urban Ghanaian settings. In particular, there is a lack of empirical research exploring the combined effects of socio-cultural norms, economic hardship, and healthcare quality on pregnant women's nutritional status in this context.

3. Methodology

This study employed a descriptive cross-sectional design to investigate the predictive factors of malnutrition among pregnant women attending antenatal care at Cape Coast Teaching Hospital, Ghana. A quantitative approach was adopted to systematically describe existing conditions and identify patterns and associations between socio-cultural, economic, and healthcare-related factors and malnutrition. The research was conducted at Cape Coast Teaching Hospital, a major healthcare facility in Ghana's Central Region serving both urban and peri-urban communities. The study population comprised all pregnant women receiving antenatal care at the hospital during the data collection period. According to records from the [13], the estimated number of pregnant women attending antenatal care at the hospital was 245.

A simple random sampling technique was employed to select participants. The sample size was determined using the [14] formula, which is suitable for finite populations. Given the total population of 245, the calculated sample was 100 pregnant women. Primary data were collected using a structured questionnaire developed specifically for the study. The questionnaire consisted of four sections, Socio-demographic characteristics (e.g., age, education level, marital status, employment, and household income), and Socio-cultural factors influencing malnutrition, Economic determinants contributing to malnutrition, and Accessibility and quality of healthcare services. The questions were closed-ended, using multiple-choice and Likert scale formats to facilitate quantitative analysis.

Prior to data collection, permission was sought from hospital administrators. Data were collected daily between 10:00 a.m. and 5:00 p.m. through face-to-face administration of questionnaires. For participants with limited literacy, questions were translated into preferred local languages, and responses were recorded by the researchers. Informed consent was obtained from all participants before participation. Completed questionnaires were checked for completeness and consistency. Data were then coded and entered into SPSS (Statistical Package for the Social Sciences) for analysis. Descriptive statistics, including frequencies and percentages, were used to summarize socio-demographic data and responses to key variables. Inferential analysis was performed to explore relationships between socio-cultural, economic, and healthcare factors and malnutrition outcomes among the study participants.

4. Results and Discussions

4.1. Socio-demographic Characteristics of Respondents

A total of 100 pregnant women participated in the study. The majority (52%) were aged 20-29 years, followed by 34% aged 30-39 years. Regarding educational attainment, 40% had primary education, 24% secondary, 12% tertiary education, while 24% had no formal education. In terms of marital status, 46% were single, 40% married, 10% divorced, and 4% widowed. Employment status showed that 30% were employed full-time, 24% part-time, 20% self-employed, 20% students, and 6% unemployed. Household income data revealed that nearly half of respondents (46%) earned between GHS 500-999, while only 14% earned GHS 2,000 or more. Additionally, 60% of respondents had two or more children.

4.2. Socio-cultural Factors Influencing Malnutrition

Analysis of socio-cultural factors (Table 1) indicated moderate adherence to traditional dietary practices during pregnancy (Mean = 2.12, SD = 1.27). Family beliefs influencing food choices had a similar mean score (2.14, SD = 1.15). Cultural restrictions on the consumption of certain foods (e.g., meat or eggs) were reported with a mean of 2.22 (SD = 1.03). Interestingly, respondents reported relatively high adherence to consuming balanced diets as recommended by health professionals (Mean = 3.14, SD = 1.24). Social pressure affecting nutritional choices scored moderately (Mean = 3.00, SD = 1.26). These findings suggest that while cultural norms exist, their influence on malnutrition is less pronounced compared to economic factors.

Table 1. Socio-cultural Factors Influencing Malnutrition.

	N	Mean	Std. Deviation
I adhere to specific traditional dietary practices during pregnancy	100	2.1200	1.26555
My family's beliefs influence my food choices during pregnancy	100	2.1400	1.15488
Cultural beliefs in my community restrict the consumption of certain foods during pregnancy	100	2.2200	1.03064
I consume a balanced diet during pregnancy as recommended by health professionals	100	3.1400	1.23926
Social pressure affects my nutritional choices during pregnancy.	100	3.0000	1.25529
There are specific foods that are considered taboo for pregnant women in my community	100	2.5400	1.33651
Valid N (listwise)	100		

Source: field data, 2025.

While socio-cultural factors such as traditional dietary practices and food taboos were reported among respondents, their overall influence was less pronounced compared to economic constraints. Most pregnant women did not adhere strictly to cultural food restrictions, and many reported following balanced dietary advice from healthcare professionals. This aligns with recent urban-focused studies [11, 2] that have found a gradual decline in adherence to restrictive traditional practices among urban populations, possibly due to increased exposure to health education and shifting social norms. However, the persistence of some food taboos and social pressures suggests that cultural beliefs still pose localized barriers for a subset of pregnant women. These beliefs may continue to limit consumption of nutrient-rich foods like eggs, fish, and meat, contributing to micronutrient deficiencies [19]. Culturally sensitive education campaigns remain essential to challenge misconceptions while respecting local traditions.

4.3. Economic Determinants Contributing to Malnutrition

Economic constraints emerged as significant contributors to malnutrition (Table 2). Financial challenges preventing the purchase of recommended foods had a high mean score (3.76, SD = 0.98). Similarly, the high cost of healthy foods was perceived as a major barrier (Mean = 3.82, SD = 0.94). Respondents generally agreed that economic difficulties affected their ability to maintain nutritious diets during pregnancy (Mean = 3.81, SD = 0.79). Despite these challenges, most respondents reported being able to afford prenatal supplements (Mean = 3.78, SD = 0.95). Employment status as a source of sufficient resources to maintain nutrition had the highest mean score among economic variables (4.08, SD = 0.80), highlighting the protective effect of stable income.

Table 2. *Economic Determinants Contributing to Malnutrition.*

	N	Mean	Std. Deviation
My household income is sufficient to purchase nutritious food during pregnancy	100	3.6200	1.11718
Financial constraints prevent me from buying the recommended foods during pregnancy	100	3.7600	.97566
The of Healthy foods is a barrier to maintaining a balanced diet during	100	3.8200	.93614
I can afford prenatal supplement or vitamins recommended by healthcare	100	3.7800	.94900
Economic challenges affect my ability to follow a nutritious diet during pregnancy.	100	3.8100	.78746
My employment status provides me with sufficient resources to maintain a	100	4.0800	.80000
Valid N (listwise)	100		

Source: field data, 2025

Consistent with earlier studies (e.g., [10, 24]), this study identified economic constraints as the most significant drivers of malnutrition. A substantial proportion of respondents reported that financial challenges limited their ability to purchase recommended foods, with the high cost of nutritious food items emerging as a prominent barrier. This reflects broader trends in low- and middle-income countries where food price inflation and low household income directly compromise dietary diversity and quality [15]. The relatively high mean score for employment status as a source of sufficient resources also highlights the protective effect of stable income, supporting previous evidence that women with reliable earnings can better meet their increased nutritional needs during pregnancy [6]. These findings underscore the urgent need for economic interventions, such as targeted subsidies, food vouchers, and employment support, to alleviate financial barriers and improve maternal nutrition.

4.5. Accessibility and Quality of Healthcare Services

Healthcare accessibility and service quality were assessed (Table 3). Respondents generally reported good access to prenatal care services (Mean = 3.80, SD = 1.24) and regular attendance at appointments where nutritional needs were assessed (Mean = 3.78, SD = 1.03). However, perceptions of the adequacy of nutritional counseling during these visits were lower (Mean = 3.65, SD = 1.12). Satisfaction with nutritional advice provided by healthcare professionals had a mean score of 3.78 (SD = 1.03). These findings suggest that while access to healthcare is relatively high, there remain gaps in the consistency and quality of nutritional counseling provided.

Table 3. *Accessibility and Quality of Healthcare Services.*

	N	Mean	Std. Deviation
I have easy access to prenatal care services in my community	100	3.8000	1.23909
I regularly attend prenatal appointments where my nutritional needs are assessed	100	3.7800	1.03064
Healthcare service in my area provide adequate nutritional counseling for pregnant women	100	3.6500	1.12254
I receive information about proper nutrition from healthcare providers during pregnancy	100	3.7400	.98083
I find it easy to access healthcare facilities for prenatal services	100	3.6800	1.06249
The quality of prenatal care services in my community is high	100	3.6500	1.12254
I am satisfied with the nutritional advice provided by healthcare professionals during pregnancy	100	3.7800	1.03064
Valid N (listwise)	100		

Source: field data, 2025.

The study found that access to prenatal healthcare services was generally high, with most women attending regular ap-

pointments where nutritional needs were assessed. However, the adequacy and consistency of nutritional counseling during these visits were rated lower. This supports previous research [4, 7] indicating that while Ghana's maternal healthcare system has expanded coverage, gaps remain in the quality and depth of nutrition-focused interventions. Limited or inconsistent nutritional counseling may leave pregnant women uncertain about optimal dietary practices, particularly those navigating economic hardship. Strengthening the capacity of healthcare providers to deliver practical, context-sensitive nutritional advice could address this gap and empower women to make informed choices.

The study highlights that malnutrition among pregnant women in Cape Coast is shaped by multi-dimensional factors that interact with one another. Economic challenges intensify the impact of socio-cultural norms and constrain the ability to act on health advice, while gaps in healthcare quality limit the potential of nutritional counseling to overcome cultural or financial barriers. This reflects the broader understanding that addressing malnutrition requires an integrated approach encompassing social, economic, and health system interventions [9, 3].

5. Conclusions and Recommendations

The findings highlight that economic factors particularly low household income, high food prices, and financial constraints are the most significant predictors of malnutrition in this context. These economic challenges limit pregnant women's ability to purchase and consume balanced diets, even when nutritional knowledge is present. While socio-cultural norms such as traditional dietary practices, food taboos, and family beliefs remain relevant, their impact appears less pronounced among urban women who are increasingly guided by healthcare recommendations and modern nutritional knowledge. Nevertheless, these cultural factors still affect dietary choices among some women, especially those with lower educational attainment.

The study also found that access to prenatal healthcare services is relatively high for most respondents. However, gaps persist in the quality and consistency of nutritional counseling provided during antenatal visits, limiting its potential to influence dietary behavior effectively particularly for economically disadvantaged women. The study concludes that malnutrition among pregnant women in Cape Coast is driven by a complex interplay of economic hardship, cultural influences, and limitations within the healthcare system. Addressing these challenges requires integrated, context-specific interventions: financial and food support for low-income households; culturally sensitive nutrition education to challenge harmful food taboos; and strengthened prenatal nutrition counseling that accounts for local realities. These findings emphasize the need for policy actions and programmatic strategies tailored to the specific social and economic context of pregnant women in Cape Coast Teaching Hospital, to ensure healthier pregnancies and better outcomes for mothers

and children alike.

Abbreviations

ANC	Antenatal Care
CCTH	Cape Coast Teaching Hospital
FAO	Food and Agriculture Organization
GHS	Ghana Health Service
GSS	Ghana Statistical Service
IFAD	International Fund for Agricultural Development
LMICs	Low- and Middle-Income Countries
SDH	Social Determinants of Health
SPSS	Statistical Package for the Social Sciences
UNICEF	United Nations International Children's Emergency Fund
WFP	World Food Programme
WHO	World Health Organization

Author Contributions

Samuel Otoo is the sole author. The author read and approved the final manuscript.

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Conflicts of Interest

The author declares no conflicts of interest.

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