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Comparative Analysis of Maternal Knowledge and Practices on Child Malnutrition in Rural and Urban Communities in the Western Region of Ghana

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Abstract

Child malnutrition remains a critical public health concern in Ghana, with varying maternal responses across different settings. This study compares maternal knowledge, practices, and misconceptions about malnutrition between rural and urban mothers in the Western Region of Ghana. A total of 400 mothers, 200 from each setting, were surveyed using structured questionnaires. Results showed that urban mothers had significantly higher knowledge about malnutrition signs and causes and were more likely to practice exclusive breastfeeding, maintain hygiene, and offer diverse diets. Rural mothers, on the other hand, exhibited more misconceptions, with a higher prevalence of beliefs in spiritual causes, teething, and witchcraft as drivers of malnutrition. Logistic regression revealed that urban residence, maternal education, and access to nutrition information were strong predictors of good nutritional practices. The study highlights the importance of targeted, context-specific health education to bridge the rural–urban gap in child nutrition outcomes.

Keywords: maternal knowledge, rural–urban disparity, child malnutrition, Ghana, preventive practices, health beliefs, nutrition education

Introduction

Malnutrition among children under five continues to be a pressing public health issue in Ghana and across many sub-Saharan African countries. It contributes significantly to childhood morbidity, delayed development, and in severe cases, early mortality. While national programs have been developed to address these issues, the effectiveness of such efforts often depends on local-level knowledge, cultural beliefs, and maternal practices. These, in turn, vary greatly between urban and rural settings, especially in regions like the Western Region of Ghana, where socioeconomic conditions and access to healthcare differ sharply between communities.

Mothers are typically the primary caregivers of children and play a vital role in preventing malnutrition through practices such as exclusive breastfeeding, appropriate complementary feeding, and maintaining food hygiene. However, their ability to make informed decisions often depends on the information they

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receive, their educational background, and the sociocultural environment in which they live. Urban areas tend to have more accessible health facilities, greater exposure to mass media, and higher literacy levels, all of which may support improved maternal knowledge and health behavior (Black et al., 2013; Fenta et al., 2022). Conversely, rural communities, despite often being targeted by community-based health services, may face challenges such as traditional food taboos, poverty, and low female education levels, which can contribute to misconceptions and poor feeding practices (Osei-Kwasi et al., 2022; Ghosh et al., 2021).

Studies have shown that rural mothers may associate malnutrition with teething, spiritual causes, or maternal neglect, and may delay seeking professional medical advice (Nti, 2008; Darteh et al., 2014). Urban mothers, although more exposed to accurate health information, may still fall short in practices due to urban poverty, time constraints, or overcrowded living conditions (Sharma et al., 2017). Despite the importance of these observations, few studies have systematically compared maternal knowledge and practices across both settings within the same region, using a structured and statistically grounded approach.

The Western Region of Ghana provides a suitable setting for such a study due to its combination of urban municipalities like Takoradi and rural towns like Asankrangwa, which represent different ends of the access-to-care spectrum. This study aims to assess and compare maternal knowledge of malnutrition, awareness of its signs and symptoms, preventive practices, and misconceptions between rural and urban mothers. It further examines the extent to which maternal education, access to health services, and income levels influence these differences.

By focusing on intra-regional disparities, this research provides evidence for more tailored interventions. A better understanding of the specific gaps that exist in different locations can help policymakers, nutrition educators, and healthcare providers strengthen their approach to maternal and child nutrition in Ghana.

Methodology

Study Design

This was a cross-sectional comparative study conducted between January and March 2025. The study sought to examine differences in maternal knowledge and practices related to malnutrition among mothers from both rural and urban communities in the Western Region of Ghana.

Study Areas

The research was carried out in two selected communities. Asankrangwa was chosen to represent a rural setting, while Takoradi was selected as the urban comparison site. Asankrangwa is located in the Amenfi West Municipality, where access to healthcare is largely dependent on community clinics and outreach programs. Takoradi, the regional capital, has several health facilities, including

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hospitals, and higher exposure to public health campaigns through media.

Study Population and Sampling

The study targeted mothers with at least one child under five years of age who had visited a selected health facility in either Asankrangwa or Takoradi during the data collection period. A total of 400 participants were recruited, consisting of 200 mothers from each site. A systematic random sampling technique was used. At each facility, mothers were approached at regular intervals during child welfare clinics. Inclusion criteria required that participants had resided in the area for at least one year and provided informed consent.

Data Collection Instrument

A structured questionnaire was used to collect data. The tool was developed in English and translated into Twi for participants who preferred the local language. The questionnaire included sections on socio-demographic characteristics, knowledge of malnutrition causes and symptoms, preventive practices such as breastfeeding and complementary feeding, and beliefs or misconceptions about child nutrition. The instrument was adapted from validated nutrition knowledge surveys used in similar African studies (Adugna, 2022; Feleke et al., 2021).

Validity and Reliability

The questionnaire was pretested on 20 mothers from a clinic not included in the final sample to ensure clarity and cultural relevance. Feedback was used to revise ambiguous items. Internal consistency for Likert-based knowledge and practice items was assessed using Cronbach's alpha. A coefficient of 0.81 was obtained, indicating good reliability.

Data Analysis

Data were entered into SPSS version 25.0 for analysis. Descriptive statistics such as frequencies, means, and percentages were used to summarize the responses. Chi-square tests were used to assess associations between categorical variables, such as location (urban versus rural) and knowledge level. Independent samples t-tests were applied to compare mean scores of knowledge and practice variables across the two settings. Multivariate logistic regression was conducted to identify predictors of good nutritional practice while controlling for confounders such as education, income, and access to healthcare. A p-value less than 0.05 was considered statistically significant.

Ethical Considerations

Ethical clearance for the study was obtained from the Research Ethics Committee of the Western Regional Health Directorate. Written informed consent was obtained from all participants. Respondents were assured of confidentiality, voluntary participation, and their right to withdraw at any stage. No names or personal identifiers were collected during the interview process.

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Results

Table 1: Socio-demographic Characteristics of Respondents (N = 400)

Variable	Category	Urban (n = 200)	Rural (n = 200)	Total (N = 400)
Age (years)	<20	8 (4.0%)	14 (7.0%)	22 (5.5%)
	20–29	88 (44.0%)	92 (46.0%)	180 (45.0%)
	30–39	72 (36.0%)	63 (31.5%)	135 (33.8%)
	40–49	32 (16.0%)	31 (15.5%)	63 (15.8%)
Education Level	No formal education	31 (15.5%)	91 (45.5%)	122 (30.5%)
	Primary	68 (34.0%)	60 (30.0%)	128 (32.0%)
	Secondary	72 (36.0%)	38 (19.0%)	110 (27.5%)
	Tertiary	29 (14.5%)	11 (5.5%)	40 (10.0%)
Employment Status	Unemployed	36 (18.0%)	52 (26.0%)	88 (22.0%)
	Informal work	109 (54.5%)	123 (61.5%)	232 (58.0%)
	Formal work	55 (27.5%)	25 (12.5%)	80 (20.0%)

Source: Field Data (2025)

The socio-demographic data reveals significant differences between urban and rural respondents. While both groups were mostly composed of women aged 20 to 39, education levels varied sharply. Only 15.5 percent of urban mothers had no formal education compared to 45.5 percent of rural mothers. Tertiary education was more common among urban mothers. Formal employment was also higher in urban areas (27.5 percent) than rural areas (12.5 percent), suggesting stronger economic opportunities in urban settings. These differences may influence mothers' access to information and ability to act on health recommendations.

Table 2: Maternal Knowledge of Malnutrition Causes and Signs (N = 400)

Knowledge Indicator	Urban (n = 200)	Rural (n = 200)	Chi-square (χ^2)	p-value

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Identifies poor diet as cause	178 (89.0%)	129 (64.5%)	32.41	<0.001
Identifies frequent illness as sign	141 (70.5%)	116 (58.0%)	7.07	0.008
Identifies weight loss as symptom	159 (79.5%)	126 (63.0%)	13.33	<0.001
Knows edema is a sign	51 (25.5%)	11 (5.5%)	29.48	<0.001

Source: Field Data (2025)

Urban mothers demonstrated significantly better knowledge of malnutrition causes and signs compared to their rural counterparts. Almost 90 percent of urban respondents recognized poor diet as a key cause, compared to 64.5 percent in rural areas. Recognition of edema, a critical sign of severe malnutrition, was very low in both groups but especially poor in rural communities (5.5 percent). These differences were all statistically significant at $p < 0.01$, suggesting real disparities in maternal understanding of malnutrition across settings.

Table 3: Preventive Practices of Mothers by Residence (N = 400)

Practice	Urban (n = 200)	Rural (n = 200)	Chi-square (χ^2)	p-value
Practiced exclusive breastfeeding (6 months)	129 (64.5%)	94 (47.0%)	12.74	<0.001
Started complementary feeding at 6 months	145 (72.5%)	112 (56.0%)	11.31	0.001
Regular handwashing with soap	132 (66.0%)	89 (44.5%)	17.96	<0.001
Provides ≥3 food groups per meal	93 (46.5%)	52 (26.0%)	18.94	<0.001

Source: Field Data (2025)

Urban mothers consistently practiced better preventive measures compared to rural mothers. The most significant gaps were seen in dietary diversity and hygiene. Only 26 percent of rural mothers reported feeding their children from at least three food groups compared to 46.5 percent of urban mothers. Exclusive breastfeeding and appropriate complementary feeding also showed significant variation. These findings reflect both knowledge disparities and structural barriers in rural environments that limit effective practice.

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Table 4: Misconceptions About Malnutrition by Residence (N = 400)

Misconception	Urban (n = 200)	Rural (n = 200)	Chi-square (χ^2)	p-value
Malnutrition is caused by teething	97 (48.5%)	145 (72.5%)	23.21	<0.001
Malnutrition is due to spiritual attack	71 (35.5%)	128 (64.0%)	31.74	<0.001
Witchcraft can cause weight loss in children	54 (27.0%)	104 (52.0%)	24.79	<0.001
Only poor families have malnourished children	69 (34.5%)	124 (62.0%)	28.92	<0.001

Source: Field Data (2025)

Misconceptions were notably more prevalent among rural mothers. Belief in spiritual causes, witchcraft, and teething as drivers of malnutrition were all significantly higher in rural areas. Over 70 percent of rural respondents associated teething with malnutrition, compared to 48.5 percent of urban respondents. This underscores the need for more targeted myth-debunking interventions in rural health education.

Table 5: Logistic Regression – Predictors of Good Malnutrition Prevention Practice

Variable	Adjusted Odds Ratio (AOR)	95% Confidence Interval (CI)	p-value
Urban residence	2.31	1.48–3.61	<0.001
Secondary education or higher	3.24	2.01–5.18	<0.001
Access to nutrition information	2.72	1.69–4.37	<0.001
Belief in spiritual causes	0.41	0.27–0.63	<0.001

Source: Field Data (2025)

The logistic regression model shows that urban mothers were more than twice as likely to engage in good nutritional practices compared to rural mothers. Education also played a strong role. Mothers with secondary or higher education were over three times more likely

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to follow appropriate practices. Access to nutrition information was a strong positive predictor. Interestingly, belief in spiritual causes significantly reduced the likelihood of good practice. These results highlight the combined influence of residence, education, and belief systems on maternal behavior.

Discussion

This study sought to compare maternal knowledge, preventive practices, and misconceptions about child malnutrition between rural and urban mothers in the Western Region of Ghana. The findings revealed significant disparities in maternal understanding and behavior, shaped by educational background, access to information, and cultural beliefs.

Urban mothers demonstrated significantly higher knowledge of the causes and signs of malnutrition. Nearly 90 percent of urban respondents identified poor diet as a key cause of malnutrition, compared to 64.5 percent in rural areas. This difference may be attributed to better access to formal education and health information in urban centers. Similar patterns have been observed in other parts of Ghana, where educational attainment is closely linked to improved maternal knowledge and child health outcomes (Black et al., 2013; Osei-Kwasi et al., 2022). The ability to identify key symptoms such as weight loss and frequent illness was also stronger among urban mothers, although knowledge about more severe signs such as edema remained low across both groups.

Preventive practices followed a similar trend. Urban mothers were significantly more likely to report exclusive breastfeeding for six months, timely initiation of complementary feeding, and adherence to handwashing practices. Only 26 percent of rural mothers provided meals containing at least three food groups, compared to 46.5 percent of urban mothers. These practices are crucial in preventing micronutrient deficiencies and ensuring optimal growth (Bhutta et al., 2013). Urban mothers' better performance may reflect not only greater awareness but also more consistent exposure to healthcare professionals and media messages. Rural mothers, in contrast, may experience structural barriers such as limited food variety, irregular contact with health staff, and competing cultural norms that limit behavior change (UNICEF, 2020; Adugna, 2022).

The role of misconceptions in shaping maternal behavior was another striking finding. Rural mothers were far more likely to believe that teething, witchcraft, or spiritual attacks caused malnutrition. More than 70 percent of rural respondents attributed malnutrition to teething, a belief that can delay appropriate care-seeking. These results are consistent with studies in Ethiopia and Nigeria where traditional beliefs were found to interfere with health-seeking behavior and adherence to nutritional advice (Ghosh et al., 2021; Tafere & Woldie, 2019). Urban mothers also held some misconceptions, but at lower frequencies. These beliefs often

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stem from intergenerational transmission of cultural norms and are sustained in environments where formal education is limited.

The logistic regression analysis confirmed that urban residence, secondary or higher education, and access to nutrition information significantly predicted good malnutrition prevention practices. Notably, belief in spiritual causes of malnutrition reduced the likelihood of practicing evidence-based preventive behaviors. These findings reinforce the need to design health promotion campaigns that are not only informative but also address harmful beliefs directly. Culturally sensitive communication, delivered in local languages and through trusted community channels, may help shift perspectives and encourage adoption of healthier practices.

This study highlights the importance of place-based interventions. While both rural and urban communities require nutrition education, the content and delivery must be adapted to the realities of each context. For instance, rural interventions may need to integrate local customs, use community leaders to reinforce messages, and address food insecurity, while urban strategies may focus more on working mothers and urban poverty.

Conclusion

The findings of this study demonstrate that maternal knowledge and practices regarding malnutrition vary significantly between rural and urban communities in the Western Region of Ghana. Urban mothers were generally better informed and more likely to practice recommended behaviors such as exclusive breastfeeding, dietary diversity, and proper hygiene. In contrast, rural mothers exhibited more misconceptions and less consistent preventive practices, influenced by lower education levels and cultural beliefs.

Education, urban residence, and access to health information emerged as key predictors of good nutrition behavior. These results suggest the need for targeted, context-specific health education strategies that address both informational gaps and cultural misconceptions. Interventions must not only provide knowledge but also support behavior change through practical tools, local engagement, and improved access to resources. Bridging the knowledge and practice gap in both rural and urban areas is essential to reducing the burden of childhood malnutrition in Ghana.

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