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Migration patterns and access to reproductive and maternal healthcare among women aged 15–49 years in Ghana: insights from a population-based national survey

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Abstract

Background Maternal health remains a critical public health concern in Ghana, with significant disparities in healthcare access between rural and urban areas. Women in rural regions face a higher risk of maternal mortality, preterm births, and pregnancy complications due to limited health care services. Migration patterns further exacerbate these issues by disrupting access to essential reproductive and maternal services. While some women travel specifically for medical care and later returned, others migrate due to family-related reasons.This study investigates the association between migration patterns and access to reproductive and maternal healthcare services among Ghanaian women aged 15–49.

Methods Data from the 2022 Ghana Demographic Health Survey was used for this study. Bivariate and multivariable logistic regression models were used to investigate the association between migration patterns and access to reproductive and maternal healthcare services.

Results There was no significant association between the migration stream and unmet family planning needs in both unadjusted and adjusted logistic models. The odds of adequate antenatal care were higher among rural to urban, urban to urban, and urban non-migrants than rural non-migrants. In the adjusted model, however, it only remained significant for rural to urban migrants. The odds of institutional delivery were significantly higher among rural to urban and urban to rural migrants than rural non-migrants. However, in the adjusted model, the odds of institutional delivery only remained significant for urban to urban, rural to urban, and urban non-migrants.

Conclusion Migration patterns are associated with access to reproductive and maternity healthcare in Ghana. Women who migrate from urban to urban areas experience the most significant improvement in accessing antenatal care and institutional delivery services. Regardless of migration history, urban residents have better access than rural non-migrants. To improve maternal healthcare, the government should enhance rural healthcare infrastructure and staffing, support rural to urban migrants in navigating urban healthcare, and implement comprehensive maternity education campaigns for all women.

Keywords Internal migration · Reproductive health · Maternity care · Ghana · Women

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Abbreviations

ANC	Antenatal care
aOR	Adjusted odds ratio
OR	Odds ratio
CI	Confidence interval
DHS	Demographic and Health Survey
GDHS	Ghana Demographic and Health Survey

1 Introduction

Maternal health disparities remain a pressing issue in Ghana, with significant variations in birth outcomes across regions. For instance, women in rural areas are less likely to receive skilled delivery care compared to their urban counterparts, resulting in higher maternal and neonatal mortality rates in these regions [1–4]. These disparities are influenced by factors such as proximity to healthcare facilities, socioeconomic inequalities, and availability of skilled healthcare providers [1–4]. Understanding the factors that shape maternal health outcomes, including migration patterns, is essential for addressing these disparities.

Migration, both internal and international, has the potential to influence maternal and reproductive health outcomes in various ways. On one hand, migration can expose women to new opportunities, such as improved healthcare infrastructure and increased knowledge and utilisation of reproductive healthcare services [5–7]. On the other hand, migration can also present challenges, including disruption of social networks, unfamiliarity with healthcare systems, and economic hardship, all of which can hinder access to maternal healthcare [8]. Women migrants may face discrimination or lack awareness of available services in their new locations, further exacerbating barriers to care [8].

Globally, in 2020, an estimated 281 million people were residing in a country other than their country of birth, an increase of 128 million since 1990 and more than three times the number in 1970 [9]. In Ghana, internal migration is more common. According to the 2022 Ghana Demographic Health Survey (GDHS), 32% of women reported living in their current place of residence for their entire lives, while 66% of women born in Ghana currently live outside their birthplace. Among these women, 40% relocated to their present residence within the past five years. The most common migration pattern is urban-to-urban migration, accounting for 53% of all movements, followed by urban-to-rural migration at 24% [10]. Family-related reasons, such as marriage (28%) and other familial obligations (45%), were cited as the primary motivations for relocation [10]. These migration patterns have significant implications for maternal and reproductive healthcare access.

Family planning, which refers to the ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births, is a critical component of reproductive health [4]. This often involves access to contraceptives, education, and counselling services to help women make informed decisions about their reproductive health [10]. However, in Ghana, challenges such as geographical barriers, inadequate hospital facilities, and high staff absenteeism rates hinder access to family planning, antenatal care (ANC), and skilled delivery services [1–4]. In 2022, the unmet need for family planning among currently married women in Ghana was 23%. While 98% of women aged 15–49 received ANC from skilled providers, only 88% attended at least four ANC visits. Most ANC services (80%) were provided by midwives and nurses, with obstetricians and gynecologists (OBGYNs) playing a smaller role [10]. Similarly, 86% of live births occurred in health facilities, while 13% took place at home. Midwives and nurses were responsible for 69% of deliveries, highlighting their crucial role in maternal healthcare [10]. However, the cost and proximity of healthcare services vary significantly, with rural areas often facing a shortage of skilled providers and longer travel distances to healthcare facilities [1–4].

In Ghana, the availability of maternal healthcare services is shaped by socioeconomic inequalities and geographic disparities. Wealthier women are more likely to utilize family planning services and skilled delivery care compared to poorer women [2, 11]. Additionally, proximity to healthcare facilities often determines whether women can access skilled care during pregnancy and childbirth. In rural areas, women frequently travel long distances to access clinics, while in urban areas, healthcare providers, including midwives, are more accessible [1–4]. These dynamics underscore the importance of understanding how migration patterns interact with existing inequalities to influence maternal health outcomes.

Despite prior research on gender and internal migration in Ghana [8], there has been little focus on how migration patterns impact access to maternal and reproductive healthcare services. The 2022 GDHS provides a unique opportunity to examine these relationships. This study, therefore, aims to assess migration patterns and their influence on access

to maternal and reproductive healthcare services among Ghananian women. By identifying potential disparities, this research seeks to inform policy interventions to ensure equitable access to healthcare for all women, regardless of their migration status. Ultimately, this study contributes to the broader conversation about reproductive health in Ghana and similar contexts facing internal migration, with the goal of improving outcomes for all women.

2 Methods

2.1 Study setting

The GDHS 2022 was conducted by the Ghana Statistical Service (GSS) between October 17th, 2022, and January 14th, 2023, with technical assistance from the Demographic and Health Survey (DHS) program, funded by the United States Agency for International Development (USAID). The primary aim of the GDHS 2022 was to obtain current estimates of core demographic and health indicators in Ghana. The survey employed four questionnaires adapted from The DHS Program's standard instruments: a household questionnaire, a women's questionnaire, a men's questionnaire, and a biomarker questionnaire. These questionnaires were tailored to capture data relevant to the Ghanaian population and its health concerns. Questions ranged from fertility preferences and contraceptive use to child health, maternal care, and nutrition. The 2022 GDHS report contains detailed examples of these questionnaires [10]. Each questionnaire contained sections designed to take approximately 20–40 min to complete, depending on the module. Computer-Assisted Personal Interviewing (CAPI) was used for data collection, ensuring accuracy and efficiency.

2.2 Data collection

Data for the study was obtained from the GDHS 2022. The GDHS 2022 dataset is appropriate for this research due to its comprehensive coverage of migration history, healthcare access, and sociodemographic variables. The survey's nationally representative sample ensures robust insights into the relationship between migration and healthcare access across various regions and subpopulations.

The GDHS was conducted in English and local languages, including Twi, to ensure inclusivity across the diverse linguistic population of Ghana. The survey was implemented by trained research assistants supervised by GSS officials to ensure data quality and ethical compliance. A stratified two-stage cluster sampling design was employed in the GDHS 2022 to ensure nationally representative data for urban and rural areas across all the 16 regions for most indicators collected in the DHS. A probability proportional to size (PPS) approach was used to select 618 target clusters from the sampling frame, ensuring a proportional representation of urban and rural areas within each of the 16 regions. Within each region, a systematic random sampling method with equal probability was employed to select the final set of clusters from those identified in the first stage, and again stratified by urban and rural areas. Following cluster selection, a household listing and map update exercise was conducted in all chosen clusters to create a comprehensive list of resident households within each cluster. A fixed sample size of 30 households was randomly selected from the list for interviews within each cluster. A total of 18,540 households were selected for the GDHS 2022, with 18,065 identified as occupied. Interviews were completed in 17,933 occupied households, resulting in a high response rate of 99%. Within interviewed households, 15,317 women aged 15–49 were eligible for individual interviews. Interviews were completed with 15,014 women, achieving a response rate of 98%. From this group, 8811 women were married or living with a partner and were included in the current study.

2.3 Study variables

We specifically extracted data on migration patterns, urban or rural residence, access to antenatal care services, and sociodemographic characteristics from the GDHS dataset. The variables directly align with our research inquiry into how migration influences access to reproductive and maternal healthcare in Ghana.

2.4 Outcome variables

Our study used three outcome variables to represent access to reproductive and maternal healthcare: unmet family planning needs adequate ANC and institutional delivery.

- Unmet family planning (FP) needs were defined as the unmet need for limiting (i.e. women whose most recent pregnancy was not wanted at all, fecund women who did not use contraception despite their desire to have no more children, women who were postpartum amenorrheic for two years following an unwanted birth and were not using contraception) and spacing (i.e. women whose most recent pregnancy was not wanted initially but wanted later, fecund women not using contraception who were undecided when/if they wanted to have a child or who wanted a child 2 + years later, and women who were postpartum amenorrheic for two years following a mistimed birth and were not using contraception). A dichotomous variable coded "1" for unmet FP need and "0" for no unmet FP need.
- Adequate ANC was defined as having at least four ANC visits in the past five years for the most recent births, aligned with WHO recommendations for optimal maternal and child health outcomes and coded "1" for adequate ANC (4 or more visits) and "0" for inadequate ANC (less than four visits).
- Institutional delivery was defined as delivery at health facilities coded as "1" and delivery at home coded as "0".

2.5 Independent variable

Migration status was categorised into six migration streams, including urban to urban, urban to rural, rural to urban, rural to rural, urban non-migrant, and rural non-migrant, based on place of current residence, previous residence, and years lived in the current place. Those who lived in their current place for more than ten years were considered as non-migrant populations.

Participants sociodemographic (covariates).

- Women's age (15–24, 25–34, and 35–49)
- Women's level of education (no education, primary, secondary, higher education)
- Working status (currently working or not)
- Wealth index (poor, middle, rich) was defined based on GDHS criteria, which use household assets, housing characteristics, and amenities to create a composite score.
- Husband's level of education (no education, primary, secondary, higher education).
- Place of residence (rural, urban).

2.6 Data analysis

Descriptive Statistics were used to describe the distribution of participants' sociodemographic characteristics and migration patterns/drivers, and the prevalence of unmet FP needs, adequate ANC, and institutional delivery using frequencies and percentages (Table 1). Table 2 presents the prevalence of outcome variables across migration streams and sociodemographic characteristics. It also reports unadjusted associations between these variables using crude odds ratios (COR) and 95% confidence intervals (CI) derived from bivariate logistic regression models. A multivariable logistic regression analysis was conducted to account for potential confounding effects of sociodemographic factors (age, education, employment, wealth index) on the relationship between migration and the outcomes. Table 3 present the results of the multivariable analysis, reporting adjusted odds ratios (AOR) and 95% CI. All statistical analyses were performed using Stata version 14, considering the complex sample design and incorporating sampling weights. The p-value threshold for statistical significance was set at 0.05.

3 Results

3.1 Sample characteristics

Table 1 presents the sociodemographic characteristics and reproductive outcomes of women aged 15–49 in the GDHS 2022 dataset. The majority of women in the sample belonged to the 35–49 age group (46.6%), followed by the 25–34 age group (38.7%) and the 15–24 age group (14.7%). Regarding education, a substantial proportion of women had secondary education (50.9%), followed by those with no education (24.6%), primary education (15.0%), and higher education (9.6%). Most women were currently working (84.6%) compared to those not working (15.4%). Women were fairly distributed across wealth categories, with 42.5% categorised as rich, 38.7% as poor, and 18.8% as middle-class. The sample was almost evenly split between urban (51.8%) and rural (48.2%) areas.

Table 1 Distribution of sociodemographic characteristics and reproductive outcomes of women

Variables	n (%)
Age group	
15–24	1464 (14.7)
25–34	3433 (38.7)
35–49	3914 (46.6)
Women's level of education	
No education	2856 (24.6)
Primary	1401 (15.0)
Secondary	3840 (50.9)
Higher education	714 (9.6)
Currently working	
No	1532 (15.4)
Yes	7279 (84.6)
Wealth index	
Poor	4550 (38.7)
Middle	1596 (18.8)
Rich	2665 (42.5)
Place of residence	
Urban	3884 (51.8)
Rural	4927 (48.2)
Migration stream	
Urban to urban	1403 (23.4)
Urban to rural	1000 (11.4)
Rural to rural	1067 (10.2)
Rural to urban	378 (4.0)
Non-migrant urban	2085 (24.5)
Non-migrant rural	2832 (26.6)
Reason for migration	
Employment	787 (12.5)
Education/training	140 (2.4)
Marriage	3066 (45.3)
Family reunification	1815 (31.0)
Forced displacement	195 (5.3)
Other reasons	
Unmet FP needs	5716 (26.7)
Adequate ANC (≥ 4 visits)	3934 (89.4)
Institutional delivery	3801 (86.3)
Total	

NB: The sum of numbers may not add up to the total number for some variables due to missing data

3.2 Migration patterns

Among migrants, the most common migration stream was urban to urban (23.4%), followed by urban to rural (11.4%), rural to rural (10.2%), and rural to urban (4.0%), and a significant portion were non-migrants in urban (24.5%) and rural (26.6%) areas. The primary reasons for migration included marriage (45.3%), family reunification (31.0%), employment (12.5%), and education/training (2.4%). A smaller proportion migrated due to forced displacement (5.3%) or other reasons (3.5%). Regarding reproductive outcomes, unmet family planning needs were observed in 26.7%, adequate antenatal care in 89.4%, and institutional delivery in 86.3% of respondents.

Table 2 The distribution and likelihood of the unmet need for family planning, adequate ANC, and delivery at health facilities across migration streams and sociodemographic characteristics among married women aged 15–49 in GDHS 2022

Variables	Unmet FP needs		Adequate ANC		Institutional delivery	
	n (%)	COR (95%CI)	n (%)	COR (95%CI)	n (%)	COR (95%CI)
Migration stream						
Urban to urban	317 (24.7)	0.84 (0.68, 1.04)	630 (92.5)	2.22 (1.34, 3.65)*	645 (95.0)	5.92 (3.51, 9.98)*
Urban to rural	261 (30.1)	1.10 (0.88, 1.38)	506 (88.4)	1.36 (0.86, 2.15)	482 (85.5)	1.82 (1.25, 2.65)*
Rural to rural	244 (24.0)	0.81 (0.64, 1.02)	587 (86.0)	1.09 (0.77, 1.54)	544 (77.2)	1.05 (0.76, 1.45)
Rural to urban	88 (27.0)	0.95 (0.66, 1.35)	212 (96.6)	5.04 (2.62, 9.70)*	205 (93.0)	4.14 (2.10, 8.15)*
Non-migrant urban	455 (27.0)	0.95 (0.78, 1.15)	798 (93.6)	2.64 (1.70,4.09)*	821 (95.2)	6.15 (3.76, 10.06)*
Non-migrant rural	673 (28.1)	Reference	1180 (84.8)	Reference	1084 (76.3)	Reference
Age group						
15–24	415 (28.3)	Reference	822 (85.3)	Reference	819 (86.0)	Reference
25–34	778 (23.9)	0.79 (0.65, 0.96)*	2011 (91.1)	1.76 (1.28, 2.41)*	1932 (87.0)	1.09 (0.84, 1.41)
35–49	853 (29.1)	1.03 (0.87,1.24)	1101 (89.5)	1.46 (1.04, 2.05)*	1050 (85.1)	0.93 (0.68, 1.26)
Women's level of education						
No education	647 (28.3)	Reference	1186 (81.7)	Reference	1101 (74.0)	Reference
Primary	346 (29.7)	1.07 (0.89, 1.30)	613 (88.6)	1.75 (1.21, 2.53)*	585 (83.2)	1.75 (1.21, 2.52)
Secondary	943 (26.6)	0.92 (0.78, 1.09)	1777 (92.0)	2.56 (1.81, 3.63)*	1758 (90.8)	3.48 (2.45, 4.94)
Higher education	110 (19.2)	0.60 (0.45, 0.82)*	358 (97.4)	8.28 (3.04, 22.54)*	357 (98.7)	26.0 (8.47, 80.13)
Currently working						
No	423 (31.3)	Reference	821 (88.0)	Reference	827 (88.9)	Reference
Yes	1623 (25.8)	0.77 (0.65,0.90)*	3113 (89.8)	1.19 (0.86, 1.65)	2974 (85.6)	0.75 (0.54, 1.02)
Wealth index						
Poor	1108 (28.7)	Reference	2141 (83.9)	Reference	2009 (76.5)	Reference
Middle	417 (28.7)	1.00 (0.84, 1.19)	702 (89.6)	1.65 (1.10, 2.48)*	703 (90.9)	3.05 (1.91, 4.88)
Rich	521 (24.0)	0.79 (0.67, 0.93)*	1091 (96.2)	4.85 (3.05, 7.71)*	1089 (96.0)	7.26 (4.79, 10.99)
Husband's level of education						
No education	591 (28.6)	Reference	1118 (81.1)	Reference	1046 (74.2)	Reference
Primary	225 (29.1)	1.03 (0.81, 1.30)	403 (84.5)	1.27 (0.85, 1.90)	377 (80.0)	1.39 (0.92, 2.09)
Secondary	977 (27.4)	0.94 (0.80,1.11)	1774 (92.7)	2.94 (2.18, 3.97)*	1734 (89.8)	3.05 (2.19, 4.25)*
Higher education	229 (20.7)	0.65 (0.52, 0.82)*	609 (95.5)	4.98 (2.75, 9.02)*	613 (97.2)	12.18 (6.25, 23.76)*

*P value < 0.05

Table 3 Adjusted odds ratio (AOR) and 95% confidence interval (95%CI) for the association of internal migration with unmet need for family planning, adequate ANC, and delivery in health facilities among married women aged 15–49 in GDHS 2022

Migration stream	Unmet FP needs AOR (95%CI)[1]	Adequate ANC AOR (95%CI)[2]	Institutional delivery AOR (95%CI)[2]
Urban to urban	1.05 (0.81, 1.35)	0.72 (0.39, 1.33)	2.17 (1.21, 3.89)*
Urban to rural	1.23 (0.98, 1.56)	0.95 (0.61, 1.49)	1.26 (0.87, 1.84)
Rural to rural	0.85 (0.67, 1.07)	1.07 (0.75, 1.52)	1.00 (0.71, 1.41)
Rural to urban	1.08 (0.74, 1.56)	2.85 (1.44, 5.65)*	2.09 (1.06, 4.10)*
Urban non-migrant	1.09 (0.87, 1.35)	1.38 (0.86, 2.12)	3.04 (1.88, 4.91)*
Rural non-migrant	Reference	Reference	Reference

[1]Adjusted for *women's age, education, and wealth index*

[2]Adjusted for women's age, education, employment, and wealth index *P value <0.05

3.3 Reproductive outcomes and migration streams

Unmet family planning needs As Table 2 indicates, among migration streams, urban to rural migrants had the highest

prevalence of unmet FP needs (30%), and the lowest belonged to rural to rural (24%) and urban to urban (25%). There was no significant association between the migration stream and the unmet need for FP in both unadjusted and adjusted logistic regression models. The prevalence of Unmet FP needs was 24% among women aged 25–34, with lower odds of unmet FP (COR 0.79; 95% CI 0.65, 0.96) compared to the 15–24 group. Women with higher education had the lowest prevalence of unmet FP needs (19%), and the odds of unmet FP needs were 40% lower among them than non-educated women. Approximately 26% of currently working women had unmet FP needs, and were less likely(COR 0.77; 95% CI 0.45, 0.82) to have unmet FP needs than those not working. Women from rich households had the lowest unmet FP needs (24%), and the odds of unmet FP needs were 31% lower among them than among women in poor households. Women with highly educated husbands had the lowest unmet FP needs, with 35% lower odds compared to women with non-educated husbands.

Adequate antenatal care The highest prevalence of adequate ANC belonged to those who migrated from rural to urban areas (97%), and the lowest was observed among non-migrant rural (84.8%). The odds of adequate ANC were about five times higher among rural to urban migrants than rural non-migrants. Similarly, urban to urban, urban non-migrants were likelier to have adequate ANC (COR 2.22 and 2.64, respectively). In the adjusted model (Table 3), however, it only remained significant for rural to urban migrants (COR 2.85; 95%CI 1.44, 5.65). The odds of adequate ANC were significantly higher among age groups 25–34 (COR 1.76) and 35–49 (COR 1.46) years old compared to age group 15–24. Educated women were more likely to have adequate ANC than non-educated women, with those in higher education having the highest prevalence (97%) and odds (COR 8.28). There was no association between women's working status and adequate ANC. Women from middle and rich households had significantly higher prevalence (90 and 96%, respectively) and odds (1.65 and 4.85, respectively) of adequate ANC compared to poor households. Husband's higher education was associated with adequate ANC, with women of highly educated husbands being five times more likely to have adequate ANC than women with non-educated husbands.

Institutional delivery The highest institutional delivery was observed among urban non-migrants (95.2%) and urban to urban migrants (95%), and the lowest was among rural non-migrants (76%), and the odds of institutional delivery were approximately six times higher among these two groups as compared to rural non-migrants. Similarly, the odds of institutional delivery were significantly higher among rural to urban and urban to rural migrants than rural non-migrants. However, in the adjusted model (Table 3), the odds of institutional delivery only remained significant for urban to urban (COR 2.17), rural to urban (COR 2.09), and urban non-migrants (COR 3.04). Both women's and husbands' education were associated with institutional delivery, with significantly higher odds of institutional delivery for those in educated groups compared to non-educated (Table 2). Women from rich and middle households had a higher prevalence (91 and 96%, respectively) and odds (COR 3.05 and 7.26, respectively) of institutional delivery as compared to women from poor households.

4 Discussion

Our study examined the migration patterns and access to maternal and reproductive healthcare services among women aged 15–49 years in Ghana. The study revealed that the predominant movement pattern is from urban to urban areas. Furthermore, it indicated an association between women's migration patterns and their ability to obtain reproductive and maternity healthcare services. There was no significant association between the migration stream and the unmet need for FP in both unadjusted and adjusted logistic models. The odds of adequate ANC were about five times higher among rural to urban migrants than rural non-migrants. Similarly, urban to urban, urban non-migrants were more likely to have adequate ANC. However, the adjusted model only remained significant for rural to urban migrants. The odds of institutional delivery were significantly higher among rural to urban and urban to rural migrants than rural non-migrants. However, in the adjusted model, the odds of institutional delivery only remained significant for urban-urban, rural–urban, and urban non-migrants.

In the present study, rural to urban migrant women in Ghana had higher odds of adequate ANC visits than rural non-migrants. Urban areas tend to have more clinics, hospitals, and healthcare providers than rural areas [12–14], making ANC services more geographically accessible for urban migrants. Migration can also increase women's economic opportunities, allowing them to afford transportation and any potential costs associated with ANC visits [15, 16]. Additionally, urban environments often have a higher average level of education, and migrating women may become more aware of the importance of ANC due to exposure to education campaigns or social circles in the city [17, 18]. However, some studies suggest that rural to urban migrants might face challenges utilising healthcare services due to unfamiliarity

with the urban environment or reliance on traditional practices [19, 20]. Therefore, developing programs to help rural to urban migrants navigate urban healthcare systems and overcome cultural barriers may facilitate better utilisation of healthcare services.

The study found that women in urban areas of Ghana, regardless of their migration history (urban to urban, rural to urban, or urban non-migrant), had higher odds of institutional delivery than rural non-migrants. This finding is consistent with the previous studies in Pakistan [5] and Peru [21]. Urban areas generally have a higher concentration of hospitals, clinics, and skilled birth attendants than rural areas [22–25]. This makes institutional delivery a more readily available option. Urban healthcare facilities are often better equipped to handle complications during childbirth, offering a safer environment for both mother and baby [24]. Additionally, urban residents tend to have higher average incomes than their rural counterparts. This can lead to better affordability of healthcare services, including institutional delivery fees [25, 26]. The higher level of education in urban areas also means that women are more likely to be aware of the benefits of institutional delivery and have a higher preference for skilled medical care during childbirth [27]. Urban environments often emphasise modern healthcare practices, with media campaigns, social circles, and healthcare professionals influencing women's choices towards institutional delivery [28, 29].

In contrast, rural areas often face a shortage of skilled birth attendants and well-equipped healthcare facilities, making institutional delivery less accessible [30–32]. Transportation costs and geographical distance to healthcare facilities can be significant barriers for rural women seeking institutional delivery [33]. Traditional beliefs and practices surrounding childbirth may persist more strongly in rural communities, influencing women's decisions towards home births with traditional birth attendants [34, 35]. Therefore, educational campaigns and community outreach programs in rural areas should be implemented to raise awareness about the benefits of institutional delivery and dispel traditional beliefs or misconceptions that may discourage women from seeking skilled medical care during childbirth[36].

5 Strengths and limitations

The 2022 GDHS is a large, nationally representative survey, providing insights applicable to the entire country, not just specific regions. DHS follows standardised methodology, allowing for comparisons with previous Ghana DHS and potentially with DHS data from other countries. The DHS collects detailed information on women's health, including reproductive health, maternity care, and healthcare utilisation. The data is often disaggregated by factors like age, residence, education, and wealth quintile, allowing for analysis of how migration patterns interact with these factors. However valuable, it has some limitations. The DHS is a cross-sectional survey that captures data at a snapshot in time and cannot establish causal relationships between migration and healthcare access. The data relies on self-reported information, which can be prone to errors due to recall or social desirability bias. The DHS may not capture the details of migration patterns, such as socioeconomic status before migration. Additionally, the DHS does not account for potential differences in the quality of healthcare services between urban and rural areas, which can affect healthcare outcomes. Lastly, this study focused on married/cohabited women aged 15–49 years and excluded other groups of women who might have different healthcare needs and access issues. For example, adolescent girls under 15 years who may face barriers to accessing reproductive health services, single women, widows, or divorced women who may experience stigma or reduced access to care, and older women beyond reproductive age who may still require maternal health services for late pregnancies or post-reproductive healthcare were not included. Additionally, migrant women living in informal settlements or undocumented migrants may face unique challenges due to their socioeconomic status or legal constraints. These exclusions highlight the need for further research to understand the healthcare needs of these underrepresented groups.

6 Conclusion

Migration patterns are associated with access to reproductive and maternity healthcare in Ghana. Women who migrate from rural to urban areas experience the most significant increase in access to antenatal care and institutional delivery compared to rural non-migrants, as urban areas typically offer better healthcare infrastructure and services. However, family planning, which includes access to contraceptives, counselling, and education to help women make informed decisions about pregnancy timing and spacing, appears less influenced by migration patterns and remains a critical area for improvement across all regions. Institutional delivery generally yields better maternal and neonatal outcomes

due to the availability of skilled healthcare providers, emergency care, and sterile environments, but some women may prefer home births or midwife-assisted deliveries due to cultural beliefs, cost, or proximity challenges. To address these dynamics, policymakers should adopt a two-pronged approach: strengthening healthcare infrastructure and staffing in rural areas to improve access to ANC and institutional delivery while simultaneously investing in training programs for midwives to ensure they are equipped to provide high-quality care for both institutional and home births. Additionally, programs should support midwives with resources such as travel allowances or subsidized transportation costs to reach rural areas, ensuring that women can access skilled care regardless of their location or preference. Educational campaigns and community outreach should also address misconceptions about institutional delivery and emphasize the importance of skilled care during childbirth, empowering women to make informed choices that align with their needs and circumstances as they navigate migration and healthcare access.

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Data availability The data used for this study is freely available at https://dhsprogram.com/data/dataset/Ghana_Standard-DHS_2022.cfm?flag=1.

Declarations

Ethics approval and consent to participate Ethical clearance was not sought for the study since the secondary dataset is freely available in the public domain. A detailed description of the ethical issues regarding the DHS and its dataset usage can be assessed at http://goo.gl/ny8T6X

Consent for publication Not applicable.

Competing interests The authors declare no competing interests.

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