

Exclusive Breastfeeding Among Female Head Porters (kayayei) in Kumasi, Ghana: Social Welfare Barriers, Support Systems, and Policy Implications

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Abstract

Female head porters (*kayaye*) in urban Ghana face conditions of informal work, poverty, migration, and weak institutional support that can make exclusive breastfeeding difficult. Guided by the Social Ecological Model, this study examined the barriers and support systems shaping exclusive breastfeeding among *kayaye* in the Kumasi Metropolis, Ghana, across individual, interpersonal, community, and structural levels. A cross-sectional mixed-methods design was used. Quantitative data were collected from 398 mothers through structured questionnaires, while qualitative interviews were conducted with 30 mothers to explore lived experience and care practices. Descriptive and thematic analyses were used to integrate the findings. The study found that exclusive breastfeeding was constrained at the individual level by pain, latch difficulties, and maternal stress; at the interpersonal level by limited family and partner support; at the community level by demanding market work, mobility, and lack of privacy; and at the structural level by weak social protection and limited access to supportive services. Peer networks, informal childcare help, and health education offered partial but inconsistent support. The findings show that breastfeeding among *kayaye* is both a maternal health and social welfare issue. The study calls for multilevel interventions that combine counselling, community support, child-friendly market spaces, and welfare-responsive urban policy.

Background

Exclusive breastfeeding (EBF) for the first six months of an infant's life remains one of the most effective public health interventions for improving child survival and long-term development outcomes (Victora et al., 2016; Dib et al, 2024. Evidence consistently shows that EBF reduces infant morbidity, enhances immunity, and protects against diarrhoeal and respiratory infections, while also contributing to optimal cognitive development (United Nations Children's Fund, [UNICEF], 2019). Despite these well-established benefits, global EBF rates remain below the recommended levels, particularly in low- and middle-income countries, where structural, socio-economic, and health-system barriers persist (World Health Organisation [WHO], 2023).

In sub-Saharan Africa, wide variations in EBF prevalence reflect differing socio-cultural norms, health system capacities, and maternal working conditions. While Ghana has made notable investments in infant and young child feeding initiatives, national surveys reveal fluctuating EBF trends over the past decade (Ghana Health Service [GHS], 2022). These national averages often mask stark disparities between urban and rural populations as well as between women working in formal versus informal sectors (Stumbitz et al., 2018). Informal sector workers, who typically lack maternity protection, stable accommodation, and workplace breastfeeding support, remain disproportionately disadvantaged.

Kayaye—female head porters who migrate largely from northern Ghana to urban commercial centres such as Kumasi—constitute one of the most vulnerable groups within the informal labour force. Their work is physically demanding, requiring prolonged mobility and the carriage of heavy loads without rest breaks, formal contracts, or labour protections (Opare, 2003; Komesuor et al., 2024). The absence of maternity leave, breastfeeding breaks, or designated childcare spaces makes adherence to recommended breastfeeding practices extremely challenging. Moreover, *kayaye* often reside in congested informal settlements with poor sanitation, inadequate privacy, and limited access to health services, all of which negatively influence infant feeding practices.

Migration further disrupts traditional support systems that many Ghanaian mothers rely on. The movement from rural communities to urban markets separates *kayaye* mothers from extended family members who typically

assist with childcare and postpartum support. Consequently, these mothers navigate breastfeeding within an environment characterised by economic precarity, social isolation, and intense competition for daily income. Because hawking opportunities depend on mobility and availability, time spent breastfeeding may directly reduce income generation—creating daily trade-offs between feeding their infants and securing financial survival.

Although existing studies have explored determinants of EBF in Ghanaian urban populations, limited research specifically examines EBF within the unique socio-economic and migratory context of *kayayei* mothers. Even fewer studies adopt a mixed-methods approach capable of capturing both measurable patterns and lived experiences. This study, therefore, fills a critical gap by providing a holistic analysis of EBF barriers and support systems among *kayayei* in the KMA. The study addressed the following research questions:

1. To examine the barriers that affect EBF among *kayayei* in the Kumasi Metropolis.
2. To assess the informal and institutional support available to *kayayei* and how these support systems shape EBF practices in the Kumasi Metropolis.

Addressing these research questions will provide context-specific evidence on the barriers and support systems influencing EBF among *kayayei*, thereby guiding policy, practice, and interventions aimed at improving maternal and child health outcomes in the Kumasi Metropolis.

Conceptual Framework

Understanding the breastfeeding behaviours of *kayayei* requires an analytical framework that captures the complex interaction between individual, interpersonal, community, and societal level determinants. The Social Ecological Model (SEM) offers a comprehensive lens, acknowledging that individual choices are shaped by multi-layered contextual influences (Bronfenbrenner, 1979). Applying the SEM to EBF among *kayayei* enables a deeper examination of how structural vulnerabilities, socio-cultural expectations, and health-system dynamics intersect to shape breastfeeding outcomes.

This study is anchored in the Social Ecological Model (SEM), presented as a modified framework adapted from Bronfenbrenner (1979) (Fig. 1). The SEM is a good fit because EBF among *kayayei* is shaped not only by what a mother knows or prefers, but also by her relationships, the work and living conditions around her, and wider structural constraints linked to informal labour. In practical terms, the framework helps the study organise both the survey findings and the qualitative accounts into connected levels of influence, rather than treating barriers as isolated factors.

Within the framework, EBF practice is the outcome of interlocking constraints and supports operating across four key levels: individual, interpersonal, community, and societal.

At the individual level, the framework highlights maternal characteristics and breastfeeding capacity. In this study, this includes age and education, as well as breastfeeding knowledge, prior experience, and perceived breastmilk sufficiency, which shape both intention and ability to maintain EBF. Importantly, individual-level constraints also cover physical breastfeeding challenges that can disrupt EBF, such as pain, discomfort, and latch problems, which the study later measures and analyses as barriers.

The interpersonal level focuses on the support and pressures coming from close social relationships. The framework specifies support from partners, family members, and peers in the market, all of which can affect

initiation and continuation of EBF. This is important in the *kayayei* context because migration can weaken traditional family support systems, leaving mothers to breastfeed with limited practical assistance while balancing daily survival demands.

At the community level, the framework centres the material and organisational environment in which breastfeeding happens. It explicitly points to market infrastructure, housing conditions, access to clean water, access to health, support of health care professionals and the organisation of work, including long working hours, lack of breaks, and absence of breastfeeding spaces, as factors that shape daily opportunities for EBF. These community conditions are directly relevant to the study setting because the selected markets in the Kumasi Metropolis are spaces where *kayayei* commonly work and, in many cases, also live, often under crowded conditions that limit privacy for feeding.

At the societal level, the framework draws attention to the policy and cultural environment that enables or constrains EBF for informal workers. It identifies formal maternity protection, health insurance, and EBF-related policies and the cultural norms as key influences on whether mothers can realistically combine livelihood strategies with recommended breastfeeding practice. This level is central for *kayayei* because their work is described as informal, physically demanding, and largely outside formal labour protections, with daily income depending on mobility and constant availability.

The SEM framework illustrates how EBF practices among *kayayei* are influenced by structural vulnerabilities across overlapping socio-ecological levels. This multi-level approach enables a comprehensive analysis of both constraints and opportunities for improving EBF among this highly marginalised group.

Materials and Methods

Study Setting

The study was carried out in the Kumasi Metropolis Assembly (KMA), focusing on four major market centres: Kejetia, Bantama, Adum, and Asafo. These locations represent high trading hubs within the metropolis, and they were selected because they are spaces where *kayayei* commonly work and, in many cases, also reside, making them practical sites for observing and assessing day-to-day breastfeeding realities in an informal labour context. The setting is presented through the map of Kumasi Metropolis (Fig. 2),

Source: Ghana Statistical Service (2020)

Study Design

A sequential explanatory mixed-methods design was employed, allowing quantitative findings to inform and enrich the qualitative exploration. This approach ensured both breadth and depth in understanding the complex factors influencing EBF among *kayayei*. The study employed a two-phase structure: the quantitative phase collected numerical data on EBF practices, challenges, and support systems, whilst the qualitative phase explored deeper contextual experiences to explain quantitative patterns. This design strengthened validity through triangulation and enabled integration of both datasets during interpretation.

Study Population and Eligibility

The population consisted of *kayayei* aged 15–49 years with infants under 24 months. Key informants included health professionals (midwives, public health nurses), market queens, and municipal health officers.

Sample Size and Sampling

A sample of 398 *kayayei* was determined using Cochran's formula, expressed as:

$$n = (z^2 * p(1-p)) / e^2 \quad (1)$$

Where: n = sample size

Z = Z-score, which depends on the confidence level chosen by the researcher.

NOTE

A confidence level of 95% is typically used when analysing human populations.

p = the estimated proportion of an attribute present in the population

, e = margin of error or confidence interval.

NOTE

This is the margin of error you can tolerate when choosing your samples. The commonly used margin of error when dealing with human populations ranges from 1% to 10%.

From the 2022 GDHS, EBF in Ghana stands at 53%, where e = the margin of error (0.05), p: the fraction of the population (as a percentage) that displays the attribute, which is 53% in your case, z: the z-value, extracted from a z-table, which at 95% confidence interval, is 1.96. So, the sample is $n = ((1.96^2 * 0.53(0.47)) / 0.05^2) = 382.777$, or 383 *kayayei*.

For cross-sectional studies, assume a 50% prevalence estimate to maximise sample representativeness. For Quantitative sampling, convenience sampling was used due to the mobility and informal nature of *kayayei* work, whilst for qualitative sampling, purposive sampling, in which participants who could provide rich insights into breastfeeding behaviours were selected, was used. This included 30 *kayayei* for focus group discussions (FGDs) and 10 key informants.

Data Collection Procedures

In the quantitative phase, data were collected using a structured, interviewer-administered questionnaire. Trained research assistants fluent in Dagbani, Twi, and Hausa administered the questionnaires to minimise language barriers. The questionnaire was in 6 sections, namely Section A: Demographics, Section B: Prevalence of EBF, Section C: Practices and Experience, Section D: Support for EBF, Section E: Challenges of EBF and Section F: Strategies to Address EBF Challenges.

The qualitative phase consisted of FGDs and in-depth interviews. Four FGD sessions were conducted, each with 6–8 *kayayei*. Key informant interviews were conducted with market leaders, midwives, nurses, and municipal

health staff. All discussions were audio-recorded, transcribed verbatim, and translated where necessary. Data collection was conducted between April and June 2024.

Data Analysis

Model specification

Quantitative Analysis: Data were entered into SPSS and cleaned before analysis. Descriptive statistics summarised demographic variables and prevalence estimates. Bivariate analysis explored associations between EBF and independent variables. Binary logistic regression identified significant predictors of EBF. EBF is binary (i.e., 1 = practised EBF; 0 = did not practise EBF), Odds ratios (OR), 95% confidence intervals (CI), and p-values were reported. Statistical significance was set at $p < 0.05$.

Binary Logistic Regression Equation:

$$\ln(P / (1 - P)) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \quad (2)$$

Where:

P = probability that a woman practices exclusive breastfeeding

$P / (1 - P)$ = odds of exclusive breastfeeding

β_0 = intercept

$\beta_1, \beta_2, \dots, \beta_k$ = regression coefficients for predictor variables (e.g., age, education, income, cultural beliefs, access to health services)

$X_1, X_2, \dots, X_k$ = independent variables

To obtain the odds Ratio,

$$\text{Odds} = P/(1-P)$$

$$\text{odds Ratio (OR)} = (\text{odds exposed}) / (\text{odds unexposed})$$

$$\text{In logistics regression: } OR = e^{\beta}$$

Variables and Measurement

Variables and Measurements

Quantitative variables were derived from the structured, interviewer-administered questionnaire used with the 398 *kayayei* respondents. Measures were aligned to the study's SEM framing, capturing individual characteristics, interpersonal support, community and societal constraints that may shape breastfeeding behaviour.

Dependent variable

The dependent variable for the regression analysis was EBF, treated as a dichotomous outcome (1 = practised EBF; 0 = did not practise EBF). EBF was defined as feeding the infant only breast milk for the first six months, with

no additional liquids or foods (except medically indicated drops or syrups such as vitamins and oral rehydration solution), consistent with WHO guidance (WHO, 2023).

Independent variables

Individual level: These were entered as categorical variables consistent with the descriptive profile. Maternal age group: 15–19, 20–24, 25–29, 30+ (categorical), Educational attainment: no formal education, basic education, SHS and above (categorical). Marital status: single; married or in union (categorical).

Work and community level constraints (barriers): Workplace and environmental barriers were operationalised as binary self-report items (1 = “yes, experienced”; 0 = “no”) corresponding to the challenges reported. Work related constraints: long working hours, mobility demands, and customer pressure limiting breastfeeding opportunities. Lack of privacy: absence of private space for breastfeeding in market or living areas. Latch difficulties: infant difficulty attaching properly during breastfeeding. Pain or breast discomfort: nipple pain and engorgement or related discomfort while breastfeeding. Lack of partner or family support: limited practical help or encouragement from close relations. Perceived income loss due to breastfeeding: breastfeeding reduces available work time and daily earnings.

Interpersonal and health system support (enablers): Support variables were measured as binary indicators (1 = receives or has access; 0 = does not) Partner support: encouragement or childcare assistance from partner. Peer support: help from fellow *kayayei* (e.g. watching the baby, sharing workload). Ante-Natal Care (ANC) breastfeeding counselling: receipt of breastfeeding information during antenatal care. Post Natal Care (PNC) breastfeeding support: receipt of breastfeeding advice after delivery. Health worker breastfeeding support: practical guidance on latch, attachment, and feeding. Supportive cultural norms: reported norms or expectations that encourage breastfeeding.

Qualitative data were transcribed and analysed thematically using Braun and Clarke’s (2006) six-step framework: Familiarisation with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. NVivo software assisted in the coding and thematic organisation. Direct quotations were then used to develop a narrative to understand the challenges of EBF among *kayayei*.

Ethical Considerations

Ethical approval (Reference no. HuSSREC/AP/14/VOL. 3) was granted by the Ethics Review Committee of the Humanities and Social Sciences Research Ethics Committee of the KNUST. Participants were assured of confidentiality, voluntary participation, and the right to withdraw at any time without consequence.

Results

Demographic Characteristics of Respondents

Table 1
Demographic Characteristics of *Kayayei* Respondents

Variable	Category	Percentage (%)
Age Group	15–19	32.5
	20–24	41.2
	25–29	18.3
	30+	8.0
Education	No formal education	56.1
	Basic education	33.5
	SHS and above	10.4
Marital Status	Single	62.8
	Married/Union	37.2

Table 1 shows that the respondents were predominantly young, with most aged 20–24 years (41.2%) and 15–19 years (32.5%). Educational levels were generally low, as 56.1% had no formal education, and only 10.4% had SHS education or higher. The limited educational background of most respondents may have implications for their access to health information and their understanding of recommended breastfeeding practices. The majority of participants were single (62.8%), while 37.2% were married or in a union. The predominance of single mothers highlights the social and economic vulnerability experienced by many *kayayei*, which may influence their childcare practices, including decisions related to EBF.

Challenges of EBF

Table 2
Reported Challenges to Exclusive Breastfeeding

Challenge	Description	Percentage Reporting (%)
Work-related constraints	Long hours, mobility, and customer pressure	76
Lack of privacy	Crowded market and living spaces	80
Latch difficulties	The infant struggles to attach properly	63
Pain/discomfort	Nipple pain, engorgement	67
Lack of support	Limited partner or family assistance	75
EBF affects income	Feeding reduces working time/income	78

Table 2 indicates that *kayayei* experience multiple challenges to EBF. The most commonly reported barriers were lack of privacy (80%), *Kayayei* mothers, who work in busy markets and often live in overcrowded spaces, have limited chances to breastfeed privately. This lack of privacy not only affects their comfort but may also discourage frequent feeding, which is necessary for sustaining EBF and the perception that EBF reduces their income due to lost working time (78%). Work-related constraints (76%), including long hours and constant mobility, were also widely reported. Additionally, 75% cited limited partner or family support, while 67% experienced breastfeeding

pain or discomfort. Latch difficulties affected 63% of respondents. Overall, the results highlight how demanding work conditions, limited support, and physical breastfeeding challenges collectively hinder mothers' ability to practice EBF.

Several mothers described breastfeeding in uncomfortable, sometimes unsafe positions because they lacked private or suitable spaces. One participant shared:

"Sometimes I just sit on the ground behind someone's shop to breastfeed. My body pains me, but there is nowhere else to go." (26 years, FGD II)

Another explained how she improvised during work:

"When I am carrying loads and the baby starts crying, I have to finish my rounds before I can breastfeed the child. This means the baby will cry till I finish. It is not comfortable, but what can I do?" (32 years, FGD I)

The constant pressure from customers emerged as a major barrier. Many women reported that attending to customers often meant missing feeding times, as any delay could cost them income for the day.

"If I stop to breastfeed, the customer will take another girl. So I sometimes push the feeding until later, even if the baby is crying." (19 years, FGD III)

This conflict between earning a living and providing adequate breastfeeding created emotional distress for many mothers. A participant explained the guilt she felt:

"I feel bad when I cannot feed her on time, but I also have to work to buy food. It pains my heart." (40 years, FGD III)

Another shared the emotional weight of making daily trade-offs:

"Every day I am choosing between money and my baby. It is not easy. Sometimes I cry because I want to do the right thing, but life is hard." (28 years, FGD I)

Participants also described the physical toll of juggling breastfeeding with strenuous labour:

"By the time I finish working, my whole body is tired. Even holding the baby to breastfeed becomes difficult." (32 years, FGD I)

Another older mother also shared her experience:

"I have other children to look after and no support. I wanted to breastfeed longer, but I could not eat well. How can I give the baby only breast milk when I do not have the strength myself?" I wanted to breastfeed my baby for the entire six months, but I had to add porridge at three months because I did not have enough milk." (43 years, FGD 2)

Also, from another mother

"Hmm, as for the exclusive, if we get it, we will do it. But time, oh, my sister. It takes so much time. You know our work is difficult. We cannot afford to give only breastmilk to the child for six whole months! If we do that, we will go hungry!" (36 years, FGD 1) This worsens as hectic work schedules affect their ability to breastfeed their children (Chen et al., 2019), as was also explained by an older participant:

“I stopped breastfeeding at 3 months because I had to go back to work and could not keep bringing the baby to breastfeed. You know how difficult our work is. If I decide to take the baby everywhere and breastfeed, it is tiring and difficult. So, I stopped (39 years, FGD 2)

Support Systems of EBF

Table 3
Support Systems Influencing EBF Practice

Support System	Description	Utilisation (%)
Partner Support	Encouragement, childcare assistance	45
Peer Support	Sharing workload, watching infants	52
Ante-natal Counselling(ANC)	Received breastfeeding info during ANC	55.8
Post-natal Counselling (PNC) Support	Breastfeeding advice post-delivery	45.7
Health Worker Support	Guidance on latch, attachment, and feeding	23.6
Cultural Norms	Traditional norms supporting breastfeeding	40

The results in Table 3 showed that while some forms of breastfeeding support exist among *kayayei*, they remain limited and inconsistent. Peer support was the most common, with 52% receiving help from fellow *kayayei* who shared workload or watched infants. Slightly more than half (55.8%) received breastfeeding counselling during ANC, while less than half (45.7%) received PNC support after delivery. This indicates that a significant proportion of mothers may not have received essential guidance before and after delivery, while this support is most critical for establishing EBF. Partner support was limited (45%). This aligns with the predominantly single and migrant nature of the *kayayei* population, many of whom live apart from their partners. The limited involvement of partners can increase the burden of childcare and reduce a mother’s ability to breastfeed consistently within the demanding work environment. Support from health workers was particularly low at 23.6%, indicating limited access to skilled breastfeeding guidance. Only 40% reported cultural norms that encourage breastfeeding. Overall, the findings point to weak social and health system support, which may hinder mothers’ ability to practice EBF.

Predictors of EBF

Table 4
Logistic Regression Predicting Exclusive Breastfeeding (EBF) Based on Reported Breastfeeding Challenges
Among *Kayaye*

Predictor (Challenges)	β (Model 1)	OR [95% CI] (Model 1)	p-value	β (Model 2)	OR [95% CI] (Model 2)	p-value	β (Model 3)	OR [95% CI] (Model 3)	p-value
Work-Related Constraints (Long hours, mobility, pressure)	-1.42	0.24 [0.12–0.49]	0.000***	-1.10	0.33 [0.15–0.73]	0.006**	-0.98	0.37 [0.13–1.01]	0.052
Lack of Privacy (Crowded space)	-1.76	0.17 [0.06–0.46]	0.001**	-1.68	0.19 [0.05–0.57]	0.004**	-1.21	0.30 [0.07–1.19]	0.087
Latch Difficulties	-0.85	0.43 [0.21–0.87]	0.019*	-0.70	0.50 [0.21–1.16]	0.105	-0.48	0.62 [0.21–1.86]	0.395
Pain / Breast Discomfort	-1.05	0.35 [0.17–0.71]	0.004**	-0.98	0.38 [0.16–0.88]	0.025*	-0.63	0.53 [0.17–1.62]	0.272
Lack of Partner / Family Support	-1.22	0.29 [0.13–0.64]	0.002**	-1.08	0.34 [0.14–0.83]	0.017*	-0.95	0.39 [0.12–1.27]	0.118
EBF Reduces Income / Work Time	-2.10	0.12 [0.04–0.33]	0.000***	-1.89	0.15 [0.04–0.49]	0.002**	-2.30	0.10 [0.02–0.49]	0.006**
Constant	2.85	—	0.001**	3.12	—	0.001**	4.18	—	0.000***
Nagelkerke R ²	0.41	—	—	0.53	—	—	0.64	—	—
Variance Explained (%)	41.3%	—	—	53.4%	—	—	64.8%	—	—
Notes:									
Model 1 = Unadjusted model (only challenge variables)									
Model 2 = Adjusted for socio-demographics (age, education, marital status)									
Model 3 = Fully adjusted model (socio-demographics + work factors + health services)									
• p < 0.05, p < 0.01, p < 0.001									
• Source: Field Data (2024)									

Across all three models, several challenges showed strong negative associations with EBF, indicating that these barriers significantly reduce the probability of EBF. The regression results show that several challenges

significantly reduce the likelihood of EBF among *kayayei*. Work-related constraints—including long hours, mobility, and customer pressure—consistently predicted lower odds of EBF across models (Model 1 OR = 0.24, $p < .001$; Model 2 OR = 0.33, $p = .006$). Lack of privacy in crowded market spaces was also a strong barrier, reducing the odds of EBF by over 80% in the unadjusted model (OR = 0.17, $p = .001$). Physical breastfeeding difficulties, such as pain and latch problems, were significant in Model 1 but lost significance after adjusting for socio-demographics, suggesting broader structural factors influence these challenges.

Lack of partner or family support similarly reduced the likelihood of EBF (OR = 0.29, $p = .002$), aligning with patterns observed in the descriptive data. The strongest and most consistent predictor was the perception that EBF reduces income or work time. Mothers who believed breastfeeding interfered with their earning ability were far less likely to breastfeed exclusively (Model 1 OR = 0.12, $p < .001$; Model 3 OR = 0.10, $p = .006$).

Overall, these findings indicate that EBF among *kayayei* is primarily constrained by work-related and economic barriers, which are compounded by environmental challenges and limited social support. Even though physical breastfeeding problems contribute to reduced EBF, structural constraints consistently exert the strongest influence, underscoring the need for multilevel interventions that address workplace conditions, privacy, and maternal support systems.

Qualitative Insights

Participants' accounts revealed that balancing breastfeeding with day-to-day survival demands was emotionally draining and physically exhausting. Many mothers expressed that while they understood the importance of breastfeeding, the realities of their work as *kayayei* made it extremely difficult to practice EBF consistently.

This sentiment was echoed across interviews, where it became evident that there were no formal institutional supports for EBF, particularly for vulnerable groups such as *kayayei*.

"We have general maternal and child health programs, but there isn't a specific directive on supporting Kayayei in breastfeeding or anything. We are aware of the problems, but we lack the resources to implement such interventions. So, if it comes to breastfeeding, it is left to healthcare professionals to provide the education". (KII, Ministry of Gender)

This highlights a critical policy void, as *kayayei* often face unique barriers such as mobility, economic instability, and health-related problems, which further complicate their ability to maintain EBF practices, as was noted by a midwife:

"For the kayayei, we treat them like every other woman because they do not necessarily need special treatment. However, the truth is that their circumstances are unique, particularly given the nature of their work. Many of them are involved in heavy labour where they do not get breaks, so it's difficult for them to find time for breastfeeding or even attend antenatal and postnatal classes. Additionally, hygiene is a significant concern. They smell bad! Therefore, we spend extra time educating them on basic hygiene practices, but due to the nature of their work, they may not have the time to attend the breastfeeding training. It's why there needs to be policies that consider their work and environment if we want to help them with exclusive breastfeeding." (KII, Healthcare Worker)

Overall, the qualitative insights highlight that EBF is not simply a matter of knowledge or intention for *kayayei* mothers. Their ability to breastfeed is shaped by economic survival pressures, lack of supportive environments,

mobility, and absence of private spaces, all of which create a daily struggle between their infants' feeding needs and their own livelihood

Discussion

This study explored the multilevel challenges and support systems influencing exclusive breastfeeding (EBF) among *kayaye* in the Kumasi Metropolis using the Social Ecological Model (SEM). The findings suggest that EBF behaviours in this population are shaped by interacting determinants at the individual, interpersonal, community, and societal levels, rather than by maternal knowledge or motivation alone. This interpretation is consistent with global evidence that breastfeeding outcomes depend on the combined effects of maternal capability, social support, environmental conditions, and policy protections (Rollins et al., 2016; Victora et al., 2016).

At the individual level, physical breastfeeding challenges were common and were linked to reduced likelihood of EBF in the unadjusted regression models. Latch difficulties were reported by 63% of respondents, and pain or breast discomfort by 67%. In Model 1, both latch difficulties (OR = 0.43, $p = 0.019$) and pain or discomfort (OR = 0.35, $p = 0.004$) were associated with lower odds of EBF. These results align with broader evidence that early breastfeeding complications, including ineffective latch and nipple or breast pain, can precipitate early supplementation when skilled help is limited (Miranda et al., 2025; ACOG, 2021).

However, these physical challenges lost statistical significance in the fully adjusted model, which is informative. It suggests that pain and latch problems may be partly driven or sustained by upstream constraints, especially limited time to breastfeed, stress, and weak access to hands-on lactation support. In settings where mothers must feed quickly, breastfeed in uncomfortable positions, or delay feeding to meet work demands, these problems are less likely to resolve on their own and more likely to translate into non-exclusive feeding.

Education also seems relevant. Although education was not directly included in the challenges regression table, the descriptive profile indicates low educational attainment (56.1% with no formal education, 10.4% with SHS or above). National analyses in Ghana and multi-country African studies often find higher EBF uptake among women with higher educational levels, probably due to better health literacy, greater confidence in feeding choices, and more active engagement with antenatal and postnatal counselling messages (Doe et al., 2025; Amzat & Aminu, 2024).

At the interpersonal level, support was limited and uneven. Only 45% reported partner support, and 52% reported peer support. This matters because partner and family support can reduce the daily trade-offs between infant care and income generation by sharing childcare and buffering stress. In Model 1, lack of partner or family support was associated with lower odds of EBF (OR = 0.29, $p = 0.002$) and remained significant in Model 2 after adjustment for sociodemographic factors (OR = 0.34, $p = 0.017$). These results are consistent with evidence that father or partner engagement can improve EBF outcomes, with a recent meta-analysis showing that paternal support interventions increase EBF rates across early postpartum time points (Zhou et al., 2024).

Qualitative narratives in this study highlight the emotional burden of unsupported breastfeeding, including stress linked to having to combine childcare and income generation without dependable help. This resonates with reviews showing that psychosocial stressors and the strength of support networks are major determinants of breastfeeding continuation, particularly in low-resource settings (Miranda et al., 2025).

The low rate of hands-on support is particularly important for *kayayei* because their constraints increase the need for efficient feeding techniques. When mothers must breastfeed quickly in public spaces or while managing physically demanding tasks, these small problems can become persistent barriers.

Community, workplace environment and access to health care facilities and professionals were among the most prominent barriers. Lack of privacy was reported by 80% of participants and was strongly associated with reduced odds of EBF in Model 1 (OR = 0.17, $p = 0.001$) and Model 2 (OR = 0.19, $p = 0.004$). In the *kayayei* context, crowded market spaces and insecure living environments limit the feasibility of breastfeeding on demand, discourage frequent feeding, and may expose mothers to stigma or harassment.

This aligns with evidence that breastfeeding is sensitive to the immediate environment. Workplaces that provide private spaces, predictable breaks, and supportive norms tend to improve breastfeeding continuation, while the absence of these supports is a well-documented barrier (Vilar-Compte et al., 2021). In Africa, a scoping review of paid work and infant feeding similarly reports that time pressure, lack of breaks, and the inability to keep infants close are common pathways through which paid work undermines EBF in the first six months (Mgongo et al., 2024).

Evidence from urban poor settings in Ghana also underscores that the material and social conditions of daily life shape breastfeeding knowledge, perceptions, and feeding practices, particularly where mothers face overlapping vulnerabilities (Adimazoya et al., 2026). For *kayayei*, the problem is not simply 'knowledge gaps' but the practical absence of safe and private spaces for feeding and rest.

The health system pathway emerges as both a protective factor and a missed opportunity. In Table 3, 55.8% reported receiving breastfeeding counselling during ANC, while 45.7% reported PNC. Yet only 23.6% reported receiving health worker support focused on latch, attachment, and feeding technique. This pattern suggests that many mothers may receive information, but far fewer receive practical help that could prevent or resolve pain and latch problems.

The wider evidence base supports this interpretation. Breastfeeding counselling and support can improve breastfeeding outcomes, but the impact depends heavily on the quality and practicality of the counselling provided (Olufunlayo et al., 2019; Miranda et al., 2025). Recent evidence from sub-Saharan Africa also indicates that increasing the number of ANC contacts alone is not sufficient to improve EBF, which reinforces the need to focus on quality, relevance, and continuity of support (Olapeju et al., 2025).

At the societal level, the strongest and most consistent barriers are related to work and income insecurity. Work-related constraints were reported by 76%, and 78% reported that EBF reduces income or work time. In the regression models, work-related constraints were strongly associated with reduced odds of EBF (Model 1 OR = 0.24, $p < 0.001$; Model 2 OR = 0.33, $p = 0.006$). The perception that EBF reduces income or work time was the most consistent predictor across models (Model 1 OR = 0.12, $p < 0.001$; Model 3 OR = 0.10, $p = 0.006$). These results quantify a central tension for *kayayei*: feeding on demand competes directly with earning opportunities in a setting where income is day-to-day and highly contingent.

This is consistent with broader literature on informal work. In Ghana, statutory maternity protections exist in law for formal workers, including at least twelve weeks of paid maternity leave and provisions for nursing breaks after return to work (Republic of Ghana, 2003). However, informal workers such as *kayayei* are often outside enforceable employer–employee arrangements, which limits how far legal entitlements translate into real

protection. Global monitoring similarly shows that many countries still do not guarantee workplace facilities and paid breaks that support breastfeeding (UNICEF & WHO, 2023).

A useful contrast is provided by national evidence among 'working mothers' in Ghana, where EBF prevalence has been reported as high in some analyses of survey data (Lokko et al., 2025). This difference does not contradict the present findings; rather, it suggests that 'employment' is not a single exposure. The conditions of work, including flexibility, income security, infant proximity, and availability of breastfeeding spaces, appear to determine whether employment supports or undermines EBF (Vilar-Compte et al., 2021; Nkrumah et al., 2017).

Policy options that address income insecurity directly are increasingly discussed in the breastfeeding equity literature. For example, a costing study modelling maternity cash transfers for women employed in the informal sector in Ghana estimated that such a programme could cost between about 0.076% and 0.28% of GDP, depending on the number of weeks covered (Carroll et al., 2022). While costing does not establish effectiveness, it helps frame the affordability and feasibility of social protection approaches that could reduce the pressure to return to work immediately after birth and thereby improve the feasibility of EBF for informal workers.

Cultural norms in this study showed mixed influence, with 40% reporting supportive norms. African evidence suggests that cultural expectations may promote breastfeeding in principle, but still permit or encourage early supplementation under pressure from elders, work demands, or beliefs about infant thirst and digestion (Amzat & Aminu, 2024). This dual pattern fits the qualitative accounts in the present study, where breastfeeding is valued but routinely interrupted by the economic realities of market work.

Integrated interpretation and implications

The interaction across SEM levels helps explain why the economic and work-time barrier remained dominant across models, while some physical challenges attenuated after adjustment. When mothers face sustained time poverty, constant mobility, and exposure in public spaces, breastfeeding becomes an 'expensive' activity in the short term, even when it is strongly valued. In such conditions, individual-level counselling alone is unlikely to be sufficient.

The findings point to a set of practical, multilevel responses that fit the *kayayei* context. At the community level, market-based breastfeeding corners or protected spaces, negotiated with market authorities and aligned with municipal health outreach, could directly address privacy and feeding frequency constraints. ANC and PNC should prioritise practical skills (positioning, latch, managing pain) and continuity of support, including outreach models that reduce the need for mothers to leave the market to access services. At the interpersonal level, structured peer support and targeted father engagement (where feasible) are supported by evidence and align with the peer reliance already observed in this population (Zhou et al., 2024). At the policy level, social protection options for informal workers, including maternity cash transfers or locally administered support schemes, may be necessary to reduce the income penalty attached to EBF (Carroll et al., 2022).

Conclusion and Recommendation

This study examined the multilevel barriers and support systems influencing EBF among *kayayei* in the Kumasi Metropolis through the Social Ecological Model. The findings show clearly that EBF in this population cannot be explained by maternal knowledge or intention alone. Rather, it is shaped by a combination of interacting pressures at the individual, interpersonal, community, and structural levels.

At the individual level, mothers faced pain, latch problems, fatigue, and stress, which made breastfeeding difficult to sustain. At the interpersonal level, limited support from partners, relatives, and caregivers left many mothers to manage feeding, childcare, and work with little help. At the community level, crowded markets, low privacy, mobility, and demanding work conditions constrained breastfeeding. At the structural level, weak social protection, poor accommodation for breastfeeding in informal work, and limited continuity of health support further deepened these challenges.

The study also found that support systems do exist, but they are uneven and often insufficient. Antenatal education, postnatal counselling, peer networks, and occasional family or childcare support offered some protection and helped some mothers continue breastfeeding. However, these supports did not consistently match the intensity of the challenges mothers faced. In practice, the demands of survival in informal urban labour often outweighed mothers' ability to adhere to recommended feeding practices.

Taken together, the findings show that EBF among *kayayei* is not only a maternal and child health issue, but also a social welfare concern. It is shaped by poverty, migration, insecure livelihoods, weak support systems, and the lack of breastfeeding-friendly environments. This suggests that health education alone may not be enough. Lasting improvement will require multilevel responses that address both immediate breastfeeding challenges and the broader social and economic conditions of mothers' lives.

In this respect, the study contributes to the growing literature showing that infant feeding practices among vulnerable urban populations are deeply tied to social context. For *kayayei* in particular, breastfeeding is carried out within conditions of work precarity, unstable shelter, social dislocation, and limited institutional recognition. Any serious effort to improve exclusive breastfeeding in this group must therefore move beyond individual behaviour change and engage the wider systems that shape women's daily realities.

The study recommends that improving EBF among *kayayei* requires coordinated multilevel action. Health services should strengthen practical breastfeeding support through antenatal, postnatal, and market-based outreach interventions. Interpersonal support should be enhanced by involving partners, family members, and peer networks in breastfeeding education and care. At the community level, market authorities and local government actors should provide safe and private breastfeeding spaces within major trading areas. At the structural level, policy responses should address the broader welfare needs of migrant women in informal work through inclusive social protection measures and improved access to maternal and child health services.

Strengths and Limitations

This study has several strengths, including its mixed-methods design, which combines both quantitative and qualitative approaches, and provides a comprehensive understanding of both the prevalence of challenges and the lived experiences of *kayayei* mothers regarding EBF. The integration of qualitative insights helped contextualise the quantitative findings and offered a nuanced view of barriers at multiple levels of the SEM. The use of the SEM facilitated systematic examination of individual, interpersonal, community, and societal factors. This framework enhances the interpretability of findings and supports the design of multilevel interventions. Focusing on a marginalised and hard-to-reach population adds valuable context-specific evidence. At the same time, in-depth interviews captured mothers' lived experiences, enriching the quantitative findings for a population often underrepresented in maternal and child health research.

However, the study has certain limitations. Its cross-sectional design precludes causal conclusions; this limitation was addressed by carefully triangulating quantitative results with qualitative narratives to provide contextual insights into potential relationships. Dependence on self-reported data may cause recall or social desirability bias; to address this, participants were assured of confidentiality, and questions were phrased neutrally to promote honest responses. The findings are specific to kayayei in the KMA and may not apply to other informal workers or regions; nonetheless, the study concentrated on this group to generate context-specific evidence for interventions. Finally, although the qualitative sample size was limited, purposive sampling ensured a diverse representation across age, marital status, and work experience, thereby capturing a wide range of breastfeeding experiences.

Declarations

Author Contribution

RAO conceptualised the study and led data collection. BD and SA contributed to the study design and analysis, while DF reviewed the final draft. All authors contributed to writing and approved the final manuscript.

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Figures

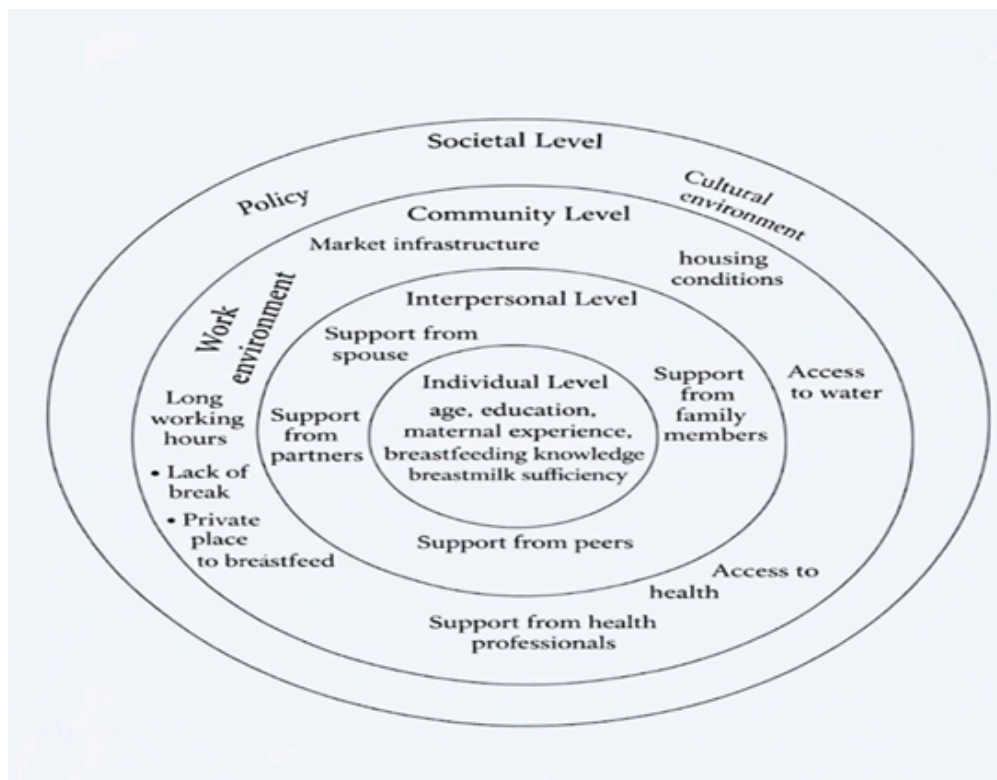


Figure 1

A modified Social-Ecological Model Framework of Bronfenbrenner, 1979.



Figure 2

Map of Kumasi Metropolis.

Source: Ghana Statistical Service (2020)

