

RESEARCH ARTICLE

ASSESSMENT OF KNOWLEDGE OF EXCLUSIVE BREASTFEEDING AMONG WOMEN OF CHILDBEARING AGE IN CHARANCHI LOCAL GOVERNMENT AREA, KATSINA STATE

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Abstract

Background: Exclusive breastfeeding (EBF) is essential for the optimal health of infants, yet its practice remains sub-optimal in Charanchi Local Government Area, Katsina State, Nigeria. Various factors continue to hinder its adoption among women of childbearing age (WCBA) in this region. This study aimed to investigate these factors and recommend solutions to increase the knowledge of EBF among WCBA. **Methodology:** A mixed-method cross-sectional study was employed to assess the knowledge of EBF among WCBA in Charanchi Local Government Area. A multi-stage sampling technique was used to select 315 participants. Data was collected using interviewer-administered questionnaires and key informant interviews, respectively. **Bivariate analysis** was used to assess the relationships between knowledge of EBF in the quantitative data, which was analyzed using IBM SPSS version 27.0, while thematic analysis was used for the qualitative data. **Results:** The study revealed that 87.62% of the respondents were aware of EBF, with antenatal visits being the primary source of information for 82.5% of the participants. However, only 64.8% of respondents reported comprehensive knowledge of the WHO-recommended six-month duration of EBF. Notable gaps were identified, particularly regarding the benefits of EBF for maternal health and the potential risks of early complementary feeding. Cultural misconceptions, such as the belief that breast milk alone is insufficient, were cited by 35% of the respondents. **Conclusion:** While awareness of EBF is relatively high among WCBA in Charanchi Local Government Area, critical gaps in comprehensive knowledge persist, influenced by cultural beliefs and limited educational outreach. Enhanced health education efforts, especially during antenatal and postnatal visits, are essential to bridge these gaps and improve EBF practices.

Keywords: Exclusive breastfeeding, Women of child-bearing age, Knowledge.

Introduction

Exclusive breastfeeding (EBF), defined as feeding an infant with only breast milk for the first six months of life without additional foods or liquids except for medications, is globally recognized as the optimal method for infant

nutrition and survival [World Health Organization (WHO, 2022)]. Breast milk provides

essential nutrients tailored to meet infants' developmental needs while offering protective antibodies and bioactive compounds that shield against infections and diseases (Rollins *et al.*, 2016). EBF is also associated with long-

term benefits, including reduced risks of chronic conditions like obesity and diabetes in later life (Horta & Victoria, 2013). For women of childbearing age (WCBA), EBF provides health benefits such as reduced risks of ovarian and breast cancers and the natural contraceptive effect of lactation amenorrhea (WHO, 2009).

Despite its well-known advantages, global rates of EBF remain suboptimal. As of 2021, only 44% of infants aged 0–6 months were exclusively breastfed globally, falling short of the WHO's target of 70% by 2030 [United Nations Children Fund (UNICEF, 2021a)]. In Africa, the prevalence of EBF shows significant regional variation, ranging from 23% in Chad to 60% in Rwanda, reflecting disparities in knowledge, cultural practices, and support systems (UNICEF, 2021b).

In Nigeria, the prevalence of EBF among WCBA is similarly low, with only 28.7% of infants exclusively breastfed, according to the 2018 Nigeria Demographic and Health Survey [National Population Commission (NPC) & International Classification of Functioning, Disability and Health (ICF), 2019)]. Rural communities face unique barriers, including limited maternal education, cultural beliefs, and insufficient access to healthcare services. For instance, a study in Jigawa State reported that only 26.8% of WCBA practiced EBF, highlighting the critical role of knowledge and awareness in influencing breastfeeding behaviors (Sabo *et al.*, 2023).

Katsina State, in northern Nigeria, is particularly affected by these challenges. Charanchi Local Government Area (LGA) reflects the broader issues faced in the state, including high poverty levels, limited maternal education, and deeply rooted cultural practices that hinder optimal breastfeeding. For example, traditional beliefs, such as the misconception that colostrum is harmful to infants, persist and discourage the early initiation of breastfeeding (Joseph & Earland, 2019).

Maternal education plays a pivotal role in shaping breastfeeding practices. Studies indicate that WCBA with higher educational attainment are more likely to be knowledgeable about EBF and practice it effectively (Sabo *et al.*, 2023). Additionally, employment status affects EBF

rates, with working women facing significant challenges in balancing job demands with breastfeeding (Onwuka, 2022). Inadequate workplace policies, such as a lack of breastfeeding rooms or lactation breaks, further exacerbate these challenges.

Understanding the knowledge and awareness of EBF among WCBA in Charanchi LGA is critical to addressing these barriers and promoting improved practices.

Methods

Three hundred sixty-five questionnaires were distributed, and 315 valid questionnaires were successfully retrieved. Of these, 315, the required sample number for this research, were used for data presentation and analysis.

The Study Design

A mixed-method cross-sectional study was employed. A multi-stage sampling technique was used to select 315 participants.

The Study Area

The study was conducted in the Charanchi Local Government Area (LGA) of Katsina State, Nigeria, established in 1996. Charanchi LGA serves as a centre for cultural and economic activities, with a projected population of approximately 137,613 people based on the 2006 national census [National Population Commission (NPC), 2006]. Women of childbearing age (15–49 years) constitute about 22% of this population, totalling an estimated 30,275 women.

Geographically, Charanchi LGA is situated at Latitude 12.6015° N and Longitude 7.6837° E, with an elevation of 534 meters (1,752 feet) above sea level. It covers 471 square kilometres and includes prominent towns such as Kuraye, Banye, and Radda.

This study collected data from eight villages, consisting of two villages each from the Koda, Doka, Majen Wayya, and Tsakatsa wards. These wards were purposefully selected to ensure diverse representation within the LGA.

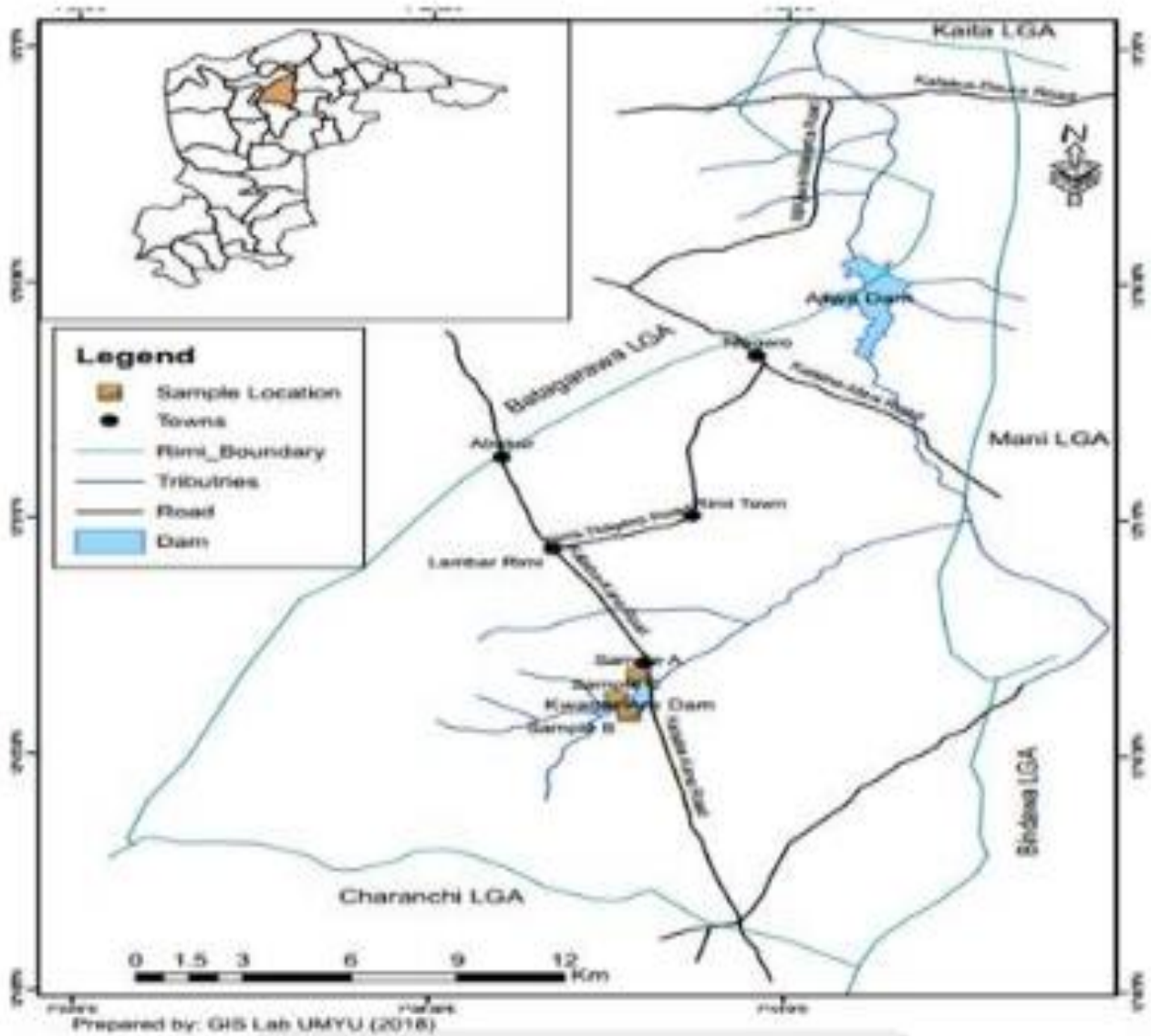


Figure 1: The map of Charanci LGA, Katsina State, Nigeria (Yusuf *et al.*, 2023)

Sample Size Determination

To calculate the sample size for the quantitative survey component, the formula for estimating a single proportion was used:

$$n = \frac{Z^2 p(1-p)}{d^2} \quad (\text{Bolarinwa, 2015}).$$

The utilized parameters include $Z = 1.96$ corresponding to the desired level of confidence (e.g., 1.96 for a 95% confidence level), a margin of error (d) = 0.05, and $P =$

0.287 (28.7%), as reported by NDHS (2018). Initially, the calculated sample size was 315. After adding 10% to accommodate potential missing values and data entry errors, the adjusted sample size was 345. The researchers consequently finalized the sample size estimate at 315.

Sampling Technique

A multi-stage sampling technique was employed to select participants for the study, ensuring that the sample was representative of the entire population in Charanchi LGA. The process involves three main stages:

Stage 1: Selection of Wards

Four wards within Charanchi LGA were selected using simple random sampling from a list of 10 wards, ensuring broad coverage and representation.

Stage 2: Selection of Settlements within Wards

A comprehensive list of settlements was compiled within each selected ward. Two settlements in each ward were chosen using simple random sampling. This ensures geographical diversity and equal representation across the wards, resulting in a total of 8 settlements.

Stage 3: Selection of Respondents within Settlements

A comprehensive household list served as the sampling frame in each selected settlement. Households were selected using systematic random sampling. The sampling interval “n” was calculated by dividing the total number of households by the desired sample size for each settlement, determined through proportional allocation. A random starting point was determined using a table of random numbers, and every nth household was selected. For example, if there are 1,000 households and the desired sample size is 100, “n” was 10, meaning every 10th household was selected. This approach ensures that the sample is representative of the entire population.

In cases where a selected household does not meet the inclusion criteria or declines to participate, the next immediate household was approached to ensure the sample size was maintained.

If more than one eligible mother was found in a household, their names were line-listed and assigned numbers. A simple random sampling method, such as balloting, selected one among them. This ensured fairness and simplicity in selecting the participants. In cases where a household had only one eligible mother, she was automatically selected for the study.

This multi-stage sampling technique ensures that the sample was drawn in a structured and unbiased manner, reflecting the demographic and geographical diversity of Charanchi LGA.

The Study Variables

The study's dependent variables were the knowledge levels and breastfeeding practices of WCBA with infants aged 0-24 months in Charanchi LGA.

The independent variables for the study were demographic and socioeconomic characteristics, sources of information on EBF, content on EBF and maternal knowledge of breastfeeding by WCBA with infants aged 0-24 months in Charanchi LGA.

Data Analysis

The quantitative data was analyzed using IBM Statistical Package for Social Science (SPSS) version 27 for Windows. To summarise the data, descriptive statistical techniques such as frequencies, percentages, and measures of central tendency were utilized.

Furthermore, a logistic regression analysis was conducted to identify EBF predictors while controlling for clustering and confounders. This advanced statistical method enables us to assess the relationship between different factors and EBF practices while considering potential confounding variables.

The qualitative insights gained from key informant interviews and the WCBA were subjected to thematic analysis, a method used to identify, analyze, and report patterns (themes) within data (Braun & Clarke, 2006). This process involves familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report.

Thematic Analysis Report on Knowledge of EBF Among WCBA in Charanchi LGA

This report presents a thematic analysis of key informant interviews conducted with 20 health stakeholders in Charanchi LGA, Katsina State, Nigeria. The interviews aimed to assess the knowledge and practice of exclusive breastfeeding (EBF) among women of childbearing age (WCBA) in the region. The stakeholders included medical officers, midwives, community health workers, and representatives from various health organizations.

The data for this thematic analysis were collected through structured interviews, focusing on stakeholders'

perspectives on the knowledge, practice, influencing factors, support systems, and recommendations regarding EBF. The responses were coded and analyzed to identify recurring themes and patterns.

Results

Table 1A presents the socio-demographic distribution of respondents across the four selected wards of Charanchi LGA. A total of 108 (34.3%) respondents were from the Koda ward, followed by 83 (26.4%) from Doka, 64 (20.3%) from Majen Wayya, and 60 (19.1%) from Tsakatsa. Within these, specific villages such as Farun Ruwa (12.4%), Katakalo (21.9%), Dambuna (16.2%), Rahama (10.2%), Sabaru (9.5%), Rumawa (10.8%),

Dafara (11.1%), and Malamawa (7.9%) were represented. Most respondents were between the ages of 18–30 years, comprising 85 (27%) aged 18–20, 120 (38.1%) aged 21–25, and 84 (26.6%) aged 26–30. Only 26 (8.3%) were aged 31–40 years. Regarding parity, 86 (27.3%) of the children were firstborns, 109 (34.6%) were second-bourns, 87 (27.6%) were thirdborns, and 33 (10.5%) were fourth-bourns. Furthermore, 222 (70.5%) respondents came from nuclear families, while 93 (29.5%) came from extended families. In terms of educational attainment, 138 (43.8%) had no formal education, 104 (33%) had primary education, 64 (20.3%) had secondary education, and only 9 (2.9%) had tertiary education.

Table 1A: Sociodemographic information of the respondents

Statement	Option	F	%
Wards and villages	Farun ruwa (Koda)	39	12.38
	Katakalo (Koda)	69	21.90
	Total	108 (34.29%)	
	Dambuna (Doka)	51	16.19
	Rahama(Doka)	32	10.16
	Total	83 (26.35%)	
	Sabaru (Majen Wayya)	30	9.52
	Rumawa (Majen Wayya)	34	10.79
	Total	64 (20.32%)	
	Dafara (Tsakatsa)	35	11.11
	Malamawa (Tsakatsa)	25	7.94
Total	60 (19.04%)		
Age (years)	18-25	180	57.14
	26-30	84	26.67
	31+	26	8.25
Parity	1 st	86	27.30
	2 nd	109	34.60
Parity	3 rd	87	27.60
Family setting	4th or more	33	10.50
	Nuclear Family	222	70.50
	Extended Family	93	29.50
Level of education	No education	138	43.80
	Primary	104	33.00
Level of education	Secondary	64	20.30
	Tertiary	9	2.90

Table 1B presents the employment and socio-economic characteristics of the respondents. Out of the 315 women, 73 (23.2%) were fully employed, 40 (12.7%) worked part-time, 30 (9.5%) were unemployed, 13 (4.1%) were students, while the majority, 159 (50.5%), were stay-at-home mothers. Among the employed respondents, 25 (7.9%) were teachers, 13 (3.8%) were attendants, 12

(3.8%) worked in healthcare, 2 (0.6%) were cleaners, and 16 (5.1%) engaged in other occupations. Monthly income distribution showed that 167 (53%) earned ₦30,000 or less, 93 (29.5%) earned between ₦31,000–₦60,000, and 55 (17.5%) earned over ₦61,000, indicating that a large proportion of respondents had low income. Marital status revealed that 304 (96.5%) were married, while 11 (3.5%)

were divorced or separated. In terms of religion, 310 (98.4%) were Muslims, 4 (1.3%) were Christians, and 1 (0.3%) adhered to traditional African beliefs. Regarding the place of childbirth, 135 (42.9%) delivered at home, while 180 (57.1%) gave birth at a hospital or health centre.

Concerning distance to the nearest hospital, 84 (26.7%) travelled 1–3 km, 93 (29.5%) travelled more than 3–5 km, 54 (17.1%) travelled more than 6–8 km, and 84 (26.7%) reported covering more than 8 km to access the nearest health facility.

Table 1B Sociodemographic information of the respondents

	Option	F	%
Employment status	Fully Employed	73	23.20
	Part-time	40	12.70
	Unemployed	30	9.50
	Student	13	4.10
Type of work	A stay-at-home mother	159	50.50
	Cleaner	2	0.60
	Teacher	25	7.90
	Hospital attender	12	3.80
	Health worker	12	3.80
	Other	16	5.10
	Average monthly income	N0 - N30,000	167
N31,000 - N60,000		93	29.50
N61,000 and above		55	17.50
Marital status?	Married	304	96.50
	Divorced/ Separated	11	3.50
Religion	Christianity	4	1.30
	Islam	310	98.40
	African traditional religion	1	0.30
Place of delivery of last child	Home	135	42.90
	Hospital/Health centre	180	57.10
Distance from home to nearest hospital or health centre	1km to 3km	84	26.70
	More than 3km to 5km	93	29.50
	More than 6km to 8km	54	17.10
	More than 8km	84	26.70

Table 2A summarises respondents' knowledge of Exclusive Breastfeeding (EBF).

The majority, 275 (87.4%), had heard of EBF, with health workers being the primary source for 270 (85.7%) of those surveyed. Other sources included family and friends (14.4%), the media (14.3%), and community meetings (6.0%). Most respondents, 259 (79.3%), accurately understood EBF as feeding the baby only breast milk for the first six months, while others incorrectly included water (18%) or early complementary feeding (1.3%) in their definitions. Regarding the benefits of EBF, 63.5% stated that it provides all necessary nutrients, 50.2% believed it boosts the baby's immune system, 28.6% associated it with improved bonding, 25.4% recognised maternal health

benefits, and 27.6% mentioned either a reduced risk of infant disease or better growth.

These findings indicate that while awareness of EBF is high, some misconceptions still require targeted education.

Table 2B presents further insights into respondents' knowledge and perceptions of EBF. Among the benefits mentioned, 204 (64.8%) indicated that EBF provides all necessary nutrients for infants, 124 (39.4%) said it boosts immunity, 92 (29.2%) cited enhanced mother-baby bonding, 94 (29.8%) noted maternal health benefits, 144 (36.2%) identified a reduction in infant diseases (e.g., diarrhoea, respiratory infections), and 100 (31.8%) believed it promotes better growth and development.

Regarding perceived challenges, 102 (32.4%) mentioned insufficient milk supply, 72 (22.9%) reported pain or discomfort during breastfeeding, 129 (41.0%) cited societal or familial pressure to introduce other foods early, 18 (5.7%) noted work or time constraints, and 38 (12.1%) identified lack of support or information. Confidence in EBF knowledge was high, with 237 (75.2%) feeling very confident, 38 (12.1%) somewhat confident, 30 (9.5%) not very confident, and 10 (3.2%) not confident at all. Furthermore, 237 (72.5%) of respondents had attended EBF educational sessions or received information from healthcare providers, indicating a relatively high level of exposure to professional breastfeeding education.

Table 2A Knowledge of EBF

Statement	Option	Frequency	Percentage
Heard about EBF	Yes	275	87.30
	No	40	12.70
First hearing about EBF	Healthcare worker	270	85.70
	Family/Friends	14	4.44
	Media (TV, radio, newspapers)	45	14.29
	Community meetings	19	6.03
	Other	9	2.86
Understanding of EBF	Feeding the baby only breast milk for the first 6 months	250	79.37
	Giving the baby water in addition to breast milk	57	18.10
	Introducing complementary foods before 6 months	4	1.27
	Others	0	
Reason for recommendation of EBF for the first 6 months of a baby's life	Provides all necessary nutrients for the baby	200	63.49
	Boosts the baby's immune system	158	50.16
	Promotes mother-baby bonding	90	28.57
	Reduces the risk of certain diseases in women of childbearing age	80	25.40
	Reduces the risk of certain diseases in babies	87	27.62
	Promotes better growth and development	87	27.62
	Others	12	3.81

Table 2B Knowledge of EBF (benefits, risk, confidence, attendance and usefulness)

Statement	Option	F	%
Benefits of EBF	Provides all necessary nutrients for the baby	204	64.76
	Boosts the baby's immune system	124	39.37
	Promotes mother-baby bonding	92	29.21
	Reduces the risk of certain diseases in women of childbearing age	94	29.84
	Reduces the risk of certain diseases in babies (e.g., diarrhoea, respiratory infections)	114	36.19
	Promotes better growth and development	100	31.75
	Others	0	0
Are there any risks or challenges associated with EBF? (Select all that apply)	Insufficient milk supply	102	32.38
	Pain or discomfort during breastfeeding	72	22.86
	Societal or familial pressure to introduce other foods early	129	40.95
	Work or time constraints	18	5.71
How confident do you feel about your knowledge of EBF?	Lack of support or information	38	12.06
	Other	42	13.33
	Very confident	237	75.20
	Somewhat confident	38	12.10
Attendance to educational sessions information about EBF	Not very confident	30	9.50
	Not confident at all	10	3.20
	Yes	222	70.50
	No	93	29.50

Table 2C explores the usefulness of information received about EBF and factors influencing knowledge among respondents. Among those who received EBF information from healthcare service providers, 178 (56.5%) reported it was very useful, 31 (9.8%) found it somewhat helpful, and 13 (4.1%) said the information was not useful to them. When asked to explain their understanding of EBF, 257 (81.6%) correctly defined it as giving only breast milk for six months, while 14 (4.4%) believed it included water, and 4 (1.3%) thought it included other foods. Healthcare workers were cited as the primary source of information by 276 (87.6%) respondents, followed by family/friends (13.3%), media (19.7%), and community meetings (11.1%).

Table 2C Knowledge of EBF

Statement	Option	F	%
Usefulness of the information provided	No response	93	29.50
	Very useful	178	56.50
	Somewhat useful	31	9.80
	Not very useful	13	4.10
Knowledge of EBF by own words	No response	40	12.70
	Breast milk only (6 months)	257	81.60
	Breast milk and water	14	4.40
Opinion on the main sources of information about EBF in the community	Breast milk and other food	4	1.30
	Healthcare workers	276	87.62
	Family/Friends	42	13.33
	Media (TV, radio, newspapers)	62	19.68
	Community meetings	35	11.11
	Other	0	0.00

TABLE 3: LOGISTIC REGRESSION ANALYSIS OF PREDICTORS OF GOOD KNOWLEDGE OF EBF

Variable	Adjusted Ratio (AOR)	Odds	95% CI	p-value
Education Level (Ref: No Education)	1.45		0.78–2.67	0.240
- Primary	2.30		1.12–4.76	0.022
- Secondary	4.76		1.11–20.30	0.036
- Tertiary	3.64		2.14–6.17	<0.001
Attendance at Health Education	1.12		0.65–1.92	0.682
Employment Status	1.08		0.59–1.96	0.812
Monthly Income	1.20		0.88–1.78	0.207

Table 3 presents the logistic regression analysis of predictors of good EBF knowledge. Educational attainment emerged as a strong predictor; women with tertiary education were 3.64 times more likely to possess good EBF knowledge than those without formal education (AOR = 3.64; 95% CI: 2.14–6.17; $p < 0.001$). Those with secondary education also showed significantly higher odds (AOR = 4.76; 95% CI: 1.11–20.30; $p = 0.036$), while primary education showed a positive trend (AOR = 2.30; $p = 0.022$). Although not statistically significant, attendance at health education sessions (AOR = 1.12; 95% CI: 0.65–1.92; $p = 0.682$), employment status, and monthly income showed weak associations with knowledge levels. These findings underscore the importance of formal education in shaping maternal understanding of EBF and highlight the need for expanded health education efforts targeting less-educated women to bridge knowledge gaps.

Thematic Area 1: Knowledge of EBF

Definition and Understanding of EBF:

Stakeholders consistently defined EBF as feeding an infant only breast milk for the first six months without any additional food or water. Respondents universally shared this understanding, with one medical officer stating, *“Exclusive breastfeeding means no water, no formula, just breast milk for the first six months.”*

Benefits of EBF:

Stakeholders highlighted the benefits of breastfeeding, which include providing essential nutrients, boosting the immune system, promoting mother-child bonding, aiding postpartum recovery, and reducing the risk of certain cancers in mothers. A community health worker mentioned, *“Breastfeeding nourishes the baby and protects them from common infections. It is also good for the mother, helping her recover faster and lowering her risk of breast cancer.”*

Thematic Area 2: Information Dissemination and Gaps

Sources of Information:

Information about EBF is primarily disseminated through antenatal clinics, healthcare providers, and community health workers. However, there are notable gaps in dissemination, with some women still lacking comprehensive knowledge. A midwife noted, *“We provide information during antenatal visits, but some women do not attend regularly, so they miss out on important messages.”*

Gaps in Knowledge:

The logistic regression analysis highlights the critical role of education and attendance at health education sessions in shaping maternal knowledge of exclusive breastfeeding (EBF). As expected, higher levels of education strongly correlated with improved knowledge of EBF, aligning with prior findings by Sabo et al. (2023) and Smith et al. (2019), who emphasized education as a key determinant of EBF outcomes. Moreover, structured educational sessions delivered by healthcare providers significantly improved knowledge outcomes, indicating that continuous maternal health education should be integrated into antenatal and

postnatal care programs. In contrast to some studies (e.g., Ajibola et al., 2020), employment status and income did not significantly influence EBF knowledge in this cohort. This may be due to the homogeneity of income levels in Charanchi LGA, where most respondents live below the poverty line. Therefore, future interventions should prioritize educational outreach over focusing on economic-based targeting.

Despite efforts, gaps remain due to cultural misconceptions and inconsistent follow-up. Some women believe that breast milk alone is insufficient, necessitating additional supplements. One respondent stated, “*Many mothers are still not convinced that breast milk alone can sustain their baby for six months. They think the baby needs water or other foods early on.*”

Discussion

The sociodemographic profile of the respondents is crucial in understanding the context within which EBF practices are carried out. The study revealed that most respondents were young mothers, with 55% falling within the age range of 20-29 years. This age group is typical for childbearing in Nigeria, and the findings are consistent with similar studies conducted in the country [Nigerian Demographic and Health Survey (NDHS), 2018].

The majority of respondents were married, with 89% indicating this as their marital status. This is significant in the context of EBF practices, as marital status often influences breastfeeding decisions and practices. For instance, married women may have more support from their spouses, which can positively influence their ability to practice EBF, as supported by the findings of Ajibola et al. (2020).

Educational attainment varied among the respondents, with 40% having only primary education and 25% with no formal education. This is a critical factor as previous studies have shown a strong correlation between educational level and health knowledge, including knowledge of EBF. For example, Jones et al. (2020) reported that 85% of women with tertiary education practised EBF, compared to 45% of women with only primary education. The lower educational levels observed in this study may contribute to gaps in EBF knowledge and practices among the respondents in Charanchi LGA.

The respondents' employment status indicated that 60% were either unemployed or engaged in informal jobs, which may impact their ability to practice EBF, particularly in terms of time and financial resources. This aligns with findings from studies that highlight the challenges faced by women with lower socioeconomic status, which often leads to a reduced ability to adhere to EBF recommendations (Dinour & Szaro, 2017).

The study found 87.62% of respondents were aware of EBF, primarily through healthcare workers during antenatal visits. This high level of awareness reflects the effectiveness of healthcare services in disseminating information about EBF. However, despite this high awareness, the study revealed significant gaps in detailed knowledge, particularly regarding the duration of EBF and its full benefits. For instance, 30% of the respondents believed that breast milk alone was not sufficient for the first six months, a misconception that has also been reported in other studies (Agunbiade & Ogunleye, 2012).

This finding aligns with Saaka & Larbi (2017), who identified similar gaps in knowledge despite high levels of awareness. These gaps suggest that while information about EBF is reaching the population, it may not be fully understood or retained. This underscores the need for more comprehensive and continuous education efforts that not only inform but also clarify and reinforce the specifics of EBF, including its sufficiency for infant nutrition.

The discrepancy between awareness and comprehensive knowledge also highlights the influence of educational background, as women with lower educational levels were less likely to have complete knowledge of EBF practices. This suggests that educational interventions targeting less educated women could significantly improve EBF practices in Charanchi LGA.

The logistic regression analysis offered more profound insights into the socio-demographic predictors of good knowledge regarding exclusive breastfeeding (EBF) among Women of Childbearing Age (WCBA) in Charanchi LGA. The analysis indicated that educational attainment was a statistically significant predictor of EBF knowledge.

Respondents with tertiary education had the highest odds of demonstrating good knowledge of EBF (AOR = 3.64; 95% CI: 2.14–6.17; $p < 0.001$), followed by those with

secondary education (AOR = 4.76; 95% CI: 1.11–20.30; $p = 0.036$). These findings align with existing literature, such as the study by Sabo et al. (2023), which reported that educated mothers are more likely to understand the importance of exclusive breastfeeding and practice it effectively. The results from this study reinforce the established understanding that formal education enhances health literacy and promotes healthy practices among women, including adherence to recommended infant feeding practices.

Interestingly, attendance at health education sessions, although positively associated with better knowledge (AOR = 1.12), did not achieve statistical significance ($p = 0.682$). This may be attributed to inconsistencies in the delivery or uptake of these sessions or the limited duration and intensity of the education provided. This highlights the need to evaluate current health education strategies and incorporate more engaging, context-specific educational materials that resonate with the local population.

Other variables, such as employment status and monthly income, did not significantly predict EBF knowledge in this study. Although economic empowerment may improve access to healthcare information and services, the acquisition of knowledge related to EBF appears to be more strongly influenced by formal education and structured health promotion interventions. This finding highlights the importance of tailored educational interventions, regardless of socio-economic background.

The findings highlight the vital role that formal education plays in equipping women with essential health knowledge. They suggest that to improve EBF practices, health promotion programs must prioritize educational outreach, mainly targeting women with low or no formal education. Additionally, community-based approaches involving trained health educators and peer counsellors and integrating EBF topics into adult literacy programs may enhance knowledge and drive behavioural change.

Conclusion

Based on the findings, it is concluded that most breastfeeding mothers heard about EBF through their health workers and understand the meaning of EBF, where they revealed that EBF boosts the baby's immune system. The thematic analysis of the interviews with health stakeholders in Charanchi LGA reveals critical insights

into WCBA's knowledge of EBF. While there is a foundational understanding of EBF and its benefits, significant gaps in knowledge remain due to cultural, social, and systemic factors. Addressing these challenges requires a multifaceted approach involving education, supportive policies, community engagement, and strengthened healthcare systems.

Recommendations

Based on the findings from this study, the following recommendations are proposed to improve EBF knowledge and ultimately increase the practice rates:

Strengthen Health Education Programs: Health education on EBF should be enhanced and systematically integrated into antenatal and postnatal care services. Targeted messaging that addresses cultural misconceptions, such as the belief that breast milk alone is insufficient, should be prioritised.

Promote Female Education: Since maternal education is a significant predictor of EBF knowledge, government and non-governmental stakeholders should enhance female literacy, especially in rural areas. Adult education programs and women-focused health literacy campaigns can be crucial.

Scale Up Community Engagement: Community health workers and local leaders should be empowered to conduct regular outreach sessions on exclusive breastfeeding (EBF) in their communities. Involving family members, particularly husbands and elders, can help address societal pressures and traditional beliefs discouraging EBF.

Utilize Multiple Channels for Information Dissemination: Besides health workers, media platforms like radio, television, and mobile health (mHealth) campaigns should be used to spread accurate information about exclusive breastfeeding (EBF) in local languages.

Train Health Workers on Effective Counselling: Health personnel should receive training and ongoing education on providing culturally sensitive, precise, and engaging instruction on EBF during clinic visits and community outreach initiatives.

Integrate EBF Messaging into School Curricula: Introducing basic concepts of maternal and child nutrition, including EBF, into school health education curricula

fosters early awareness and promotes long-term knowledge retention.

Encourage Research and Monitoring: Further studies should be conducted to assess the effectiveness of current EBF promotion strategies in the region. Ongoing monitoring and evaluation will facilitate adaptive health communication and program design improvements.

Limitations

Cultural factors could influence participants' responses, potentially leading to biases in the data. To address this, the study design included input from local healthcare professionals and community leaders familiar with the cultural context of Charanchi LGA. The research assistants received training on cultural competence to ensure that interviews and questionnaires were conducted culturally and respectfully. Furthermore, using local languages and culturally appropriate communication strategies helped build trust with participants, encouraging more accurate and honest responses.

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Conflict of Interest

The authors declare no competing interests.

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Authors' Contributions

Conceptualization: AYM, AT; Data Curation: AT, AYM; Formal Analysis: AYM, AT, FS Investigation: AT, AYM, FAS, AA, SMS; Methodology: AT, AYM, AA; Supervision: AT, AYM, Writing the Original Draft – AT, AYM, FAS, AA; Writing, Review and Editing – AT, AYM, AA, FAS, SMS.

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