

Maternal practice of exclusive breastfeeding on 0-6 month's infants' health outcomes in Bayelsa West, Nigeria

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ABSTRACT: This study assessed the physiological impact and prevalence of exclusive breastfeeding practice among mothers of infants of 0-6months in SALGA of Bayelsa State. A cross-sectional survey design using a multistage sampling technique was employed to select all 315 mothers with infants of 0-6months that met the criteria for the study out of 325 structured questionnaires (main instrument used) dispatched. The results show that 20-29yrs (36.2%) make up the largest share of the considered population, while those with tertiary education (51.4%) dominate, followed by those with a secondary certificate (43.8%). The mothers of the infants were mostly (53.3%) married. The outcome from this study shows 23.8% of mothers are practicing exclusive breastfeeding compared to 76.2% who have introduced supplementary food to their infants' diets. Most infants (51.4%) have experienced fever within six months interval compared to 12.4% with no major signs of illness. Lack of time due to work was a major barrier (39.0%) for mothers to practice EBF. The study further observed that health care providers (56.2%) are playing a key role in educating mothers (100%) on the Physiological importance of exclusive breastfeeding. Support from healthcare providers and health education will play a significant role in encouraging mothers to practice exclusive breastfeeding. Interventions addressing work-related time constraints, including breastfeeding-friendly workplace policies and maternity protection, may help improve exclusive breastfeeding practices among working mothers. Also, the study reported health problems among the infants; further analytical or longitudinal research is needed to determine their relationship with EBF.

Keywords: Breastfeeding, food, health, infants, water.

INTRODUCTION

Exclusive breastfeeding refers to feeding only on breast milk for the initial 6months of life, with nothing else except for medical reasons (WHO, 2026; UNICEF, 2025). A study conducted by Amoo and Anjola (2022) noted that only 26% of mothers in rural Nigeria exclusively breastfed their infants, with many introducing water or formula by the second month. Exclusive breastfeeding gives enormous health benefits, including reduced gastrointestinal infections, respiratory infection risk, and improved cognitive development (Victoria *et al.*, 2016; Wepeba *et al.*, 2025). In Nigeria, recent data from the 2021 Multiple Indicator Cluster Survey show that only 29% of infants

received EBF for six months, indicating no significant improvement from previous years (NBS, 2021). Studies highlight several barriers to EBF in Nigeria, including maternal employment, cultural practices, and lack of family support, which lead to early introduction of complementary foods (Vafaee *et al.*, 2010; Ashimika and Rajesh, 2014; Egwuda, 2015; Dauda *et al.*, 2026). A meta-analysis by Balogun *et al.* (2022) found that EBF reduces infant mortality by up to 13%, highlighting the need for universal promotion of EBF.

Understanding these challenges, the Nigerian government has implemented the Baby-Friendly Hospital

Initiative (BFHI) and breastfeeding awareness campaigns, yet rural areas remain underserved in terms of access to breastfeeding education and healthcare resources. In Bayelsa State, communities like Ogobiri, Sagbama, and Umgbobiri reflect the broader national challenges, as well as unique local factors. These communities, characterized by limited access to healthcare facilities, face additional barriers to EBF, including traditional beliefs about infant feeding, economic constraints, and limited maternal education on breastfeeding.

Localized assessment of EBF practices in these areas is necessary to identify specific challenges and inform tailored public health interventions. This study aims to close the gap regarding EBF among infants aged 0-6 months in Ogobiri, Sagbama, and Umgbobiri, contributing valuable insights to guide local breastfeeding promotion efforts. Despite the clear benefits of exclusive breastfeeding, adherence rates in Nigeria and specifically in Bayelsa State remain low, with potentially negative implications for infant health and development. A study by Mohammed *et al.* (2023) in Ghana found that only 32% of mothers adhered to EBF recommendations and factors such as maternal age, employment, and support from family members significantly influenced breastfeeding practices.

This low rate is concerning given that studies, such as one by Alabi and Elefane (2021), have shown that infants who are not exclusively breastfed are significantly more likely to suffer from malnutrition and respiratory infections. In rural areas, these challenges are amplified due to inadequate healthcare facilities, which limit access to breastfeeding education and maternal health services. Furthermore, a recent study in similar rural Nigerian communities found that only 25% of mothers were aware of EBF benefits, with most introducing water or formula within the first two months of life (Ahmed *et al.*, 2023; African Union, 2024).

The lack of empirical data specific to Ogobiri, Sagbama, and Umgbobiri makes it challenging to address these barriers effectively. This study is essential for providing localised data to inform targeted interventions aimed at improving EBF rates and enhancing infant health outcomes in these underserved communities.

MATERIALS AND METHODS

Study design

This was a community-based cross-sectional study design used to assess breastfeeding practices, reported infant health outcomes, and factors associated with exclusive breastfeeding among mothers of infants aged 0–6 months.

Area of study

The research was conducted in Ogobiri, Sagbama, and

Umgbobiri, located in Sagbama LGA of Bayelsa State, Nigeria. Sagbama Local Government Area is located at latitude 5°10'N and longitude 6°12'E, spans about 945 square kilometers and had a population of 187,146 as per the 2006 census. Its headquarters is in Sagbama town, and the region is characterized by fishing, farming, and other water-dependent activities. These areas are notable communities in Sagbama LGA, sharing proximity to Niger Delta University and Delta State, surrounded by water bodies that shape its culture and health-related practices. The unique geographical and socio-economic conditions in these communities provide a compelling context for understanding exclusive breastfeeding practices and their influencing factors.

Population

This consists of eligible participants who were biological mothers aged ≥18 years who had an infant aged 0–6 months, had resided in the selected community for at least six months, and provided informed consent. Mothers whose infants had medical conditions requiring specialized feeding were excluded. This group was targeted to evaluate breastfeeding practices during the period of 6 months of the infant's life.

Sample size determination

The sample size was calculated using Cochran's formula for determining sample size in descriptive studies:

$$n = \frac{Z^2 \times p \times q}{e^2}$$

Where: n = required sample size, Z = standard normal variate (1.96 at a 95% confidence level), p = estimated proportion of the population exhibiting the characteristic of interest (29%), q = 1 – p (complement of p), and e = desired margin of error (0.05)

Based on a recent study that reported a 29% prevalence of exclusive breastfeeding in Nigeria (National Bureau of Statistics, 2021), the following calculations were made:

$$n = \frac{(1.96)^2 \times 0.29 \times 0.71}{(0.05)^2}$$

$$n = \frac{3.8416 \times 0.29 \times 0.71}{0.0025}$$

$$n = \frac{0.78928}{0.0025} = 316.39 \approx 316.$$

The unadjusted sample size was calculated as 316.39, but because most respondents did not meet the criteria, 315 were retrieved and used for this study.

Sampling techniques

A multistage sampling technique was employed:

Stage One: Purposive selection of Ogobiri, Sagbama, and Umgbobiri based on their population size and accessibility.

Stage Two: Identification of households with mothers of infants aged 0 to 6 months within each community from the health facility records.

Stage Three: Simple random sampling was adopted to select participants proportionate to the population of each community.

Instrument for data collection

A total of 325 questionnaires were administered, of which 315 were completed and retrieved, giving a response rate of 96.9%. The questionnaire was divided into three sections:

1. Demographic information.
2. Knowledge and perceptions of exclusive breastfeeding.
3. Breastfeeding practices, challenges, and influencing factors.

Procedure for data collection

The researchers conducted face-to-face interviews with respondents and documented their responses in the structured questionnaire that took a period of five months (February-June). Community leaders were consulted prior to data collection to enhance cooperation and encourage participation. Verbal and written informed consent was obtained from all respondents.

Data analysis

Analysis was conducted using SPSS 25.0 version and a p -value ≤ 0.05 was considered significant. Associations between categorical variables were assessed using the Pearson chi-square test.

Validity of the instrument

The questionnaire was reviewed by experts in public health and maternal care to ensure it accurately measures the study objectives.

Reliability of the instrument

A pilot study involving 30 mothers from a neighbouring

community was conducted to confirm the instrument using Cronbach's alpha, with a threshold value of 0.7 considered acceptable.

Ethical approval

Approval was obtained from the Bayelsa State Ministry of Health, and potential risks/benefits were made known to the subjects. Confidentiality was maintained.

RESULTS

Table 1 shows the demographic data of the respondents. It indicates 114 (36.2%) subjects are within 20–29 years, 84 (26.7%) were 30–39 years, 60 (19%) were below 20 years, while 57 (18.1%) were > 40 years. In terms of educational level, 162 (51.4%) respondents had tertiary education, 138 (43.8%) had secondary education, and 15 (4.8%) had primary education. Regarding occupation, 150 (47.6%) of the respondents were self-employed, 87 (27.6%) were civil servants, 72 (22.9%) were unemployed, while only 6 (1.9%) were engaged in other occupations. Finally, with respect to marital status, 168 (53.3%) of the respondents were married women, 105 (33.3%) were single, 36 (11.4%) were divorced, and 6 (1.9%) were widowed.

Breastfeeding practices

Table 2 presents information on breastfeeding practices among the respondents. It indicates that 183 (58.1%) of the respondents' children were currently being breastfed, while 132 (41.9%) were not. Regarding the duration of breastfeeding, 135 (42.9%) of the children had been breastfed for 4–6 months, 33 (10.5%) for 1–3 months, while 138 (43.8%) had not been breastfed at all. In terms of introducing supplementary food, 240 (76.2%) of the respondents reported that they had introduced additional foods or liquids to their babies, whereas 75 (23.8%) practised EBF. Finally, when asked about the type of food introduced, 105 (33.3%) reported introducing infant formula, 90 (28.6%) introduced solid foods, 75 (23.8%) had not introduced any additional foods, and 45 (14.3%) introduced only water, where the χ^2 of 10.89 and a p -value of 0.0124. There is a statistically significant association between whether a child is being breastfed and the type of supplementary food introduced ($p < 0.05$).

Infant health outcomes

Table 3 shows the infant health outcomes. It indicates that 162 (51.4%) of the respondents reported their babies had experienced fever, 81 (25.7%) had experienced

Table 1. Demographic data of participants.

Variables	Categories	Frequency	Percent	Valid Percent	Cumulative Percent
Age	<20	60	19.0	19.0	19.0
	20-29	114	36.2	36.2	55.2
	30-39	84	26.7	26.7	81.9
	40 and above	57	18.1	18.1	100.0
Educational status	Primary	15	4.8	4.8	4.8
	Secondary	138	43.8	43.8	48.6
	Tertiary	162	51.4	51.4	100.0
Occupation	Unemployed	72	22.9	22.9	22.9
	Self-employed	150	47.6	47.6	70.5
	C/S	87	27.6	27.6	98.1
	Others	6	1.9	1.9	100.0
	Total	315	100.0	100.0	
Marital status	Single	105	33.3	33.3	33.3
	Married	168	53.3	53.3	86.7
	Divorced	36	11.4	11.4	98.1
	Widowed	6	1.9	1.9	100.0

Table 2. Exclusive breastfeeding practice pattern among mothers

Variable	Response	Frequency	Percent	x ²	p-value
Currently Breastfeeding	Yes	183	58.1	10.89	0.0124
	No	132	41.9		
Duration of Breastfeeding	Less than 1 month	9	2.9		
	1-3 months	33	10.5		
	4-6months	135	42.9		
	None	138	43.8		
Introducing supplementary food	Yes	240	76.2	10.89	0.0124
	No (EBF only)	75	23.8		
Type of Supplement introduced	Water	45	14.3		
	Infant formula	105	33.3		
	Solid foods	90	28.6		
	None	75	23.8		

diarrhoea, 30 (9.5%) had experienced poor weight gain, and only 3 (1%) had experienced respiratory infections, while 39 (12.4%) had not experienced any health issues. Regarding the overall health status of the babies, 216 respondents (68.6%) rated their babies' health as good, 63 (20%) rated it as fair, and 36 (11.4%) rated it as excellent, with an χ^2 value of 87.01 and a p-value of 0.000001. There is a highly significant association between the type of health issues (fever, diarrhoea, poor weight gain) and how respondents rated their baby's overall health. This suggests that babies who experienced more health issues

were more likely to be rated as having "fair" or "good" rather than "excellent" health

Barriers to exclusive breastfeeding

Table 4 shows the barriers to exclusive breastfeeding; it indicates that the major challenges faced in practising exclusive breastfeeding include the following: 150 (47.6%) reported facing other types of challenges, 123 (39%) cited lack of time due to work, 27 (8.6%) experienced insufficient

Table 3. Infant health outcomes.

Variable	Response	Frequency	Percentage	χ^2	p-value
Has your baby experienced any of the following in the past six months?	Diarrhea	81	25.7	87.01	0.001
	Respiratory infections	3	1.0		
	Fever	162	51.4		
	Poor weight gain	30	9.5		
	None	39	12.4		
How would you rate your baby's overall health?	Excellent	36	11.4		
	Good	216	68.6		
	Fair	63	20.0		

Table 4. Barriers to exclusive breastfeeding.

Variable	Response	Frequency	Percent	χ^2	p-value
What challenges have you faced in practising exclusive breastfeeding?	Lack of time due to work	123	39.0	74.45	0.001
	Insufficient breast milk	27	8.6		
	Cultural beliefs	12	3.8		
	Lack of family support	3	1.0		
	Others	150	47.6		
Are there cultural practices in your community that discourage exclusive breastfeeding?	Yes	30	9.5		
	No	285	90.5		

Table 5. Facilitators of exclusive breastfeeding.

Variable	Response	Frequency	Percent	χ^2	p-value
What factors have helped you practice exclusive breastfeeding?	Healthcare providers	177	56.2		
	Support from family members	30	9.5		
	Awareness of breastfeeding benefits	21	6.7		
	Availability of breastfeeding-friendly	36	11.4		
	Others	51	16.2		
Have you received counselling or education on breastfeeding?	Yes	315	100	350.4	0.001
	No	0	0		
If yes, where did you receive this information?	Health center	261	82.9		
	Community programs	39	12.4		
	Social media	15	4.8		
	Others	0	0.0		

breast milk, 12 (3.8%) mentioned cultural beliefs, and 3 (1%) faced a lack of family support. Additionally, 30 (9.5%) agreed that there are cultural practices that discourage exclusive breastfeeding, while 285 (90.5%) stated that no such cultural practices exist, with an χ^2 value of 74.45, p-value 0.000001. There is a highly significant association between the type of challenges reported and the presence of cultural practices that discourage exclusive breast-

feeding. This suggests that cultural context may influence the type of barriers women face.

Facilitators of exclusive breastfeeding

Table 5 shows the facilitators of exclusive breastfeeding. It was indicated that, in terms of factors that helped

Table 6. Crosstab of age, educational level, occupation and exclusive breastfeeding practice.

Characteristics	Categories	Yes	No	Total	X ²	p-value
Age	<20	29	24	53	30.91	0.000
	20-29	27	45	72		
	30-39	16	96	112		
	40 and above	3	75	78		
Educational level	Primary	3	12	15	34.95	0.000
	Secondary	24	56	80		
	Tertiary	48	172	220		
Occupation	Unemployed	11	52	63	13.81	0.003
	Self-employed	33	145	178		
	Civil Servant	28	43	71		
	Others	3	0	3		

respondents practice exclusive breastfeeding, 177 (56.2%) attributed it to support from healthcare providers, 51 (16.2%) to other factors, 36 (11.4%) to the availability of breastfeeding-friendly environments, and 21 (6.7%) to awareness of breastfeeding benefits. Regarding counselling or education on breastfeeding, all 315 respondents (100%) confirmed that they had received counselling or education on exclusive breastfeeding. The majority, 261 (82.9%), received this information from health facilities, 39 (12.4%) from community programs, and 15 (4.8%) from social media. There is a statistically significant difference in the distribution of sources of breastfeeding information. Most respondents got their information from health centres.

Crosstab of age, educational level, occupation and exclusive breastfeeding practice

A significant relationship between age and EBF was observed ($\chi^2 = 30.91$, $p = 0.00$). Age group ≤ 20 had 29 out of 53 as the highest number of respondents practising EBF, while 27 out of 72 among age 20- 29 mothers in that range of 72 are doing so. Conversely, in the 30–39 age groups, a larger proportion (96 out of 112) did not practice exclusive breastfeeding. Similarly, respondents aged 40 and above had more non-practitioners (75 out of 78) (Table 6). This suggests that younger mothers, particularly those in their twenties, were more likely to engage in EBF than older ones.

A significant association was observed between educational level and EBF practice ($\chi^2 = 34.95$, $p = 0.00$). Respondents with tertiary education were higher among EBF practitioners, with 48 out of 220 reporting adherence to the practice. However, only 3 out of 15 respondents with primary education practised EBF compared to the rest in that group (12 out of 15) who did not. This shows that higher educational attainment is positively associated with

the practice of exclusive breastfeeding.

There was a significant association between occupation and EBF practices among respondents ($\chi^2 = 13.81$, $p = 0.003$). Among the occupational groups, self-employed women reported the highest rate of exclusive breastfeeding, with 33 out of 75 practising it. Civil servants followed with 28 out of 75 practising. The unemployed group came second in terms of the number of non-practising individuals (52 out of 63), suggesting that employment type and flexibility might influence a mother's ability to breastfeed exclusively. Interestingly, all 6 respondents categorised under "Others" practised exclusive breastfeeding, although this group was very small.

DISCUSSION

The outcome from this study provides an essential understanding of EBF practices and influencing factors among mothers. The present EBF rate of 23.8% ($\chi^2 = 10.89$, $p = 0.012$) disagrees with the 2022 Nigeria Demographic Health Survey (NDHS), which reported EBF rates among infants ≤ 6 months at 56% nationally (Balogun *et al.*, 2015; NDHS, 2022). This indicates a decrease and falls short of the WHO's global target of at least 70% exclusive breastfeeding by 2030 (WHO, 2026). The finding of 23.8% in this study is almost congruent with Ozigbo (2026), who reported from Yenagoa that only 21.7% of mothers practised EBF.

The report that 43.8% of children had not been breastfed at all raises concern, particularly when compared to findings from Ethiopia, where only 14.5% of infants were never breastfed (Tadesse, 2023). Early introduction of supplementary food, reported by 76.2% of respondents, contrasts with WHO guidelines that recommend EBF for the first 6 months (WHO, 2026). Similarly high rates of early complementary feeding were observed in studies

conducted in Ghana and India, which cited maternal workload and misinformation as key drivers (Kyei-Arthur *et al.*, 2023; Mohammed *et al.*, 2023; Tahiru *et al.*, 2024).

The study showed that over half of the babies had experienced fever (51.4%) and 25.7% had diarrhoea. Only 12.4% had no health issues. The strong statistical association between infant health problems and how mothers rated their baby's overall health ($\chi^2 = 87.01$, $p < 0.001$) is supported by Black *et al.* (2023), who noted that poor exclusive breastfeeding practices are linked to increased child morbidity due to infections like diarrhoea and fever. This reinforces the protective role of exclusive breastfeeding in child health. Notably, diarrhoea is a well-documented consequence of early weaning and improper complementary feeding practices in low- and middle-income countries (Okafor *et al.*, 2022; UNICEF, 2025).

Key challenges included work-related time constraints (39%), insufficient milk (8.6%), and cultural beliefs (3.8%). A significant association was observed between reported challenges and cultural practices ($\chi^2 = 74.45$, $p < 0.001$). This mirrors findings by Kimani-Murage (2022), who reported that traditional beliefs and lack of familial support are major challenges to EBF in low-income countries. Cultural norms can deeply influence breastfeeding behaviour, highlighting the need for community-level interventions, unlike findings in Northern Nigeria and parts of South Asia where cultural myths significantly deter breastfeeding (Olayemi *et al.*, 2014; Adebayo *et al.*, 2021; Akingbesote *et al.*, 2025; Dauda *et al.*, 2026).

The strong influence of healthcare providers (56.2%) and the high rate of breastfeeding counselling (100%) reflect successful engagement by health systems in promoting breastfeeding. This mirrors findings from a Tanzanian study where facility-based health education was a primary enabler of breastfeeding (Nkala and Msuya, 2011). However, reliance on health facilities may exclude mothers in rural or underserved areas, underscoring the need for broader community outreach and digital education strategies, such as those found effective in a study by Gilano and Dekker (2025) in Ethiopia.

There were significant relationships between exclusive breastfeeding and age ($\chi^2 = 30.91$, $p = 0.001$), education ($\chi^2 = 34.95$, $p = 0.001$), and occupation ($\chi^2 = 13.81$, $p = 0.003$). Younger mothers and those with higher education were more likely to breastfeed exclusively, corroborating findings by Dachew *et al.* (2024). Employment flexibility, especially among the self-employed, also supported exclusive breastfeeding, reinforcing the need for workplace-friendly breastfeeding policies (Balogun *et al.*, 2015).

Conclusion

The study revealed that although a significant proportion of mothers (23.8%) were currently practising EBF, early introduction of supplementary foods remains high, and a considerable number of children had never been

breastfed. Many mothers also reported common infant health issues such as fever and diarrhoea, which may be linked to suboptimal EBF practices. Key challenges to exclusive breastfeeding included lack of time due to work, insufficient breast milk, and limited family support. However, support from healthcare providers and health education will play a significant role in encouraging mothers to practice exclusive breastfeeding, and despite cultural beliefs having limited reported influence, the role of workplace and family environments remains critical.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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