

Knowledge and Prevalence of Exclusive Breastfeeding and Breastfeeding Patterns among Mothers Attending Paediatric Clinic, Rivers State University Teaching Hospital

Iboro, Onisokien Joel ¹; Imabibo, Douglas Ibitamuno ¹; Humphrey, Chidinma Favour ¹; Hart, Tamunomiepiribi Reuben ¹; and Ogbonna, Vivian Ifeoma ^{1,2}

¹Department of Community Medicine, PAMO University of Medical Sciences, Port Harcourt, Rivers State, Nigeria. ²Department of Community Medicine, University of Port Harcourt Teaching Hospital, Rivers State, Nigeria.

Corresponding author: onisokienj@gmail.com

DOI: <https://doi.org/10.62154/qjhcer.2025.021.01023>

Abstract

Exclusive breastfeeding (EBF) means feeding an infant solely on breast milk for the first six months of life is a vital public health strategy for improving infant survival and development. Despite its proven benefits, EBF rates in Nigeria remain below global targets. This study assessed the knowledge, prevalence, and practice of exclusive breastfeeding among mothers attending the Children's Outpatient Clinic of Rivers State University Teaching Hospital (RSUTH). This descriptive cross-sectional study was conducted among 427 mothers using a pre-tested, semi-structured, interviewer-administered questionnaire. Data were analysed using IBM Statistical Package for the Social Sciences (SPSS) version 25.0. The mean age of respondents was 34.8 ± 6.9 years; 93.2% were married, and 71.7% had a tertiary education. Awareness of EBF was high (95.8%), with 93.4% demonstrating good knowledge. However, the prevalence of exclusive breastfeeding practice was 37.5%. Significant associations were observed between EBF practice and place of residence ($p = 0.001$), husband's support ($p < 0.001$), work schedule ($p < 0.001$), belief in EBF health benefits ($p = 0.020$), and encouragement received in paediatric clinics ($p = 0.002$). Despite the high level of awareness and knowledge of exclusive breastfeeding among respondents, actual practice remains suboptimal. Strengthening male partner involvement, promoting workplace breastfeeding-friendly policies, and enhancing continuous maternal education during paediatric visits are recommended to improve exclusive breastfeeding rates.

Keywords: Exclusive Breastfeeding, Maternal Health, Lactation Patterns, Knowledge-Practice Gap, Nigeria.

Introduction

Breastfeeding is universally recognised as the optimal method of infant feeding, providing ideal nutrition for growth, development and survival (Prentice, 2022; Victora et al., 2016). The World Health Organization (WHO) defines Exclusive Breastfeeding (EBF) as feeding an infant only breast milk—without any additional food or liquid, not even water, except for oral rehydration solution, or vitamin, minerals, medicinal syrups when necessary (World Health Organization, 2003). Both the WHO and United Nation Children Fund (UNICEF) recommend initiating breastfeeding within the first hour of life, monitoring EBF for the first

6 months, and continuing breastfeeding with appropriate complementary feeding for up to 2 years or more (World Health Organization & United Nations Children's Fund, 2014)

Breastmilk is uniquely composed to meet the nutritional and immunological needs of newborns and infants, providing protection against infections, malnutrition and chronic diseases (Alshammari & Haridi, 2021; Hanson, 2004; Prentice, 2022). EBF is associated with reduced risks of diarrhoea, otitis media, lower respiratory tract infections and Sudden Infant Death Syndrome (SIDS), while enhancing cognitive development and maternal-infant bonding (Boateng, 2018; Duffy et al., 1997). These benefits also extend to the mother – reduced risks of postpartum haemorrhage, anaemia, type 2 diabetes mellitus and certain cancers (Boateng, 2018; Duffy et al., 1997; Oyelana et al., 2021). Despite these benefits, global EBF rates remain suboptimal.

Worldwide, only about 48% of infants under six months are exclusively breastfed, far below the 70% target set by the Global Breastfeeding Collective for 2030 (Global Breastfeeding Collective, WHO, UNICEF, 2023). In sub-Saharan Africa, the prevalence of EBF varies widely, reflecting disparities in education, socio-economic status, cultural beliefs, and institutional support. In Nigeria, the 2018 Nigeria Demographic and Health Survey (NDHS) reported an EBF rate of 29%, a modest improvement from 16.4% in 2011 but still among the lowest in West Africa (National Population Commission (NPC) [Nigeria], 2019). Studies further reveal marked regional variations: states in northern Nigeria, including Jigawa, Katsina, and Yobe, record some of the lowest EBF rates (Adebayo et al., 2021).

Suboptimal breastfeeding practices have significant implications for child survival. Globally, approximately 13,400 under-five deaths occur daily, most of which are preventable and linked to infections and malnutrition (Perin et al., 2022). EBF could prevent a substantial proportion of these deaths by reducing neonatal infections and undernutrition (Victora et al., 2016). In Nigeria, the under-five mortality rate remains unacceptably high at 128.8 deaths per 1,000 live births in West and Central Africa (Karlsson et al., 2022). Notably, malnutrition, closely linked to poor infant feeding practices, remains a leading cause of under-five mortality (Bizzego et al., 2021).

To address this, Nigeria's Federal Ministry of Health, in collaboration with WHO and UNICEF, launched the Baby-Friendly Hospital Initiative (BFHI) to promote early initiation and sustained exclusive breastfeeding through supportive hospital policies (*Guidelines Finalized for a Baby-Friendly Initiative in Nigeria*, 2021). Despite these efforts, gaps persist in maternal knowledge, attitudes, and practices toward EBF, suggesting that national policies have not fully translated into behavioural change at the community level (National Population Commission (NPC) [Nigeria], 2019).

Rivers State, located in the South-South region of Nigeria, mirrors the national trend of suboptimal exclusive breastfeeding practices despite relatively high levels of maternal education and access to health services. Data from the National Bureau of Statistics indicate an increase in the under-five mortality rate in the state from 58 per 1,000 live births (2016–2017) to 100 per 1,000 in 2021, suggesting a deterioration in child survival outcomes (Agency, 2023). Port Harcourt, the state capital, is a highly urbanised city with widespread

access to antenatal care, institutional delivery, and breastfeeding information, conditions under which optimal exclusive breastfeeding practices would be expected (Robinson-Mbato et al., 2024). However, available evidence suggests a persistent education–practice paradox, where mothers demonstrate adequate knowledge of exclusive breastfeeding but fail to sustain the practice for the recommended six months.

The Rivers State University Teaching Hospital (RSUTH) serves as a major referral centre providing maternal and child health services to a socio-economically and educationally diverse population (Adeniji & Mildred, 2024). A previous study conducted at RSUTH reported high maternal knowledge of exclusive breastfeeding (84.8%) but a considerably lower rate of EBF practice (46.4%), highlighting a clear gap between knowledge and practice (Okari et al., 2020). This discrepancy underscores the limitations of knowledge-based interventions alone and suggests the influence of contextual, socio-cultural, and structural factors that hinder optimal breastfeeding practices, even among educated mothers. Given ongoing public health campaigns and changing socio-economic dynamics, updated evidence is required to determine whether this paradox persists and to inform more context-specific breastfeeding promotion strategies in Rivers State.

This study therefore seeks to assess the prevalence, knowledge, and practice of exclusive breastfeeding among mothers attending the children’s outpatient clinic of RSUTH, Port Harcourt. The findings will provide locally relevant data to guide targeted interventions and strengthen breastfeeding promotion programs in Rivers State and beyond.

Literature Review

Theoretical Framework

This study is anchored on Pender’s Health Promotion Model, which explains exclusive breastfeeding as a health-promoting behaviour influenced by maternal characteristics, prior experiences, and behaviour-specific perceptions such as benefits, barriers, and self-efficacy. The model highlights the role of interpersonal and situational influences, particularly healthcare provider support in shaping mothers’ commitment to initiating and sustaining exclusive breastfeeding despite competing demands.

Empirical Review

Knowledge in the context of EBF practice refers to the awareness and understanding mothers and caregivers have about EBF. It has been a common theme of assessment in many studies across the years. Whereas a huge proportion of women know about breastfeeding and over 90% of mothers in an Italian study had breastfed before, the knowledge of EBF was not as far-reaching. In the same study, 64.6% of mothers had heard of EBF, and 71% knew it should be practiced for 6 months. It was also noted that mothers with prior adequate knowledge of EBF were more likely to practice EBF. Hence good knowledge is a major pillar in the practice of EBF (Cascone et al., 2019). A study done in rural Bangladesh reported that only 34.4% of the study population had good knowledge of EBF. The study concluded that more job opportunities could be created for mothers and

also suggested that social safety net programs could aid in improving the knowledge deficit in the area (Rana et al., 2020). While job creation for mothers is important in equipping mothers with the capacity to access good healthcare and information, it is contrary to findings in other studies that link job opportunities (especially mothers working multiple jobs) to an increased likelihood of not breastfeeding exclusively.

Within Nigeria, maternal knowledge of exclusive breastfeeding (EBF) generally tends to be higher in urban and facility-based settings, though high knowledge does not always translate into optimal practice. In Abuja, a cross-sectional study reported that 70% of mothers had knowledge of EBF, although just over half practiced it for six months, illustrating the knowledge–practice gap even in the Federal Capital Territory (Okoroiwu et al., 2021). In Port Harcourt, research at the Rivers State University Teaching Hospital (RSUTH) showed very high EBF awareness, with 98% having heard of EBF, 88% understanding its components, and 80.2% knowing its recommended duration, confirming strong maternal knowledge in this urban South-South setting (Okari et al., 2020). A related study among female academic staff in Rivers State also found high EBF awareness, with more than four-fifths of participants reporting knowledge of exclusive breastfeeding, though practice levels remained below global targets (Osaro et al., 2024). In Edo State, facility-based studies have shown that although most mothers demonstrate good knowledge of exclusive breastfeeding through antenatal education, adherence to sustained exclusive breastfeeding for six months remains suboptimal, largely due to early return to work and sociocultural influences (Isara & Ekwo, 2025). Similarly, in Cross River State, mothers attending a tertiary health facility in Calabar exhibited substantial awareness of exclusive breastfeeding and its benefits; however, actual practice was modest, with socio-cultural norms and maternal constraints significantly limiting sustained exclusive breastfeeding (Ikobah et al., 2021).

Methodology

Study Area

This study was conducted at the Rivers State University Teaching Hospital (RSUTH), a tertiary healthcare facility located at No. 6–8 Harley Street, Old GRA, Port Harcourt, Rivers State, Nigeria. The hospital is owned and funded by the Government of Rivers State. Formerly known as Braithwaite Memorial Hospital, it was upgraded to a teaching hospital in 2018.

RSUTH provides a wide range of medical services, including emergency care, internal medicine, surgery, paediatrics, obstetrics, and gynaecology. It is staffed by a team of highly qualified professionals comprising consultants, resident doctors, nurses, laboratory scientists, radiographers, and pharmacists. The hospital's paediatric department is well-equipped and offers neonatal care, paediatric surgery, and children's emergency services.

Study Design

A descriptive cross-sectional study was conducted to assess the knowledge, prevalence, and patterns of exclusive breastfeeding among mothers attending the Children's Outpatient Clinic of RSUTH.

Study Population

The study population comprised mothers attending the Children's Outpatient Clinic of RSUTH.

Inclusion Criteria

Mothers who brought their children to the outpatient clinic and mothers who were currently breastfeeding their infants or children.

Exclusion Criteria

Mothers with infants who had medical conditions likely to affect breastfeeding (e.g., cleft palate, choanal atresia, or Down's syndrome).

Sample Size Determination

The minimum sample size was determined using Cochran's formula for cross-sectional studies (Isreal, 2015):

$$n = (Z^2 pq) / e^2$$

Where n is the sample size, Z is the standard normal deviate corresponding to a 95% confidence level (1.96), p is the estimated prevalence of exclusive breastfeeding from a previous study (0.464) (Okari et al., 2020), $q = (1 - p) = 0.536$, and e is the margin of error set at 0.05. Substituting these values into the formula gave a calculated sample size (n) of 382. To adjust for possible non-response, a 10% non-response rate was considered. A final value of 424.4 was gotten (382/0.9). Hence, the final sample size used for this study was 427 participants.

Sampling Technique

The sampling method that was used is systematic random sampling. In this sampling method, researchers select members of the population at regular intervals.

The sampling interval was determined by dividing the total number of Paediatrics Out-patient Clinic visits by mothers available per day -those that meet the inclusion criteria, by the estimated sample size required per day (n) (Based on the total sample size required – 425 over a period of 7 weeks).

The estimated total number of women in the clinic per day, was used as the sampling frame $A = 60$

$n =$ required per day to meet the sample size in 7 weeks $= 60/5 = 12$

Sampling interval (K) $= A/n = 60/12 = 5$

This value was variable depending on the number of mothers. This process was repeated until the required sample size was met.

This implies that every 5th mother on the clinic register was selected systematically as part of the study sample. To ensure randomness in the starting point, the first participant was selected using simple random sampling method by balloting.

Study Instrument

Data were collected using a structured, web-based, interviewer-administered questionnaire, divided into six sections and pretested in a different tertiary facility in the same state.

Data Collection

Primary data were collected using a semi-structured, web-distributed interviewer-administered questionnaire developed on Kobo Toolbox. The questionnaire was in English, and each section was carefully explained to mothers with limited literacy by trained research assistants.

Data Analysis

Quantitative data were analysed using the IBM Statistical Package for the Social Sciences (SPSS), version 27. Data were first exported from Excel and subjected to exploratory data analysis.

Descriptive statistics (frequencies, percentages, and charts) were used to summarize participants' characteristics and EBF knowledge scores. The prevalence and patterns of EBF were presented as proportions. Associations between variables were tested using the Chi-square test, with statistical significance set at $p < 0.05$ at a 95% confidence interval.

Ethical Consideration

Ethical approval for the study was obtained from the Rivers State University Teaching Hospital Health Research Ethics Committee (RSUTH/REC/2025/699). Permission was also granted by the consultant in charge of the Paediatric Outpatient Clinic at RSUTH.

Confidentiality was assured, and participation was voluntary. The study purpose was explained to all participants, and informed consent was obtained prior to data collection. Participants were also assured that all information provided would remain confidential and used solely for research purposes.

Results

The required sample size was achieved, with a total of 427 responses obtained. All were deemed suitable for data analysis after cleaning.

Table 1: Socio-demographic characteristics

Variables	Frequency (N = 427)	Percent (%)
Age		
15 – 24	19	4.4
25 – 34	205	48.0
35 – 44	160	37.5
45 – 54	40	9.4
55 – 64	3	0.7
Mean $\pm$ SD	34.83 $\pm$ 6.9	
Marital Status		
Single	24	5.6
Married	398	93.2
Cohabiting	2	0.5
Divorced/separated	2	0.5
Widow	1	0.2
Religion		
Christianity	419	98.1
Islam	8	1.9
Traditional	0	0.0
Level of Education		
None	1	0.2
Primary	3	0.7
Secondary	117	27.4
Tertiary	306	71.7
Employment Status		
Unemployed	52	12.2
Employed	176	41.2
Self – employed	197	46.1
Student	2	0.5
Apprentice	0	0.0
Place of Residence		
Urban	338	79.2
Rural	89	20.8

Table 1 presents the sociodemographic characteristics of the respondents. The highest proportion (48.0%) were aged between 25–34 years, followed by those aged 35–44 years (37.5%). The mean age $\pm$ SD was 34.83 $\pm$ 6.955 years. The majority of the respondents were married (93.2%), while a smaller proportion were single (5.6%). Most respondents were Christians (98.1%), with a small minority practicing Islam (1.9%). In terms of education, the majority had attained tertiary education (71.7%), while 27.4% had secondary education. Regarding employment status, the largest proportion were self-employed (46.1%),

followed by those employed by others (41.2%), while 12.2% were unemployed. A vast majority resided in urban areas (79.2%).

Table 2: Level of knowledge on EBF

Variable	Frequency (N = 427)	Percent (%)
Poor (0 – 2)	9	2.1
Fair (3 – 4)	19	4.4
Good (5 – 6)	399	93.4

Table 2 presents the overall knowledge scores on exclusive breastfeeding. The vast majority of respondents (93.4%) had good knowledge, while 4.4% had fair knowledge and only 2.1% had poor knowledge.

Table 3: Prevalence of Breastfeeding and Exclusive Breastfeeding

Variable	Frequency (N = 427)	Percent (%)
Breastfed child		
Yes	415	97.2
No	12	2.8
Duration of breastfeeding (N = 415)		
Less than 1 year	136	32.8
>= 1 year	279	67.2
Practiced Exclusive Breastfeeding (breastmilk only, no water, no formula, no solids) for child*		
Yes (correct response)	296	69.3
No	131	30.7
Duration of EBF practice (N =296)*		
Less than 6 months	106	35.8
6 months (correct response)	183	61.8
More than 6 months (correct response)	7	2.4
Introduced other foods or liquids in first 6 months of child's life*		
Yes	227	53.2
No (correct response)	200	46.8
Prevalence of EBF		
Exclusively Breastfed (3 correct responses)		
Yes	160	37.5
No	267	62.5

*=Criteria for determining EBF prevalence

Table 3 summarizes respondents' breastfeeding practices. Most respondents, 415 (97.2%) breastfed their child, and 67.2% of them did so for one year or more. About 69.3% reported

practicing exclusive breastfeeding (EBF), with 61.8% of them doing so for the full 6 months. However, 53.2% reported introducing other foods or liquids during the first 6 months. The prevalence of breastfeeding among respondents was high at 97.2%. However, only 37.5% of women actually practiced exclusive breastfeeding as recommended by WHO.

Table 4: Breastfeeding Practices/Patterns

Variable	Frequency (N = 427)	Percent (%)
Time of commencing EBF (N =373)		
Within the first hour	204	54.7
Second hour to twenty-fourth-hour	74	19.8
After 24 hours	95	25.5
Always breastfeed on demand		
Yes	358	83.8
No	69	16.2
Duration of baby suckling per session		
For as long as my baby wants	401	93.9
Limited time	26	6.1
Used artificial teats, cups, spoons and feeders		
Yes	213	49.9
No	214	50.1
Baby latch on the breast properly all through breastfeeding		
Yes	387	90.6
No	40	9.4
Wean baby off breastmilk		
Before 1 year	68	15.9
After 1 year	336	78.7
After 2 years	23	5.4

Table 4 shows the respondents' breastfeeding practices and patterns. Over half (54.7%) commenced exclusive breastfeeding within the first hour of birth. Most respondents (83.8%) always breastfed on demand, and 93.9% allowed their babies to suckle for as long as they wanted. Use of artificial teats, cups, or feeders was nearly evenly split (49.9% vs. 50.1%). A majority (90.6%) reported that their babies latched properly during breastfeeding. Most respondents (78.7%) usually weaned their babies after one year with only 5.4% reaching 2 years.

Table 5: Challenges that prevented or discouraged EBF among respondents.

Challenges	Frequency (N = 427)	Percent (%)
Insufficient Breast milk	82	19.2
Work related	36	8.4

Challenges	Frequency (N = 427)	Percent (%)
Lack of family support	11	2.6
Cultural beliefs and Psychosocial factors	11	2.6
Infant-related barriers (e.g., Baby's refusal of breast milk, Difficulty weaning baby off breastmilk after EBF)	9	2.1
Health concerns for mother and baby	85	19.9
Socioeconomic factors (e.g., financial burden, poor maternal feeding)	19	4.4
Multiple births (Twins, triplet deliveries)	7	1.6
Doctor's advice	2	0.5
Obstetric events (Caesarean delivery, Short interpregnancy interval)	5	1.2
Adopted babies	2	0.5
Unspecified	95	22.2
None	212	49.6*

*= Percent higher than prevalence of EBF because multiple responses were allowed.

Table 5 outlines challenges to exclusive breastfeeding. Common barriers included health concerns (19.9%) and insufficient breast milk (19.2%). Work-related issues (8.4%) and socioeconomic factors (4.4%) were also reported. Notably, 49.6% reported no challenges.

Table 6a: Socio-demographic factors associated with EBF Practice

Factors	Practice of EBF (n=427)			Chi-square (P-value)
	Yes (n = 160)	No (n = 267)	Total	
Age				
15 – 24	5 (26.3)	14 (73.7)	19 (100.0)	
25 – 34	72 (35.1)	133 (64.9)	205 (100.0)	
35 – 44	71 (44.4)	89 (55.6)	160 (100.0)	6.466 (0.167)
45 – 54	11 (27.5)	29 (72.5)	40 (100.0)	
55 - 64	1 (33.3)	2 (66.7)	3 (100.0)	
Marital Status				
Single	4 (16.7)	20 (83.3)	24 (100.0)	
Married	154 (38.7)	244 (61.3)	398 (100.0)	
Cohabiting	0 (0.0)	2 (100.0)	2 (100.0)	7.689 (0.104)
Divorced/separated	1 (50.0)	1 (50.0)	2 (100.0)	
Widow	1 (100.0)	0 (0.0)	1 (100.0)	
Religion				
Christianity	157 (37.5)	262 (62.5)	419 (100.0)	
Islam	3 (37.5)	5 (62.5)	8 (100.0)	0.000 (0.999)
Traditional	--	--	--	
Level of Education				

Factors	Practice of EBF (n=427)			Chi-square (P-value)
None	0 (0.0)	1 (100.0)	1 (100.0)	4.393 (0.222)
Primary	0 (0.0)	3 (100.0)	3 (100.0)	
Secondary	38 (32.5)	79 (67.5)	117 (100.0)	
Tertiary	122 (39.9)	184 (60.1)	306 (100.0)	
Employment Status				
Unemployed	22 (42.3)	30 (57.7)	52 (100.0)	2.767 (0.429)
Employed	58 (33.0)	118 (59.9)	176 (100.0)	
Self – employed	79 (40.1)	118 (59.9)	197 (100.0)	
Student	1 (50.0)	1 (50.0)	2 (100.0)	
Apprentice	--	--	--	
Place of Residence				
Urban	140 (41.4)	198 (58.6)	338 (100.0)	10.795 (0.001) *
Rural	20 (22.5)	69 (77.5)	89 (100.0)	

Table 6a shows factors associated with exclusive breastfeeding (EBF) practice. No significant associations were found with age, marital status, religion, education level, or employment status (all $p > 0.05$). However, place of residence was significantly associated with EBF ($\chi^2 = 10.795$, $p = 0.001$), with higher practice in urban (41.4%) than rural areas (22.5%).

Table 6b: Socio-demographic factors associated with EBF

Factors	Practice of EBF (n = 427)			Chi-square (P-value)
	Yes (n = 160)	No (n = 267)	Total	
Number of Children Alive				
One	54 (36.2)	95 (63.8)	149 (100.0)	1.057 (0.901)
Two	42 (41.6)	59 (58.4)	101 (100.0)	
Three	39 (35.5)	71 (64.5)	110 (100.0)	
Four	19 (38.0)	31 (62.0)	50 (100.0)	
More than four	6 (35.3)	11 (64.7)	17 (100.0)	
Husband's Level of Education				
None	2 (11.1)	16 (88.9)	18 (100.0)	7.310 (0.063)
Primary	1 (50.0)	1 (50.0)	2 (100.0)	
Secondary	27 (32.5)	56 (67.5)	83 (100.0)	
Tertiary	130 (40.1)	194 (59.9)	324 (100.0)	
Average Monthly Family Income (N = 391)				
Less than ₦200000	47 (34.1)	91 (65.9)	138 (100.0)	1.151 (0.765)
₦200000 - ₦399999	59 (36.4)	103 (63.6)	162 (100.0)	
₦400000 - ₦599999	22 (39.3)	34 (60.7)	56 (100.0)	
Greater than ₦599999	15 (42.9)	20 (57.1)	35 (100.0)	

Table 6b presents factors associated with exclusive breastfeeding (EBF) practice. No significant associations were found between EBF and number of children alive ($\chi^2 = 1.057$, $p = 0.901$), husband's level of education ($\chi^2 = 7.310$, $p = 0.063$), or average monthly family income ($\chi^2 = 1.151$, $p = 0.765$).

Table 6c: Factors associated with EBF

Factors	Practice of EBF (n = 427)			Chi square (P-value)
	Yes (n =160)	No (n = 267)	Total	
Knowledge level of EBF				
Poor	0 (0.0)	9 (100.0)	9 (100.0)	
Fair	0 (0.0)	19 (100.0)	19 (100.0)	17.957 (<0.001) *
Good	160 (40.1)	293 (59.9)	399 (100.0)	
Husband's support of EBF				
Yes	150 (41.0)	216 (59.0)	366 (100.0)	11.272 (<0.001) *
No	5 (13.2)	33 (86.8)	38 (100.0)	
Work schedule and setting allow for EBF				
Yes	109 (42.7)	146 (57.3)	255 (100.0)	11.941 (<0.001) *
No	31 (24.6)	95 (75.4)	126 (100.0)	
Friends and close relatives' advice and support EBF				
Yes	112 (38.4)	180 (61.6)	292 (100.0)	0.309 (0.578)
No	48 (35.6)	87 (64.4)	135 (100.0)	
Cultural practices and Beliefs discourage EBF				
Yes	10 (27.0)	27 (73.0)	37 (100.0)	1.886 (0.170)
No	150 (38.5)	240 (61.5)	390 (100.0)	
Belief EBF has significant health benefits for the baby				
Yes	155 (38.9)	243 (61.1)	398 (100.0)	5.434 (0.020) *
No	5 (17.2)	24 (82.8)	29 (100.0)	
Encouraged in paediatrics clinics to practice EBF				
Yes	142 (40.9)	205 (59.1)	347 (100.0)	9.417 (0.002) *
No	18 (22.5)	62 (77.5)	80 (100.0)	

Table 6c shows factors associated with exclusive breastfeeding (EBF) practice. Significant positive associations were found with good knowledge of EBF ($\chi^2 = 17.957$, $p < 0.001$), husband's support ($\chi^2 = 11.272$, $p < 0.001$), a work schedule that allows EBF ($\chi^2 = 11.941$, $p < 0.001$), belief in EBF's health benefits ($\chi^2 = 5.434$, $p = 0.020$), and encouragement from paediatrics clinics ($\chi^2 = 9.417$, $p = 0.002$). No significant associations were observed for friends/relatives' support ($\chi^2 = 0.309$, $p = 0.578$) or cultural beliefs discouraging EBF ($\chi^2 = 1.886$, $p = 0.170$).

Discussion

This study enrolled a total of 427 participants to assess the knowledge and prevalence of exclusive breastfeeding (EBF), breastfeeding practices, and factors associated with EBF practice among mothers attending the Paediatric Clinic of Rivers State University Teaching Hospital (RSUTH). The findings revealed that a vast proportion of participants had good knowledge of EBF, while those with fair and poor knowledge accounted for less than a tenth of the population. This high level of awareness could be attributed to effective health education and sensitization efforts carried out during antenatal visits. This is further supported by the observation that most participants who received education on EBF benefits did so during antenatal sessions, although this number was slightly lower than those who demonstrated good EBF knowledge.

Our finding aligns with a previous study conducted in the same facility titled "Knowledge, Practice and Problems of Exclusive Breastfeeding among Mothers Attending the Outpatient Clinic of a Baby Friendly Hospital Initiative Designated Hospital in Port Harcourt, Nigeria", where over four-fifths of participants were reported to have good EBF knowledge (Okari et al., 2020). Similarly, Ene-Peter and Orukwuwu reported a comparable proportion of participants with good knowledge in Obio/Akpor Local Government Area of Rivers State, although slightly lower than our findings (Ene-Peter & Orukwuwu, 2022). The consistently high level of knowledge across these studies may reflect cumulative and sustained efforts over the years through enlightenment campaigns, the Baby-Friendly Hospital Initiative, and other maternal health interventions.

Conversely, a study conducted in Aba North LGA by Utah-Iheanyichukwu et al. reported that less than a tenth of respondents had good EBF knowledge (Utah-Iheanyichukwu et al., 2024). In Sagamu, Ogun State, Atekoja et al. found that only about half of the respondents understood what EBF entails (Atekoja et al., 2020). In contrast, a study in Gwagwalada Area Council, Abuja, reported that most participants were knowledgeable about EBF (Okoroiwu et al., 2021). These variations across regions highlight disparities in EBF knowledge in Nigeria, likely due to differences in access to health education, socioeconomic conditions, and exposure to media campaigns. However, as long as knowledge gaps persist, achieving optimal EBF prevalence in Nigeria remains a challenge. Supporting this, a systematic review from East Africa reported that over four-fifths of women demonstrated good EBF knowledge (Dukuzumuremyi et al., 2020), consistent with our findings.

The prevalence of EBF in this study was 37.5%, which is considerably lower than the WHO global target of 70% by 2030 (Global Breastfeeding Collective, WHO, UNICEF, 2023). Despite the high level of knowledge observed, only about one-third of participants practiced EBF. This represents roughly a ten-percentage-point decline from the prevalence reported by Okari et al. (2020) in the same setting. A study in South-South Nigeria by Areprekumor et al. reported a prevalence of 40.3% (Areprekumor et al., 2024), while Adamu et al. found a prevalence of 34.2% in North-Western Nigeria (Adamu et al., 2022) - values that are comparable to our findings. These suboptimal figures reflect the broader regional trend, as Agho et al. (2019) reported that EBF prevalence across ECOWAS countries remains below target levels (Agho et al., 2019). Similarly, Ekholuenetale et al. (2022) reported wide disparities in EBF rates across Africa (6%–83%), all of which remain below the WHO 2030 benchmark (Ekholuenetale et al., 2022). Notably, a Rwandan study reported a higher prevalence of 76.4% (Luo et al., 2021), demonstrating the potential for improvement in Nigeria through more structured interventions.

The most commonly reported challenges to EBF in this study were health-related problems affecting either the mother or infant, perceived insufficiency of breastmilk, unfavourable work schedules, and economic constraints. These findings mirror those of Okari et al. (2020), who identified similar barriers including maternal illness, perceived milk insufficiency, and early return to work (Okari et al., 2020). The perception of inadequate milk supply - a recurrent theme in breastfeeding literature - is often linked to poor maternal confidence, misinterpretation of infant hunger cues, and cultural misconceptions (Okonkwo et al., 2022). This belief frequently leads to the premature introduction of water, formula, or complementary foods, thereby undermining EBF practice.

Approximately half of the respondents reported initiating breastfeeding within the first hour of birth—slightly higher than findings from Alada et al. (2022) in their study on early initiation of breastfeeding in Nigeria (Alada et al., 2022). About one-quarter of respondents initiated breastfeeding after 24 hours, possibly due to caesarean deliveries, delayed lactogenesis, or other maternal factors (Mukunya et al., 2017; Oyedele, 2023). More than four-fifths of participants breastfed on demand, and an even higher proportion allowed their babies to suckle for as long as desired. Half of the respondents used artificial teats, cups, or feeders during breastfeeding. Additionally, 78.7% of respondents weaned their babies after one year, while less than a tenth breastfed for up to two years—a finding comparable to that of Okari et al. (2020), who reported that only 4.7% breastfed beyond two years (Okari et al., 2020).

Among the socio-demographic factors examined, place of residence was significantly associated with EBF practice, with urban dwellers more likely to practice EBF than their rural counterparts. This may be due to better access to healthcare, higher educational levels, and greater exposure to EBF promotion through media and antenatal programs (Balogun et al., 2017). Knowledge of EBF was also significantly associated with its practice, indicating that maternal education plays a crucial role in promoting optimal feeding. Mothers who perceived EBF as beneficial to their infants' health and those encouraged

during clinic visits were more likely to practice EBF. This finding supports the study by Ihudiebube-Splendor et al. (2019), which reported that good EBF knowledge among primiparous women in Enugu was linked to both intention and actual practice (Ihudiebube-Splendor et al., 2019).

Finally, EBF practice was positively associated with spousal support, emphasizing the importance of involving men in breastfeeding promotion efforts. Male partner involvement could serve as a significant catalyst toward achieving WHO's EBF target. Mothers whose work settings provided flexibility and support for breastfeeding were also more likely to practice EBF, underscoring the need for workplace and governmental policies that are favourable to nursing mothers. In contrast, factors such as age, marital status, number of living children, educational level, husband's education, household income, and cultural beliefs were not significantly associated with EBF practice. This contrasts with findings from Adebayo et al. (2021) in Owo, Ondo State, where age and parity were significant predictors (Adebayo et al., 2021).

Limitations of the Study and Areas of Future Research

This study encountered some limitations that should be acknowledged. Language and literacy barriers were observed among a few participants, which could have influenced the accuracy of their responses. To minimize this limitation, participants with such difficulties were interviewed personally with the assistance of a trained research assistant, and simple, clear language was adopted in the questionnaire to enhance comprehension. Furthermore, as a cross-sectional study, the findings represent a snapshot of exclusive breastfeeding knowledge and practices at a single point in time. Therefore, they may not capture changes in behaviour or perceptions over an extended period.

Conclusion

The findings of this study revealed that the majority of mothers had good knowledge of exclusive breastfeeding (EBF), demonstrating understanding of its meaning, recommended duration, benefits, and appropriate timing for introducing complementary feeds. Although the overall prevalence of breastfeeding was high, the actual practice of exclusive breastfeeding for the full six months remained suboptimal. Some mothers introduced complementary feeds earlier than recommended, indicating a gap between knowledge and sustained practice.

Common breastfeeding patterns observed included mixed feeding and the use of artificial teats, cups, and feeders. While most respondents weaned their infants after one year, a smaller proportion discontinued breastfeeding before the child reached one year. Breastfeeding practices were found to be influenced by factors such as maternal work schedules, cultural beliefs, and advice from friends and relatives. The most frequently reported challenges to EBF included perceived insufficiency of breastmilk, health concerns affecting mother or child, multiple births, and socioeconomic constraints.

These findings highlight the need for strengthened support systems that go beyond knowledge dissemination to address the practical and structural barriers mothers face in practicing exclusive breastfeeding. Interventions should prioritize workplace flexibility, cultural reorientation, and enhanced postnatal support to promote sustained EBF and improve child health outcomes.

Recommendation

Strengthen Maternal and Family Support: Husbands and family members should be encouraged to actively support mothers in practicing Exclusive Breastfeeding through shared responsibility and positive reinforcement.

Enhance Health Education and Service Delivery: Healthcare providers should intensify EBF education and counselling during antenatal and postnatal visits, addressing common barriers such as perceived insufficient milk and maternal health concerns.

Promote Enabling Policies and Awareness: Government and stakeholders should implement nationwide sensitization campaigns and workplace-friendly breastfeeding policies to promote and sustain Exclusive Breastfeeding practices.

Conflict of Interest: None declared.

References

- Adamu, A., Isezuo, K. O., Ali, M., Abubakar, F. I., Jiya, F. B., Ango, U. M., Yunusa, E. U., & Bello, M. M. (2022). Prevalence and factors influencing exclusive breastfeeding practice among nursing mothers: A prospective study in North-Western Nigeria. *Nigerian Journal of Basic and Clinical Sciences*, 19(2), 139–144.
- Adebayo, A. M., Ilesanmi, O. S., Falana, D. T., Olaniyan, S. O., Kareem, A. O., Amenkhienan, I. F., Alele, F. O., Afolabi, A. A., Omotoso, B. A., & Ayodeji, O. O. (2021). Prevalence and predictors of exclusive breastfeeding among mothers in a semi-urban Nigerian community: A CROSS-SECTIONAL STUDY. *Annals of Ibadan Postgraduate Medicine*, 19(1), 31–39.
- Adeniji, F. O., & Mildred, N. O. (2024). Comparison of Factors Associated with Stillbirth Delivery in a Tertiary and Primary Health Facility in Rivers State, Nigeria. *Clinical Trials and Case Studies*, 3(2). <https://www.clinicsearchonline.org/article/comparison-of-factors-associated-with-stillbirth-delivery-in-a-tertiary-and-primary-health-facility-in-rivers-state-nigeria>
- Agency. (2023, September 15). Rivers addressing high under-five mortality rate, says health commissioner. *Healthwise*. <https://healthwise.punchng.com/rivers-addressing-high-under-five-mortality-rate-says-health-commissioner/>
- Agho, K. E., Ezeh, O. K., Ghimire, P. R., Uchechukwu, O. L., Stevens, G. J., Tannous, W. K., Fleming, C., Ogbo, F. A., Maternal, G., & collaboration (GloMACH), C. H. R. (2019). Exclusive breastfeeding rates and associated factors in 13 “economic community of West African states” (ECOWAS) countries. *Nutrients*, 11(12), 3007.
- Alada, A., Adewole, I. F., Ejiade, O. O., Abdullahi, A. M., Adebisi, A., Okara, D., Suleiman, J., Solanke, O., Kana, I., & Fawole, O. (2022). Prevalence and predictive factors for early initiation of breastfeeding in Nigeria: Evidence from the Nigerian demographic and health survey (2003–2018). *African Journal of Reproductive Health*, 26(11), 28–43.
- Alshammari, M. B., & Haridi, H. K. (2021). Prevalence and Determinants of Exclusive Breastfeeding Practice among Mothers of Children Aged 6–24 Months in Hail, Saudi Arabia. *Scientifica*, 2021, 1–10. <https://doi.org/10.1155/2021/2761213>

- Areprekumor, T., Ezeh, B. U., Madjemu, R. P., & Okocha, E. L. (2024). Prevalence and Determinants of Exclusive Breastfeeding among Infants after Discharge from a Neonatal Unit in South-South Nigeria. *International Journal of TROPICAL DISEASE & Health*, 45(12), 85–101.
- Atekoja, O. E., Oridota, E. O., Ogunfowokan, T. R., & Jolayemi, K. I. (2020). *Assessment of knowledge and practice of exclusive breastfeeding among mothers in Sagamu, Ogun State, Nigeria*. <https://ir.unilag.edu.ng/handle/123456789/11023>
- Balogun, M. R., Okpalugo, O. A., Ogunyemi, A. O., & Sekoni, A. O. (2017). Knowledge, Attitude, and Practice of Breastfeeding: A Comparative Study of Mothers in Urban and Rural Communities of Lagos, Southwest Nigeria. *Nigerian Medical Journal: Journal of the Nigeria Medical Association*, 58(4), 123–130. https://doi.org/10.4103/nmj.NMJ_289_16
- Bizzego, A., Gabrieli, G., Bornstein, M. H., Deater-Deckard, K., Lansford, J. E., Bradley, R. H., Costa, M., & Esposito, G. (2021). Predictors of contemporary under-5 child mortality in low-and middle-income countries: A machine learning approach. *International Journal of Environmental Research and Public Health*, 18(3), 1315.
- Boateng, M. (2018). *Knowledge, attitude and practice of exclusive breastfeeding among mothers in Techiman, Ghana* [Master's Thesis, Itä-Suomen yliopisto]. https://erepo.uef.fi/bitstream/handle/123456789/19667/urn_nbn_fi_uef-20180869.pdf
- Cascone, D., Tomassoni, D., Napolitano, F., & Di Giuseppe, G. (2019). Evaluation of knowledge, attitudes, and practices about exclusive breastfeeding among women in Italy. *International Journal of Environmental Research and Public Health*, 16(12), 2118.
- Duffy, L. C., Faden, H., Wasielewski, R., Wolf, J., Krystofik, D., & Pediatrics, T. (1997). Exclusive breastfeeding protects against bacterial colonization and day care exposure to otitis media. *Pediatrics*, 100(4), e7–e7.
- Dukuzumuremyi, J. P. C., Acheampong, K., Abesig, J., & Luo, J. (2020). Knowledge, attitude, and practice of exclusive breastfeeding among mothers in East Africa: A systematic review. *International Breastfeeding Journal*, 15(1), 70. <https://doi.org/10.1186/s13006-020-00313-9>
- Ekholuenetale, M., Okonji, O. C., Nzoputam, C. I., & Barrow, A. (2022). Inequalities in the prevalence of stunting, anemia and exclusive breastfeeding among African children. *BMC Pediatrics*, 22(1), 333. <https://doi.org/10.1186/s12887-022-03395-y>
- Ene-Peter, J., & Orukwogu, U. (2022). Knowledge and practice of exclusive breastfeeding among working-class mothers in rumuigbo community, Obio Akpo Local Government Area of Rivers State. *Scicom Journal of Medical and Applied Medical Sciences*, 1(3), 1–7.
- Global Breastfeeding Collective, WHO, UNICEF. (2023). *Global breastfeeding scorecard 2023.pdf*. <https://www.unicef.org/media/150586/file/Global%20breastfeeding%20scorecard%202023.pdf>
- Guidelines finalized for a Baby-Friendly Initiative in Nigeria*. (2021, May 19). <https://www.aliveandthrive.org/en/news/guidelines-finalized-for-a-baby-friendly-initiative-in-nigeria>
- Hanson, L. Å. (2004). *Immunobiology of Human Milk: How Breastfeeding Protects Babies*. Pharmasoft Pub. <https://books.google.com.ng/books?id=XRLIAAAACAAJ>
- Ihudiebube-Splendor, C. N., Okafor, C. B., Anarado, A. N., Jisieike-Onuigbo, N. N., Chinweuba, A. U., Nwaneri, A. C., Arinze, J. C., & Chikeme, P. C. (2019). Exclusive Breastfeeding Knowledge, Intention to Practice and Predictors among Primiparous Women in Enugu South-East, Nigeria. *Journal of Pregnancy*, 2019, 1–8. <https://doi.org/10.1155/2019/9832075>
- Ikobah, J. M., Uhegbu, K., Agbor, I. E., & Udoh, E. (2021). Predictors of breastfeeding practices among mothers in a developing African country—A tertiary facility-based study in Calabar, Nigeria. *Nigerian Journal of Paediatrics*, 48(1), 20–25.

- Isara, A. R., & Ekwo, M. C. (2025). Assessment of Antenatal Breastfeeding Education, Early Initiation and Exclusive Breastfeeding practices of mothers attending a secondary healthcare facility in Southern Nigeria. *Ibom Medical Journal*, 18(1), 140–148.
- Isreal, G. D. (2015). *Determining sample size*. 2013.
- Karlsson, O., Kim, R., Hasman, A., & Subramanian, S. V. (2022). Age distribution of all-cause mortality among children younger than 5 years in low-and middle-income countries. *JAMA Network Open*, 5(5), e2212692–e2212692.
- Luo, J., Prince, D. C. J., Mungai, K. F., & James, N. (2021). *Knowledge, Attitude, and Practice of Exclusive Breastfeeding Among Mothers Attending Masaka District Hospital Kigali/Rwanda: A Cross-section Study*. Research Square. <https://doi.org/10.21203/rs.3.rs-152011/v1>
- Mukunya, D., Tumwine, J. K., Nankabirwa, V., Ndeezi, G., Odongo, I., Tumhamye, J., Tongun, J. B., Kizito, S., Napyo, A., Achora, V., Odongkara, B., & Tylleskar, T. (2017). Factors associated with delayed initiation of breastfeeding: A survey in Northern Uganda. *Global Health Action*, 10(1), 1410975. <https://doi.org/10.1080/16549716.2017.1410975>
- National Population Commission (NPC) [Nigeria], I. (2019). *National Population Commission (NPC)[Nigeria] and ICF International*. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.
- Okari, T. G., Aitafo, J. E., Onubogu, U., & West, B. A. (2020). Knowledge, Practice and Problems of Exclusive Breastfeeding among Mothers Attending the Outpatient Clinic of a Baby Friendly Hospital Initiative Designated Hospital in Port Harcourt, Nigeria. *European Journal of Nutrition & Food Safety*, 12(9), 103–115.
- Okonkwo, Elizabeth & Ihome, Gideon & Ezenwa, Happiness Chidinma & A., Amaeze & Miracle, & Ibeh. (2022). Breastfeeding Knowledge, Exclusive Breast-feeding Duration, and Perception of Insufficient Breast Milk Supply among Lactating Mothers in Ikwuano LGA of Abia State. *Nigerian Journal of Nutritional Sciences*. 43. 134-143.
- Okoroiwu, G. I. A., Ubosi, N. I., Aliyu, S. M., & Eya, C. P. (2021). Knowledge, attitude and practice of exclusive breastfeeding amongst mothers of infants in Gwagwalada area council, FCT, Abuja, Nigeria. *Journal of Applied Sciences and Environmental Management*, 25(1), 127–132.
- Osaro, B. O., Nnadi, N., Ikakita, Y., & Emordi, N. A. (2024). Knowledge of Exclusive Breastfeeding and its Practice among Women in Academics in South-South Nigeria. *Medicine and Medical Research: New Perspectives Vol. 3*, 72–89.
- Oyedeke, O. K. (2023). Effect of caesarian section delivery on breastfeeding initiation in Nigeria: Logit-based decomposition and subnational analysis of cross-sectional survey. *BMJ Open*, 13(10), e072849. <https://doi.org/10.1136/bmjopen-2023-072849>
- Oyelana, O., Kamanzi, J., & Richter, S. (2021). A critical look at exclusive breastfeeding in Africa: Through the lens of diffusion of innovation theory. *International Journal of Africa Nursing Sciences*, 14, 100267. <https://doi.org/10.1016/j.ijans.2020.100267>
- Perin, J., Mulick, A., Yeung, D., Villavicencio, F., Lopez, G., Strong, K. L., Prieto-Merino, D., Cousens, S., Black, R. E., & Liu, L. (2022). Global, regional, and national causes of under-5 mortality in 2000–19: An updated systematic analysis with implications for the Sustainable Development Goals. *The Lancet Child & Adolescent Health*, 6(2), 106–115.
- Prentice, A. M. (2022). Breastfeeding in the modern world. *Annals of Nutrition and Metabolism*, 78(Suppl. 2), 29–38.
- Rana, M. M., Islam, M. R., Karim, M. R., Islam, A. Z., Haque, M. A., Shahiduzzaman, M., & Hossain, M. G. (2020). Knowledge and practices of exclusive breastfeeding among mothers in rural areas of Rajshahi district in Bangladesh: A community clinic-based study. *PLoS One*, 15(5), e0232027.

- Robinson-Mbato, L., Nwosu, A. B., Azumah, M. K., & Wonodi, V. O. (2024). Factors influencing maternal health care services utilisation in Port Harcourt local government area of Rivers state. *International Journal of Quantitative and Qualitative Research Methods*, 12(2), 1–19.
- Utah-Iheanyichukwu, C., Samuel, J. M., Anagbakwuonye, K. I., & Allison, T. T. (2024). Knowledge and Effect of Exclusive Breastfeeding among Nursing Mother's in Aba North Local Government Area. *TROPICAL JOURNAL OF ENGINEERING, SCIENCE AND TECHNOLOGY*, 3(1), 100–107.
- Victora, C. G., Bahl, R., Barros, A. J. D., França, G. V. A., Horton, S., Krasevec, J., Murch, S., Sankar, M. J., Walker, N., Rollins, N. C., & Lancet Breastfeeding Series Group. (2016). Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *Lancet (London, England)*, 387(10017), 475–490. [https://doi.org/10.1016/S0140-6736\(15\)01024-7](https://doi.org/10.1016/S0140-6736(15)01024-7)
- World Health Organization. (2003). *Global strategy for infant and young child feeding*. <https://www.who.int/publications/i/item/9241562218>
- World Health Organization, & United Nations Children's Fund. (2014). *Global Nutrition Targets 2025: Breastfeeding Policy Brief*. https://iris.who.int/bitstream/handle/10665/149022/WHO_NMH_NHD_14.7_eng.pdf?sequence=1