



The Associations of Maternal Socio-Demographic Variables with the Practice of Exclusive Breast-Feeding among Nursing Mothers in Obio/Akpor Local Government Area, Rivers State, Nigeria

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Abstract

Review Article

Background: Exclusive breastfeeding rate is an indicator for reduction of maternal mortality. This study determined the associations of maternal socio-demographic variables on the practice Exclusive Breastfeeding (EBF) among nursing mothers in Obio-Akpor Local Government, Rivers State.

Materials and methods: Cross-sectional study was carried out among 386 nursing mothers attending infant welfare clinic in six primary healthcare centres. A structured questionnaire was used to obtain data on exclusive breastfeeding practice. Data were analyzed using statistical package for social sciences (SPSS) windows version 25.

Results: Out of a total 386 women, 33.9% practiced exclusive breastfeeding, 35.5% initiated breastfeeding within the first hour of delivery. Logistic regression analysis showed that those who were more likely to exclusively breastfeed include older mothers ≥ 35 years (p value ≤ 0.05), mothers with higher than secondary education ($p = 0.02$), those who delivered at health facility ($p = 0.014$). Those who were less likely to breastfeed include farmers/traders ($p = 0.032$) and single mothers ($p = 0.02$). Source of information about EBF from health workers is 76.4%.

Conclusion: The study revealed that a minimal proportion of the study sample practiced exclusive breastfeeding and the rate was highest in older mothers (≥ 35) years compared to the younger age. Age, marital status, educational level and occupation were maternal factors significantly associated with practice of exclusive breastfeeding among nursing mothers. There should be renewed effort in promoting the practice and support of EBF.

Keywords: Breastmilk, Exclusive breastfeeding, Maternal, Obio/Akpor

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INTRODUCTION

Adequate nutrition is absolutely essential for optimal growth and development of infants. Breast milk is the natural means of providing nutrition to infants as it contains all the necessary nutrients required by infants in the first six months of life. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) have identified breastfeeding as the single most effective and affordable feeding practice necessary for the development of healthy infants [1]. Breastfeeding is also known to improve the motor and mental development of babies and protects them against conditions like diabetes (types 1 & 2), asthma, necrotizing enterocolitis and sudden infant death syndrome (SIDS) and obesity [2]. According to Adewuyi and Adefemi[3], in a systematic review indicated that there are evidences from a recent study which reveal that breastfeeding is critical to the survival of newborns and infants. In the 2003 report published in Lancet, it is indicated that an estimated 13% reduction in infant mortality rate can be achieved through the practice of exclusive breastfeeding. In mothers, breastfeeding is not only known to play a crucial role in child spacing through lactational amenorrhea but also reduces post-partum bleeding, enhances the acceleration of involution of the uterus [2]. Despite the established benefits of optimal breastfeeding, Adebayo and Oluwaseyi [1], reported that globally only 43% of newborns have exclusive breastfeeding initiated within one hour of birth, and 40% of infants aged 6 months or less are exclusively breastfed. It is also reported that about 60% of infants in developing countries are not exclusively breastfed for six months [4]. In sub-Saharan Africa, studies have also shown that the prevalence of early initiation of breastfeeding ranges from 37.8% to 69.3%, while the prevalence of exclusive breastfeeding ranges from 23.7% to 56.5% [5].

The National Survey of the Nigeria Demographic and Health Survey, (2018) key Indicators Report indicated that only 29% of infants less than six months were exclusively breastfed in Nigeria [6]. The estimated population of Nigeria as at 2021 was

214,038,836 in a report by World Population Review (2022), with varying reports of infant mortality rate. In 2019, the infant mortality rate in Nigeria was about 74.2 deaths per 1000 live births [7]. However, the 2021 data gave encouraging figure of 58.23%. Joseph and Earland [8], reported that Nigeria's infant mortality is ranked sixth in Africa. Adebayo and Oluwaseyi [1] also reported from research findings that several factors such as psychosocial, cultural, and economic and health status of the mother influence breastfeeding practice. Their report also indicated that educational status, age and ethnicity of women have been found to be strong predictors of maternal practice of exclusive breastfeeding.

The sustainable development goal (SDG) number two focuses on improving nutrition and ending hunger, the third SDG aims at ensuring healthy lives and promoting the well-being of individuals of all ages, and SDG number four aims at reducing infant mortality. It is evident that the promotion of optimal breastfeeding is an important strategy in achieving these goals among infants and young children [1]. However, to the best of the researcher's knowledge, there is no published paper on the influence of maternal characteristics on exclusive breastfeeding among nursing especially in the locality of this study. Hence, this study was designed to evaluate the associations of maternal socio-demographic variables with the practice of exclusive breastfeeding among nursing mothers in Obio-Akpor Local Government Area of Rivers State, Nigeria.

MATERIALS AND METHODS

A cross-sectional questionnaire-based survey design was adopted in this study to assess the impact of maternal socio-demographic variables on the exclusive breast-feeding among nursing mothers in some selected Primary Healthcare facilities in Obio-Akpor Local Government Area of Rivers State, Nigeria from June, 2023 to September, 2023. Only nursing mothers of age 18-49 years with at least one child breastfeeding or those who have breastfed for the past one year and also consented to

participate in this study were included while breastfeeding mothers who have health challenges and those who did not consented to the study were excluded.

An ethical approval for this study was obtained from the Rivers State Government Health Research Ethics Committee, Rivers State Hospitals Management Board (RSHMB/RSHREC/2023/013) and the department of Health, Obio/Akpor Local Government Council (Ltknw/HQ/J2-22/24)

and the purpose of the study was adequately explained to the participants and their consents duly obtained using written informed consent form. Information obtained from the participants were held in strict confident and use for the purpose of this study only. The nature of participation in this study was entirely voluntary and no participant was harm due to this study.

A sample size of 348 breast-feeding nursing mothers was obtained using the Leslie-Kish formular[1].

$$n = \frac{Z^2 pq}{d^2}$$

where n = desired sample size

Z = Standard normal deviation set at 1.96 (for 95% confidence interval)

p = the prevalence of exclusive breastfeeding

q = 1-p

d = desired degree of accuracy 5% = 0.05

The Nigerian demographic and health survey report indicated a prevalence of breastfeeding of 29% [6]. The sampling size is therefore obtained as follows:

$$n = \frac{Z^2 pq}{d^2} = Z^2 \frac{P(1-P)}{d^2}$$

$$n = \frac{1.96^2 \times 0.29 (1 - 0.29)}{0.05^2}$$

$$= \frac{3.8416 \times 0.29 \times 0.71}{0.05^2} = \frac{3,8416 \times 0,2059}{0.0025} = 316.39$$

Putting into consideration 10% of attrition the minimum sample size will be 347.6 = 348. The participants were selected using simple random sampling technique.

A 29 items structured and semi-structured questionnaire was the instrument for data collection used in this study. The questionnaire consists of section A, B, C and D. Section a contained

instruments for socio-demographic data of respondents such as age, educational status, occupation, marital status, place where the child was born and parity. Section B contained items related to socioeconomic variables which include household wealth index, nature of accommodation, household items, mobility and estimated income per month. Section C contained items that define socio-cultural beliefs and determinants as it pertains to colostrum, influence of mother-in-law, husband support, frenulectomy (a procedure in which the frenulum under the baby's tongue is cut), use of herbal medicine/leaves, sagging of breast, and use of palm wine. Section D contained questions related to breastfeeding practices such as breastfeeding status, age of the child, time of initiation of breastfeeding, duration of breastfeeding. The validity of the questionnaire was computed using the Index of Item Objective Congruence (IOC) method used by previous authors [9-11]. The content validity of the questionnaire was assessed by calculating the IOC. According to the index parameters, an IOC score >0.6 was assumed to show excellent content validity. All the scores for all the items of the questionnaire after IOC interpretation were >0.6 in this study. Cronbach alpha reliability value of 0.72 for internal consistency of the questionnaire was obtained. The questionnaire was generated in a hardcopy version and administered to the participants by the researchers. The filled questionnaire was retrieved immediately and process for data analysis.

Data collected include maternal socio-demographic variables such as age, parity, religion, and ethnicity, level of education and income of mothers and/or family. Breastfeeding practices were assessed, particularly the time interval between delivery and initiation of breastfeeding, duration of exclusive breastfeeding and total duration of breastfeeding. Problems encountered by the nursing mothers during breastfeeding such as cracked nipples, breast engorgement, use of first milk (colostrum) etc were also assessed through the questionnaire.

The data were collected using a proforma and exported into the SPSS version 21 (IBM Corp, Armonk, NY, 2012) for statistical analysis. Descriptive (frequency, and percentage, mean) and

inferential (Chi-square test) statistics were the tools used for statistical analysis. Chi-square test was used to determine the relationship existing between variables. Logistic regression was used to identify the influence of maternal socio-demographic factors on exclusive breastfeeding at a statistical significance level of 0.05.

RESULTS

The mean age of the respondents was 30.43 ± 4.90 years with 58 (15.1%), 253 (65.7%)

and 74 (19.2%) respondents aged ≤ 25 years, 26 to 34 years, and ≥ 35 years respectively.

The majority 340 (88.1%) of the respondents were married while single ones accounted for 46 (11.9%). Greater number 236 (62.8%) of the respondents had above secondary educational level. A large proportion 189 (50.9%) of the respondents were self-employed and the least 61 (16.4%) were housewives. Over fifty percent of the respondents delivered in the health facility 241 (69.1%) and the least delivered at home 35 (10%). Of these deliveries, 131 (33.9%) practiced exclusive breast feeding (Table 1).

The source of information reported by the respondents for exclusive breast feeding were health workers (76.4%), family and friends (19.7%), social media (1.6%), Television and Radio (2.3%) (Figure 1). With regards to challenges associated with exclusive breast-feeding, 36.8% experienced cracked nipple due to breast feeding, 12.2% had breast engorgement, 11.1% delayed milk production, 8.3% inadequate milk production, and 31.6% experienced no problem because of breast feeding (Figure 2).

The results of the associations between maternal socio-demographic variables revealed that there were statistically significant associations of age ($\chi^2 =$

14.31, $p = 0.001$), marital status ($\chi^2 = 2.12$, $p = 0.022$), educational status ($\chi^2 = 3.49$, $p = 0.042$) and occupation ($\chi^2 = 6.69$, $p = 0.035$) with the practice of exclusive breast-feeding among nursing mothers in Obio/Akpor, L.G.A while a non- statistically significant associations exist between parity ($\chi^2 = 0.27$, $p = 0.602$) and place of delivery ($\chi^2 = 3.16$, $p = 0.026$), and the practice of exclusive breast-feeding among nursing mothers in Obio/Akpor, L.G.A (Table 2). The association of maternal socio-demographic variables on the practice of exclusive breast-feeding among older nursing mothers in Obio/Akpor, L.G.A using bivariate logistic regression model, showed that only age, marital status, educational level, occupation, and monthly income were significantly associated exclusive breast-feeding practice among nursing mothers at p -value < 0.05 . The predictors of exclusive breast-feeding practice from the multivariate logistic regression analysis after controlling for other variables were age, marital status, level of education and occupation. Those within age group 26-34 years were 2.12 times and 35 years or more were 1.06 times more likely to practice exclusive breast feeding compared to aged 25 years or below, (AOR= 2.12; 95% CI=1.31-3.42; $P=0.022$) and (AOR=1.06; 95% CI=1.02-2.62; $P=0.011$) respectively. Those who were not married were 0.36 times less likely to practice exclusive breast feeding compared to those who were married (AOR = 0.36; 95% CI = 0.22 – 0.61; $P = 0.021$), and those who had higher than secondary education were 1.76 times more likely to exclusive breast feeding (AOR = 1.76; 95% CI = 1.67 – 2.44; $P = 0.001$) compared to those with lower educational level. Farmer/Traders were less likely to practice exclusive breast feeding compared to Housewife (AOR = 0.73; 95% CI = 0.23 – 0.78; $P = 0.034$) (Table 3)

DISCUSSIONS

This index study found that more than one-quarter (33.9%) of nursing mothers studied practiced exclusive breastfeeding. The rate of exclusive breastfeeding was highest in older mother (≥ 35) years compared to the other age strata. This result was lower than what was reported in a few studies in Nigeria and abroad. For instance, the rates of

exclusive breastfeeding practice of 34.2% was reported in Northwest Nigeria [12], between 41.4% and 58.8% in Southwest Nigeria [1, 13,14]. On the contrast, the result was higher than other studies conducted in Cross-Rivers and Imo states of Nigeria, 24% and 6% respectively [15,16]. These disparities in the prevalence rates could be attributed to known risk factors such as social, customs, attitudes, beliefs and women's work condition [12,16].

With regards to practices of exclusive breast-feeding, a very small proportion (35.5%) of the respondents, initiated breastfeeding based on WHO recommended time of within the first one hour [17]. This is lower than what was reported in Kware Nigeria where 53% initiated breastfeeding within the first one hour of after birth [18]. This is consistent with another WHO 2018 report on initiation of breastfeeding where it was stated that 3 in 5 babies were not breastfed in the first one hour after birth [19]. Possible explanation for this result could be attributed to some of the challenges of breastfeeding revealed in this study such as delayed milk production, cracked nipple and inadequate milk production.

The major source of information about exclusive breastfeeding in this study was health workers (76.4%) followed by family and friends (19.7%). This result is comparably the same with studies conducted in different parts of Nigeria and beyond that showed health workers are the main source of information about exclusive breastfeeding [20-23]. This suggests that health workers are provided with good and adequate information on the importance of exclusive breastfeeding. This could be attributed to the fact that most of the study participants were well educated and delivered in the health facilities where they were enlightened and exposed to the adverse effects on babies not breastfed exclusively.

In consistent with previous studies that reported the influence of several maternal factors on exclusive breastfeeding practices, this study identified some maternal factors associated with exclusive breast-feeding practice among nursing mothers in Obio/Akpor LGA. This study showed significant association between maternal age and exclusive breastfeeding practice. This is contrary to findings of

studies conducted in Sokoto state [1, 12, 24]. On the other hand, agreed with a study done in Cross-Rivers state [15], as the study revealed that of the mothers were more likely to practice exclusive breastfeeding compared to younger mothers. This is on the assumption that young mothers may be inexperienced and are also more easily influenced by family pressure such as pressure from grandmothers/mothers-in-law not to practice exclusive breastfeeding [15]. A higher maternal educational level was observed to have association with exclusive breastfeeding practice compared to mothers with lower education both in all the nursing mothers and in the strata of older nursing mothers. This finding is in agreement with the findings of previous studies conducted by [4,12,16]. This may be due to their understanding of the health implications of exclusive breastfeeding on child's health. Though, there are contradictory reports on the influence of maternal educational level on exclusive breastfeeding practice, an opposite relationship between maternal educational level and exclusive breastfeeding practice was reported in an earlier study [15]. They believed that mothers with higher educational level are likely to engage in formal employments with associated busy schedules which negatively impact on their ability to breastfeed exclusively.

Also, the study showed significant association between Mothers occupation and exclusive breastfeeding practice as farmer/traders were less likely to practice exclusive breastfeeding when compared to housewife in all the nursing mothers and older age group. This agrees with the finding of a previous study [12]. This may be because mothers who are farmer/traders belong to the category of self-employed who may be anxious of going back to their businesses which will in turn affects the time with their infants. Like farmers/traders, older mothers who engaged in a paid job were less likely to exclusively breastfed compared to housewife in this study. This agrees with the finding of previous studies [12,16]. The possible explanation is the fact that mothers who are in paid job may not spend more time with their infants after the completion of maternity leave, which is usually three months in Nigeria, unlike housewives who spent more time

with their infants. In this study, delivering in the health facility significantly has higher odds compared to those who delivered at home to the practice of exclusive breastfeeding among older nursing mothers. This agreed with the findings of studies conducted in Nigeria and Ghana [12]. This could be explained by the fact that mothers who give birth in the health facilities are better positioned to obtain instant obstetric and postnatal care, like nutritional education and counseling on the benefit of exclusive breastfeeding on infants [25].

Limitations of the study

The information for determining the rate of exclusive breastfeeding was solely based on the ability of the mother to recall. There could be recall bias because it is possible that mothers would report best practice even if they themselves were not carrying it out. This is a serious limitation to this type of study. It implies that reliability and validity of infant feeding practices is only determined by mothers whose information may not be absolute.

Conclusion

The study revealed that a minimal proportion of the study sample practiced exclusive breastfeeding, and the rate was highest in older mothers (≥ 35) years compared to the younger age. The common cultural beliefs were that the first milk that is yellowish in colour is healthy for the babies and drinking palm wine during breast feeding boost the flow of breast milk; while the cultural practices were mother/mother-in-law's influences/advice on feeding baby with water within the first 6 months of birth, partner's support exclusive breast feeding, feeding of baby with the first yellowish milky and those who initiated breastfeeding within the first one hour after birth was 35.5%. The major source of information about exclusive breastfeeding in this study was the health workers while challenges of breastfeeding were delay in milk production, cracked nipple and inadequate milk production. The findings also revealed that age, marital status, educational level and occupation were maternal socio-

demographic variables that significantly associated with practice of exclusive breastfeeding among nursing mothers in Obio/Akpor LGA, Rivers State

DECLARATION

Ethical approval and consent to participate: An ethical approval was obtained from the Rivers State Government Health Research Ethics Committee, Rivers State Primary Health Care Board and the department of Health, Obio/Akpor Local Government Council. All participants gave their written informed consent.

Consent for Publication: This was also appropriately obtained

Availability of data and material: The datasets used or analyzed during the current study are

available from the corresponding author on reasonable request.

Competing of Interest: There is none declared among the authors

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Authors’ contributions

All authors have read and approved the manuscript. Each author participated sufficiently in this submission and the roles of the authors are: CUJ was the main researcher, drafted the manuscript, responsible for data capturing, presentation of results, CUJ, MPO, BO and JE carried out the interpretation of results while BO, MPO and JE gave recommendations on the review of literatures, and provide critical comments on the research work.

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Table 1: Frequency and percentage distributions of maternal socio-demographic variables

Characteristics	No of respondents (n=386)	Percentage
Age (years)		
≤ 25	58	15.1
26-34	253	65.7
≥ 35	74	19.2
Mean ± SD	30.43 ± 4.90	
Marital status		
Married	340	88.1
Not married	46	11.9

Education level		
Secondary or below	140	37.2
Above secondary	236	62.8
Occupation		
Housewife	61	16.4
Self-employed (Farmer/Trader	189	50.9
Paid employment	121	32.6
Parity		
≤ 2	262	68.4
> 2	121	31.6
Mean ± SD	2.15 ± 1.13	
Place of delivery		
Home	35	10.0
TBA/Mission centre	73	20.9
Health facility	241	69.1
Exclusively Breast fed		
No	255	66.1
Yes	131	33.9

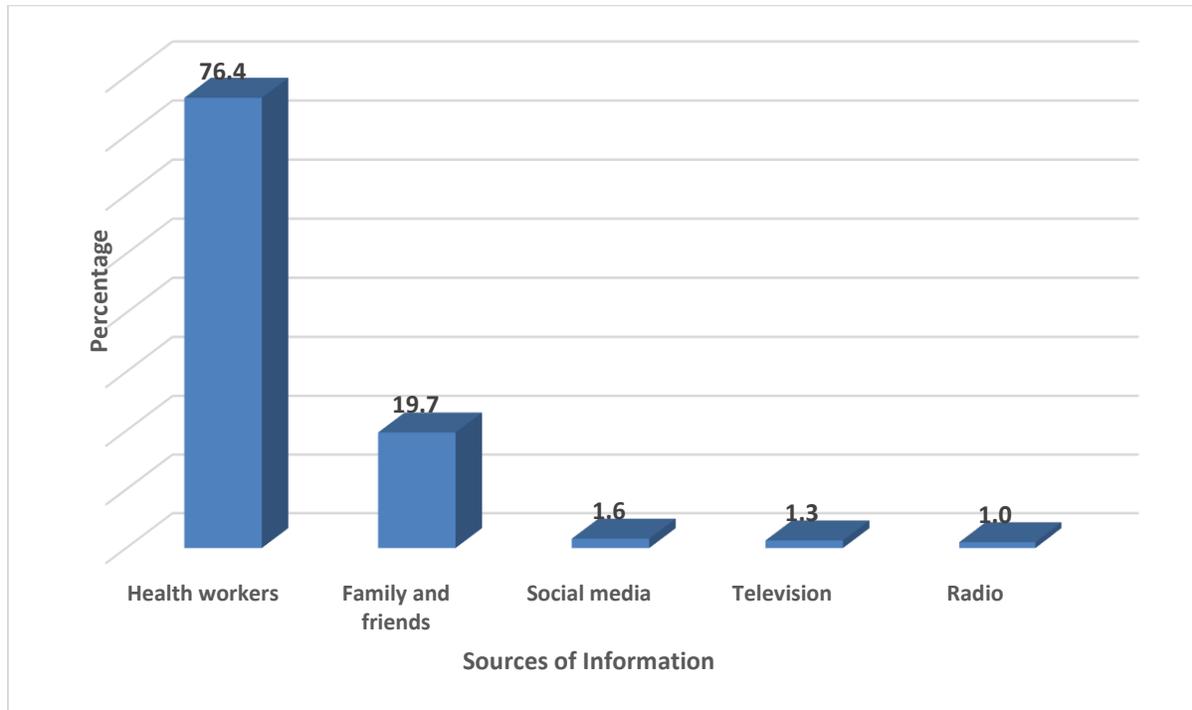


Figure 1: Bar chart percentage distributions of sources of breast-feeding information

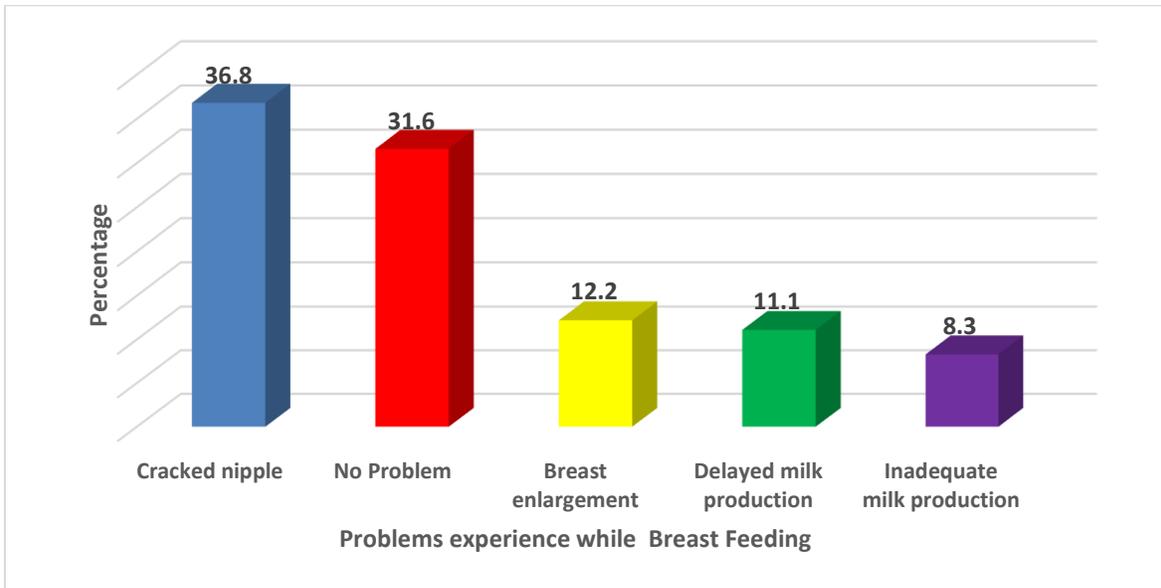


Figure 2: Bar chart of percentage distributions of the challenges associated with breast feeding

Table 2: Association between maternal socio-demographic variables and the exclusive breast-feeding practices among the studied nursing mothers

Characteristics	Exclusively Breast Fed		Chi-square Value	P-value
	No N (%)	Yes N (%)		
Age			14.31	0.001
≤ 25	45 (77.6)	13 (22.4)		
26-34	174 (68.8)	79 (31.2)		
≥ 35	36 (48.6)	38 (51.4)		
Marital status			2.12	0.022
Married	229 (67.4)	111 (32.6)		

Not married	26 (56.5)	20 (43.5)		
Education level			3.49	0.042
Secondary or below	101 (72.1)	39 (27.9)		
Above secondary	148 (62.7)	37 (37.3)		
Occupation			6.69	0.035
Housewife	49 (80.3)	12 (19.7)		
Farmer/Trader	118 (62.4)	71 (37.6)		
Paid employment	79 (65.3)	42 (34.7)		
Parity			0.27	0.602
≤ 2	176 (67.2)	86 (32.8)		
> 2	78 (64.5)	43 (35.5)		
Place of delivery			3.16	0.206
Home	18 (51.4)	17 (48.6)		
TBA/Mission centre	157 (65.1)	84 (34.9)		
Health facility	50 (68.5)	23 (31.5)		

Table 3: Association between Maternal Characteristics and Exclusive Breast-feeding Practices among the older Nursing mother in the studied population

Factors	UOR (95% CI)	P-value	AOR (95% CI)	P-value
Age				
≤ 25	Ref.		Ref.	

26-34	1.11 (1.08-1.44)	0.027	2.12 (1.31-3.42)	0.022
≥ 35	1.29 (1.14-2.56)	0.001	1.06 (1.02-2.62)	0.011
Marital status				
Married	Ref.		Ref.	
Not married	0.48 (0.26-0.65)	0.022	0.36 (0.22-0.61)	0.021
Education level				
Secondary or below	Ref.		Ref.	
Above secondary	2.12 (0.87-3.24)	0.042	1.76 (1.67-2.44)	0.001
Occupation				
Housewife	Ref.		Ref.	
Farmer/Trader	0.43 (0.21-0.87)	0.037	0.73 (0.23-0.78)	0.034
Paid employment	0.55 (0.24-1.56)	0.167	0.83 (0.34-2.34)	0.351

UOR = unadjusted odd ratio. AOR= adjusted odd ratio

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