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Exclusive Breastfeeding Practice in Nigeria: do Women's Socio-Economic Factors Matter?

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Abstract

This study investigates whether women's socio-economic factors matter to exclusive breastfeeding practice in Nigeria. According to the generalised probit regression technique employed, the study found that women in the informal employment sector are 10% more likely to practice exclusive breastfeeding compared to women in the formal employment sector. We also found that women in high-income categories and education are 56% and 65% more likely to practice exclusive breastfeeding compared to women in low-income and lower educational cadres, respectively. Therefore, the study concluded that women's socioeconomic background does have a significant positive effect on exclusive breastfeeding practice in Nigeria. Based on these findings, the study suggests that policy directions that support exclusive breastfeeding practice, such as long-duration maternity leave and breastfeeding-friendly workplaces, should be implemented across all sectors in Nigerian states.

Keywords: Exclusive Breastfeeding, Exclusive Breastfeeding Practice, Nursing Mothers, Socio-economic Factors, Probit Model, Telephone Polling Methodology, NOIPolls, Nigeria.

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I. INTRODUCTION

Breast milk (principally from exclusive breastfeeding) plays an important role in lowering the hospitalisation rate of infants and making them be in better health. It is worthy of note that it provides an exceptional and comprehensive formula of antioxidants, vitamins, and minerals that an infant needs to develop and grow into adulthood. As McGowan & Bland (2023) observed, breastfed children often perform better in educational activities and are less likely to be unnecessarily obese or overweight, and again less prone to cardiovascular diseases later in life. By extension, this contributes to both quality and quantity of labour force participation soon and economic growth. Not only that, women who breastfeed their infants also have a reduced risk of breast and ovarian cancers (Nainggolan, Dioso, Hassan, Muhammad & Sinegar, 2023).

The National Bureau of Statistics (NBS, 2023) reports that 1 in 8 children do not reach their 5th birthday and 3 in 10 children are stunted; optimal breastfeeding practices are known to reduce neonatal and child morbidities and mortality rates as well as stunting reduction. Optimal nutrition provided by breastfeeding along with nurturing, care, and stimulation strengthens a child's brain development with positive impacts that endure over a lifetime (USAID, 2024). Initiation of breastfeeding within the first hour of birth, followed by exclusive breastfeeding for six months and continued breastfeeding for up to two years or beyond, offers a powerful line of defence against all forms of child malnutrition, including wasting and obesity. Breastfeeding also acts as babies' first vaccine, protecting

them against many common childhood illnesses (NBS, 2023 & USAID, 2024).

In Nigeria, however, where poverty and unemployment rates are extremely high, the challenges among those mothers who practiced exclusive breastfeeding for their infants could be connected with the short duration of maternity leave. Other factors may contribute to breast milk alone not meeting the nutritional needs of newborns, including poor maternal nutrition and socio-cultural or religious pressures to introduce water and artificial feeds.

The United Nations Children's Emergency Fund (UNICEF) reports that 40% of infants aged six (6) months and younger are exclusively breastfed globally (UNICEF, 2023). Of this estimate, only 23 countries across the globe have achieved the UNICEF and WHO recommendation of EBF for 90% of infants six (6) months and younger (UNICEF, 2024). According to the Global Burden of Diseases, Injuries, and Risk Factors Study, an estimated 47.5 million Disability Adjusted Life Years (DALYs) were lost in 2023 due to suboptimal breastfeeding (WHO, 2024). In addition, the low uptake of EBF has been reported as a factor that has contributed to 11.6% of under-5 deaths in sub-Saharan Africa (USAID, 2023).

The Nigeria Demographic and Health Survey and the United States Agency for International Development (NDHS, 2018 & USAID, 2024) report that nearly 3 in 10 (29%) children under six months are exclusively breastfed. However, this proportion still falls significantly below the target of 50% set by the World Health Assembly to be achieved in 2025 and the Sustainable Development Goals (SDGs) target of 90% for 2030. The percentage of children who were breastfed within 1 hour of birth (42%) remains less than 50% in Nigeria. Breastfeeding rates in Nigeria reduce with age—83% of the children are breastfed up to one year, while 28% are breastfed until 2 years. In addition, the proportion of children who are not breastfeeding increases with age (NBS, 2023 & USAID, 2024). While WHO recommended 90% exclusive breastfeeding practice for nursing mothers in developing countries, exclusive breastfeeding practice trends in Nigeria stood at 2% and 17% in 1999 and 2003, decreased to 13% in 2008, and stood at 17% to 29% between 2013 and 2023 (NDHS, 1999; NDHS, 2003; NDHS, 2008; NDHS, 2013; NDHS, 2018 & NDHS, 2023). These poor trends have the tendency to increase the risk of infections (which include diarrhoea and respiratory tract infections) and malnutrition in infants, leading to high under-5 mortality and morbidity rates. Low exclusive breastfeeding practice also leads to poor maternal health outcomes, such as increased risk of postpartum haemorrhage and worsened uterine involution (Osbogu et al., 2018; Yakubu et al., 2023 & Adebayo et al. 2021).

In sub-Saharan Africa, there is a disparity in the uptake of EBF, with the prevalence ranging from 23.7% in Central Africa to 32.6% in West Africa, 53.5% in East Africa, and 56.6% in Southern Africa. The countries with the lowest prevalence in each region were Gabon – 6.0% (Central Africa), Cote d'Ivoire – 13.2% (West Africa), Comoros – 13.5% (East Africa), and Namibia – 48.7% (Southern Africa) (WHO & UNICEF, 2023). In Nigeria, the estimated prevalence of EBF was 29%, a proportion that is significantly lower than the minimum 90% recommended by the World Health Organisation and UNICEF. Despite the baby-friendly hospital initiative introduced in 1991 by UNICEF, Nigeria reports sub-optimal practice of EBF among nursing mothers (NDHS, 2023 & USAID, 2024). Evidence, however, suggests that the reported low uptake of EBF in Nigeria could be an outplay of some underlying factors (WHO, 2024). This may also be connected with the economic situations and socio-cultural practices in Nigeria, particularly the rapid urbanisation and increasingly harsh economic environment, where the need for income-producing activity of women has to be increased (Osibogun, Olufunlayo & Oyibo, 2018). The occupational and educational status of the mother is an attribute that also determines the time allocation for children and women (Amosu & Babalola, 2011).

Notwithstanding the fact that appropriate breastfeeding practice is the most cost-effective intervention to reduce neonatal mortality in developing countries, exclusive breastfeeding practices in Sub-Saharan African countries, including Nigeria, remain low (WHO, 2023). Of approximately 56 million infants less than six months of age in Sub-Saharan African countries, approximately 22 million are exclusively breastfed, while over 34 million children (60.7%) are not. Eighty percent (80%) of these children who do not benefit from exclusive breastfeeding in developing countries live only in 29 countries. From these 29 countries, the 10 large countries, including Nigeria, have two-thirds (over 21 million) of the approximate number of nonexclusively breastfed children in developing countries (USAID, 2024).

Only 18 percent of children aged 6-23 months are fed the minimum acceptable diet. This development can increase the odds of neonatal deaths (United Nations Children's Emergency Fund [UNICEF], 2023). However, there is sufficient evidence from the literature that has examined the link between women's socioeconomic factors and six months of exclusive breastfeeding practice, but thus far, the exact nature of the relationship is not settled. As such, this research aims to use a generalised Probit regression model to establish the exact nature of the relationship between women's socioeconomic factors, such as income, educational attainments, occupational distribution, and exclusive breastfeeding practice in Nigeria.

Given the numerous health and developmental benefits associated with breastfeeding for infants and mothers, it is paramount to identify the women's socio-economic factors that could predict low exclusive breastfeeding practice in Nigeria. These are largely lacking in previous studies such as Amosu & Babalola (2011) and Osibogun et al. (2018).

Thus, this study hypothesised that women's socio-economic backgrounds, namely age group, education, occupation, and level of income, could explain exclusive breastfeeding practice in Nigeria. An understanding of these factors can help policymakers in formulating health policies that will promote quality exclusive breastfeeding among mothers in Nigeria. Hence, the objective of this research is to identify the women's socio-economic factors that could predict exclusive breastfeeding practice in Nigeria.

Conceptually, exclusive breastfeeding is feeding an infant breast milk without adding water or additives. This intervention is strongly recommended by the World Health Organisation and the United Nations International Children's Emergency Fund (WHO & UNICEF, 1991) for optimal nutrition for newborns to grow and develop, and a child should be breastfed exclusively for up to six months. With this concern, the Worldwide Breastfeeding agenda garners support from all sectors to enable women globally to work and breastfeed successfully.

Theoretically, well-breastfed infants would be healthy for future economic activities. The argument here is that exclusive breastfeeding will enhance the quality and quantity of labour force participation in the future and thereby boost economic growth (Nainggolan et al., 2023). Mothers who breastfeed their infants will also experience a reduced risk of health challenges, particularly breast and ovarian cancers.

The Interactive Theory of Breastfeeding (ITB) argues that three interactive systems—personal, interpersonal, and social factors—could explain the care or health of women, children, and families during the period of breastfeeding. The first (personal system) includes the perception of women and society about breastfeeding, self, body image, growth, development, time, and space (Primo & Brandao, 2017). The second (interpersonal system) is composed of human beings who interact in the personal system. It includes the concepts of interaction, community, transaction, the role of women in society, and the stress the women pass through during breastfeeding. The last is the social system. This is the combination of personal and interpersonal systems. It concerns the organisations, authorities, government, power, status, and decision-making that affect breastfeeding processes. Largely these three systems often relate to socioeconomic factors of women or families.

For the empirical shreds of evidence, McGowan & Bland (2023) investigated the prevalence of exclusive breastfeeding practice across 15 West African countries, excluding Nigeria. The study explored published literature in 2013 to examine the association between breastfeeding, cognition, executive function, and behaviour. The study searched the Web of Science publications between January 2012 and March 2022 but excluded non-English articles. It was found that most studies showed a modest dose-dependent increase in cognitive scores in children who were breastfeeding, with test score differences ranging from 0.19 to 0.96 points per month of breastfeeding when comparing any breastfeeding, predominant breastfeeding, and exclusive breastfeeding. While four out of six studies showed a positive correlation between breastfeeding and behaviour, one out of three studies assessing breastfeeding and executive function showed a positive dose-dependent correlation.

Previous studies (Yakubu et al., 2023; Osbogu et al., 2018; Nainggolan et al., 2023; Adebayo et al., 2021; Ogunlesi, 2004; Ekure, 2003; Salami, 2006; Agbo & Zoakah, 2013; Williams & Omotade, 2014) from Nigeria that were conducted in Ondo, Edo, Osun, Imo, Cross River, Anambra, and Ogun, as well as Lagos States, have investigated the association between various factors and EBF using descriptive statistics and aggregated datasets collected at the health facility level. Findings from these studies suggest that factors related to mothers, like how often they attend antenatal care, postnatal care, their marital status, their desire to return to work, the number of children they have, and family support for exclusive breastfeeding (EBF), were strongly linked to EBF. In addition, these studies also report that infant-related factors such as infant age and proximity of the mother to the baby, knowledge, attitude, practices, and emotional well-being of mothers, perceived hunger after breastfeeding a baby, fear of infant addiction to breast milk, breast pains, and pressure from mother-in-law were also identified as factors that predict EBF. Meanwhile, this current research, unlike the previous studies, employed a panel of disaggregated datasets from Ten Nigerian States, with one state from the southwest and nine states in northern Nigeria, through telephone polling methodology to establish the exact nature of the relationship between women's socioeconomic factors and exclusive breastfeeding practice in Nigeria.

Most of these studies (Osibogu et al. 2018; Nainggolan et al. 2023; Adebayo et al. 2021; Ogunlesi, 2004; Ekure, 2003; Salami, 2006; Agbo & Zoakah, 2013; Williams & Omotade, 2014) have, however, been conducted in the southern and eastern states of Nigeria, excluding the northern states with high prevalence rates of under-five deaths, stunted growth, and high rates of malnutrition among newborns. Although Yakubu et al. (2023) used health facility-level collected data to examine the knowledge of women on exclusive breastfeeding practice in a community in Kaduna, Abegunde et al. (2021) analysed socioeconomic inequality in exclusive breastfeeding in the context of only income in Kebbi, Sokoto, and Zamfara states, whereas in modelling exclusive breastfeeding practice among women of child-bearing age in Nigeria, this study disaggregated the socioeconomic background of women into formal and informal employment, low income, middle and upper income, and lower and upper education cadres. Unlike the studies of Yakubu et al. (2023) and Abegunde et al. (2021), our study measured the highest

empirical gauge of EBF in Nigeria (WHO, 2022 & NDHS, 2023).

Hence, the motivation of this study is that there exists a sparse literature on the determinants of EBF in the northern states of Nigeria and Nigeria at large. Many studies have not been conducted to evaluate government programs on exclusive breastfeeding and the prevalence rate of exclusive breastfeeding practice in Nigeria. It is based on this gap that a survey on maternal and child health is being conducted in Sokoto, Borno, Bauchi, Kano, Nasarawa, Gombe, Kaduna, Yobe, and Niger States to evaluate women's exclusive breastfeeding practice in Nigeria. Therefore, this study attempted to investigate the effect of women's socioeconomic background on exclusive breastfeeding practice in Nigeria. Therefore, a study of this nature becomes imperative to provide the data required to guide the policymakers regarding the appropriate policy actions on the issue of low EBF practice in Nigeria. Also, this research can subsequently inform on the strategies for improving EBF practice across Nigerian states.

2. METHODOLOGY

2.1 Theoretical Framework

The theoretical framework for the study is anchored on the Interactive Theory of Breastfeeding (ITB). The theory is based on three interactive systems – personal, interpersonal, and social factors as Figure 1 depicts.

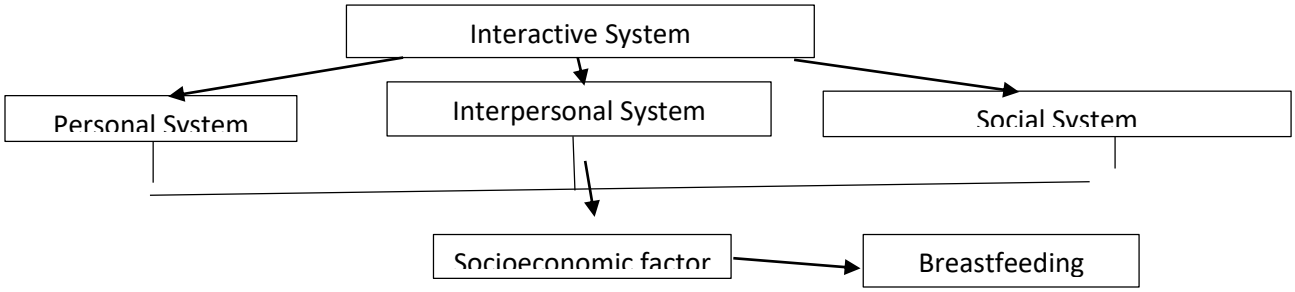

Figure 1: Personal, Interpersonal, And Social Factors

Source: Adapted from Romero *et al.* (2022)

Figure 1 explains that the personal system (perception of women and society about breastfeeding, self, body image, growth, development, time, and space), interpersonal system (interaction, community, transaction, the role of women in the society, and stress the women pass through during breastfeeding), and social system (organisation, authority, government, power, status, and decision-making that affects breastfeeding processes) relate to socio-economic factors of women or families, and these predict their breastfeeding behaviour (Abegunde et al., 2021; Yakubu et al., 2023; Osibogu et al., 2018 & Nainggolan et al., 2023). In this research, we hypothesised that socioeconomic factors that could influence exclusive breastfeeding practice in the contexts of interactive, personal, interpersonal, and social systems are women's employment status (either formal or informal employment), women's income categories (low, middle, and upper income groups), and women's education attainments (lower educational and higher educational cadres).

Better education plays a vital role in promoting exclusive breastfeeding practice among women because women in lower education cadres are less likely to practice exclusive breastfeeding compared to their counterparts (WHO, 2023). This suggests that the returns on investment in the education of women are higher than those of males. Similarly, exclusively breastfed infants used fewer healthcare services and incurred lower costs compared to infants fed any formula milk (Romero et al., 2022 & NDHS, 2023).

Women who engaged in income-generating trades or businesses would improve their standard of living and that of their family members (Dimitrios & Hall, 2021). Income will make breastfeeding women become financially independent and thereby increase their self-esteem. This phenomenon implies that financial freedom in later life is more important than ever (Abegunde et al., 2021).

2.2 Description of Variables

This research analysed the effect of women's socioeconomic backgrounds on exclusive breastfeeding practices in Nigeria. The study used a recent dataset collected through telephone interviews. The study adopted the WHO standard metrics of measuring women's socioeconomic background within the spectrum of households in developing countries. Therefore, Table 1 contains a description of the variables used for this research.

Table 1: Description of Variables

Variables	Variable Measurements
Exclusive breastfeeding practice (EBF)	Exclusive breastfeeding is when a nursing mother breastfeeds her baby for six months without adding water or additives.
Women's socioeconomic background	This includes women's educational, income, and employment categories.
Educational Categories	*Lower education cadre- informal education, primary school completed, junior secondary school completed, senior secondary school completed. *Upper education cadre- higher than secondary education.
Household Income Groups-	*Lower income group: (₦0 - ₦20,000). *Middle-income group: (₦20,001 - ₦ 50,000). *Upper-income group: (₦50, 0001 - ₦150, 000 & above).
Employment Status:	*Formal employment: Professional workers in public and private sectors e.g. Nurses, Doctors, Engineers, Teachers, etc. *Informal employment: Petty traders, business owners, farmers, artisans, etc. *Unemployed: Full housewives, students, etc.

Source: NOIPolls (2022)

2.3 Data Collection Method

The datasets used for the empirical section were collected through telephone interviews. The innovative mobile telephone data collection methodology yields a large sample size in a relatively short period compared to other survey data collection methods (Ampeh et al., 2018 & Amaral et al., 2022). Therefore, high mobile telephone penetration rates in developing countries, Nigeria inclusive, provide new opportunities for alternative sampling and data collection methods (Global Digital Insight, 2022).

However, for this research, a fairly representative random sample of 5,000 participants (500 sample size per state) was selected via random-digit dialling national telephone methodology and supplemented with in-person interviewing in areas with less than 80% mobile phone ownership, such as the rural areas of the sampled states. The stratification of the survey sample size and post-stratification weights applied to this survey helps reduce non-response bias and improve statistical precision. This study addressed non-response bias by estimating call outcomes and response rates in accordance with the American Association of Public Opinion Research guidelines for telephone interviews (2022).

According to Gallup (2022) and World Development Indicators (2023) reports, a good response rate for telephone interviews hovers around 5% to 30% and above. Therefore, the response rate for this research was estimated at 35.3% for the ten states under review with a 95% confidence level and a +-5% margin of error. This is in line with the response rates generated in the studies conducted in Guinea Conakry, Ghana, and Sudan by Ampeh et al. (2018) and Romero et al. (2022) using telephone interviews. Response rates in telephone interviews are comparatively the same as with other data collection methodologies (Amaral, Dinarte-Diaz, Dominguez, Perez-Vincent & Romero, 2022 & Ampeh et al., 2018; L'Engle, Sefa, Adimazoya, Yartey, Lenzi, Tarpo, Heward-Mills, Lew & Ampeh, 2018).

This research employed quantitative research methodology to pool disaggregated datasets across ten states in Nigeria to test the validity of the hypotheses established in the study. This study used the survey datasets collected on maternal and child healthcare service quality across ten states in Nigeria to validate the research hypothesis. These ten states include Kaduna, Kano, Sokoto, Nasarawa, Yobe, Bauchi, Borno, Gombe, Niger, and Lagos. According to the Nigeria Demographic and Health Survey (NDHS, 2018) and Multiple Indicators Cluster Survey (MICS, 2021), these study locations represent a fair share of women of reproductive age in Nigeria. The justification for the choice of the study locations is that the issue of low exclusive breastfeeding practice was high among the sampled states (WHO, 2023, UNICEF, 2022).

In addition, a proportionate stratified sampling technique was used to sample women of child-bearing age, aged 18-49, across 10 states in Nigeria. The sample size was stratified into states, senatorial districts, and local government areas to make it representative of the study

population. The reliability of the instrument used for this survey was tested using Cronbach's Alpha, and the reliability index achieved was 0.78, indicating that the questionnaire used for this study is reliable and consistent. The research employed a set of analytical tools, which include descriptive statistics (frequency counts and percentages) and a generalised linear probit model to analyse the survey datasets. In the descriptive statistical aspect of this study, the datasets were weighted to make the sample size even more representative of the study population.

2.4 Statistical Analysis

UNICEF and WHO recommend exclusive breastfeeding for six months, without the use of water or additives, for nursing mothers in developing countries, including Nigeria. We hypothesised that women's employment status, income categories, and education attainments would explain exclusive breastfeeding practice in Nigeria.

The statistical method used in this study is the generalised linear probit model. According to Dimitrios and Hall (2021), the generalised linear probit model is most appropriate for this study for several reasons. First, a woman may practice exclusive breastfeeding (denoted by 1) and 0 otherwise. Hence, a method that restricts the value of the predictor variable to 0 and 1, as is the case with the Probit model, should be the method of discrete choice. Second, probit analysis outperforms most of the other competing approaches (logit and tobit models) in terms of efficiency and effectiveness in minimising heteroscedasticity (Gujarati, 2007). Therefore, the dependent variable in our Probit model is attached to a scenario where a woman practices exclusive breastfeeding for six months and if otherwise. Therefore, the dependent variable is 1 if a woman practices exclusive breastfeeding for six months, while it is 0 if otherwise. The probability of a woman practicing exclusive breastfeeding over the odds of not practicing it is calibrated in eq. 2 below:

$$\boldsymbol{EBFP = \alpha_o + \alpha_1 EMS + \alpha_2 ICM + \alpha_3 EDU + \mathcal{E}t} \quad \textbf{(1)}$$

$$\lambda = \mathbf{Prob(Y=1/X)} = \int_{-\infty}^{\chi\alpha} (2\pi)^{-1/2} \exp\left(-\frac{t^2}{2}\right)\delta t = \Psi(\chi'\alpha) \quad \textbf{(2)}$$

From equation 1, EBFP **=** exclusive breastfeeding practice which forms the dependent variable while EMS = women's employment status (formal and informal employments), ICM = women's income categories, and EDU = women's education attainments, which all constitute the independent variables.

Where **Ψ** is the cumulative distribution functions of a standard normal variable which ensures **0≤ p ≤ 1,** x is a vector of factors that determine or explain the variation in exclusive breastfeeding outcome and α is a vector of parameters or coefficients that reflect the effect of changes in x on the probability of socioeconomic factors of women predicting exclusive breastfeeding practice. The relationship between a specific factor and the outcome of the probability is interpreted by the means of the marginal effect which accounts for the partial change in the probability.

The marginal effects provide insights into how the explanatory variables change the predicted prob. odds of neonatal deaths. Neonatal outcome is determined by the elements of vector x representing the independent variable as denoted in eq. 2. The relationship between a specific variable and the outcome of the prob. is interpreted by marginal effect, which accounts for the partial change in the prob. The marginal effect associated with continuous explanatory variable x on the prob. $\mathbf{Prob(Y=1/X)}$ Holding the other variables constant can be derived as follows:

$$\frac{\partial \lambda}{\partial \chi_k} = \omega\left(\chi_k\ '\alpha\right)\alpha_k \quad \textbf{(3)}$$

The marginal effect on dummy variables was estimated differently from continuous variables. The marginal effects estimated using the "delta method" involve the use of calculus to show how much the (conditional) probability of the outcome variable changes when there is a change in the value of an explanatory variable, holding all other explanatory constants at their values. It is worth noting that, unlike the linear regression case where the estimated regression coefficients are the marginal effects, there is a need for an additional level of computation to estimate the marginal effects having computed the Probit regression. The effects were derived from equations 2 and 3.

$$\Delta = \psi(\bar{\chi}\alpha, \mathbf{d=1}) - \Phi(\bar{\chi}\alpha, \mathbf{d=0}) \quad \textbf{(4)}$$

III. FINDINGS AND DISCUSSION OF RESULTS

This section presents the research findings and a discussion of the results. First, we estimated the coefficients of the parameters. Second, we also estimate the crude odds ratios for the estimated parameters. Third, we calibrated the marginal effects of the dummy variables differently from the explanatory variables for policy recommendations. Therefore, this section begins with the socio-economic background of the study participants in the last five years.

Table 2: Weighted Socioeconomic Characteristics of Participants (N=5000)

		Frequency (Counts)	Percentage (%)
Age-Group	18 - 20 Years	72	2
	21-25 Years	454	10
	26 - 30 Years	1189	25
	31 - 35 Years	1453	29
	36 - 40 Years	1174	25
	41 - 45 Years	342	7
	46-49 Years	91	2
Marital Status	Married	4662	97
	Divorced	31	1
	Widowed	82	2
Employment Status	Formal Employment	1026	22
	Informal Employment	2392	47
	Unemployed	1357	31
Household Income Categories	Low income (₦0 - ₦ 20,000)	3524	73
	Middle Income (₦ 20,001 - ₦50,000)	976	20
	Upper Income (₦ 50, 0001 - ₦ 150, 000 & above)	275	7
Level of Education	Lower Education Cadre	2075	44
	Higher education Cadre	2700	56

Source: Authors' Computation (2024)

Table 2 presents the socio-economic background of the study participants such as age group, marital status, occupation, income categories, and level of educational attainments in the last five years, it equally shows that the study participants were between the reproductive age of 18-49 years. The table indicates that (4,662) 97%, (31) 1%, and (82) 2% of the respondents were married, divorced, and widowed respectively.

Table 4: Generalized Linear Probit Model Outputs on the Effect of Women's Socioeconomic Background on Exclusive Breastfeeding Practice in Nigeria (N=5000)

Parameters	Coefs.	Std. Error	Z-Values	P-Values	Crude Odds-Ratios	95% CI		Marginal Effects
						Lower	Upper	
(Intercept)	0.503	0.0759	0.4567	0.001	35.605	0.521	0.702	0.1098
Women's Employment Status (informal/formal)	4.009	0.0069	0.2345	0.000	45.991	0.978	1.005	0.2487
Income Categories (upper/lower)	8.017	0.0058	1.8673	0.000	39.018	1.006	1.029	0.5643
Educational Cadre (Upper/lower)	12.054	0.0121	0.5439	0.000	48.948	0.926	0.971	0.6543
Log-likelihood	27.137			Akaike I.C.				0.1456
Restricted Log-L	30.654			Schwarz I.C.				0.2678
Mac-Fadden Pseudo R^2	.7849			HQIC				0.5698
χ^2 (df=4)	234.145			Ben./Lerman				0.7209
Model significant level	0.001			Cramer				0.2389
Hosmer-Lemeshow χ^2	54.641			Veall/Zim.				0.8901

Source: Authors' Computation (2024) ***Variables are significant at α = 5%

Table 4 illustrates that informal employment ($p < 0.001$), high-income group ($p < 0.000$), and high education level ($p < 0.000$) are statistically significant with their probability values less than $\alpha = 5\%$. Therefore, the Probit regression outputs suggest the validity of the alternative hypothesis that women's socioeconomic background does have a positive significant effect on exclusive breastfeeding practice in Nigeria. It then suggests that a 4.009 increase in the probability of a woman being in an informal employment sector will increase the likelihood of such a woman practicing exclusive breastfeeding by 10% as compared to women in the formal employment sector. Also, an 8.017 rise in the likelihood of a woman being in high-income categories will increase the chance of such a woman practicing exclusive breastfeeding by 56% compared to women in a low-income group. It is also established by Agbo & Zonah (2013) and Zewdie et al. (2022) that employment among mothers has a deleterious impact on adopting exclusive breastfeeding. For instance, low exclusive breastfeeding practice had a great unexplained variation among employed and unemployed mothers in Wolkite town, Ethiopia (Zewdie et al. 2022). On the contrary, EBF practice from our results (56%) is lower than the study conducted in Ethiopia (86.4%) by Zewdie et al. (2022). This difference might be as a result of variation in measurement of exclusive breastfeeding practice. It suggests that the predictors of exclusive breastfeeding (EBF) practice are different for employed and unemployed. Our findings reveal that the difference might be due to the fact that employed mothers might not have adequate time to feed breast milk to their newborns during working periods, and unemployed mothers often have flexible working hours unlike employed mothers, which may contribute to relatively higher adherence to EBF practice than employed mothers. It also implies that strong efforts are needed to improve mothers' EBF practices in Nigeria.

Our result also shows that a 12.054 increase in the prospects of women having higher educational degrees increases the likelihood of such women practicing exclusive breastfeeding by 65% compared to women in a lower educational cadre. This result corroborates the studies conducted by Foster et al. (2023), Mamo et al. (2020), and Abegunde et al. (2021), who found a significant relationship among women's associated factors, exclusive breastfeeding, body weight, and ideation factors for socio-behavioural change. Our finding on education is also inconsistent with Amosu & Babalola (2011), who found that the occupational and educational status of the mother is an attribute that also determines the time allocation for children and women.

IV. CONCLUSION AND POLICY RECOMMENDATIONS

Analysis of the generalised probit regression estimates revealed that women's employment status ($p < 0.001$), income categories ($p < 0.000$), and educational level ($p < 0.000$) are statistically significant with exclusive breastfeeding practice, with their probability values less than $\alpha = 0.05$. The result also indicated that a 4.009 surge in the probability of a woman being in an informal employment sector will increase the likelihood of such a woman practicing exclusive breastfeeding by 10% as compared to women in the formal employment sector. Hence, the probit marginal effects estimates show that an 8.017 increase in the chance of a woman being in high-income categories will increase the possibility of such a woman practicing exclusive breastfeeding by 56% compared to women in low-income groups. In addition, a 12.054 rise in the probability of a woman having higher educational degrees increases the likelihood of the woman practicing exclusive breastfeeding by 65% compared to women in the lower educational cadre. The study found that poverty and unemployment facing women and other issues, such as the short duration of maternity leave and the quest for mothers in the formal employment sector to return to work, as well as the belief that breast milk alone might not meet the nutritional needs of newborns due to poor feeding of the mothers, account for the reasons for low exclusive breastfeeding practice in Nigeria.

The findings from this study are very important for policymakers considering the numerous health and developmental benefits associated with breastfeeding for infants and mothers in developing countries like Nigeria. The results of this study then suggest that the government should roll out effective economic empowerment programs and health policies that will improve women's socioeconomic factors to enhance quality exclusive breastfeeding in Nigeria.

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