Research Article

Predictors of Not Exclusively Breastfeeding among Ghanaian Women: A Cross-Sectional Study

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ABSTRACT

Background: Exclusive Breastfeeding (EBF) is a practice highly recommended by World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) for all infants to be given solely breastmilk in the first six months. This practice is advised because breastmilk is the criterion standard of infant feeding as it is entirely natural and comprises all of the essential nutrients for the first few months of a child's life. The objective of this study is to focus on the factors that prevent mothers from not exclusively breastfeeding among Ghanaian women residents in rural and urban geographic locations.

Materials and methods: Data was acquired from the 2014 Ghana Demographic and Health Survey (GDHS) for this analysis. A total of 557 mothers who had infants in the last 2 years between the ages of 0–5 months were extracted from the individual children's Data-Children's Recode (KR) dataset. A Logistic regression model was utilized to ascertain the predictors of not exclusively breastfeeding among Ghanaian women.

Results: Overall, mothers engaged in exclusive breastfeeding was 52%. Ethnicity, infant size, region, marital status, mother's age, and husband's occupation have a significant association with breastfeeding status. The binary logistic regression revealed that timing of first antennal visits, maternal education, region, ethnicity, and husband's occupation were significantly associated with predictors of EBF. Mothers without formal education and mothers whose husbands/partners' occupation was skilled manual labor were more likely to not breastfeed exclusively. Mothers residing in the northern part of Ghana, mothers of a minority ethnic group, and the timing of first antennal visits had lower odds of not exclusively breastfeeding.

Conclusion: The findings suggest that breastfeeding in Ghana is a universal practice since more than 98% of infants were birthed in the last 2 years before at some point. Despite the existence of breastfeeding campaigns and the high awareness created, EBF rates continue to decline in the nation. It is, therefore, crucial to develop and implement EBF intervention programs that aim at eliminating misconceptions and misinformation about the practice with more emphasis on the health and economic benefits of EBF.

Keywords: Exclusive; Breastfeeding; Breast milk; Mothers; Nutritious; Factors; Infants; Ghana

INTRODUCTION

According to the World Health Organization (WHO) EBF is the practice of providing solely breast milk to feed newborns during the initial six months of their life [1]. Thus, newborns should not be given other foods or liquids including water. Practicing exclusive breastfeeding for the best outcome is to initiate the process during the first few hours after birth [2,3]. Exclusive breastfeeding is linked to favorable health outcomes not only for the baby and mother but the community as a whole. EBF is recommended for the reason that breast milk is clean and includes all the essential nutrients vital for newborns in the first few months of life [4]. Breast milk is the primary first food for newborns which contains all the important nutrients and energy required by infants during their first six months of life and subsequently up to two years of life [5,6].

Globally, breast milk is the benchmark for infant feeding [7,8], and optimal for newborn growth and development as recommended by WHO and United Nations International Children's Emergency Fund (UNICEF). Breast milk also provides immunity to infections

due to the existence of the mother's antibodies in milk [9]. The type of nutrition fed to newborns during the first six months of life determines the structure and sturdiness of the viscera micro biome developed only after birth [9]. Digestion of solid foods is made simpler through the actions of these bacteria by inhibiting infections and gut complications later in life [9]. EBF has proven to be one of the best forms of preventive medicine, enhancing the growth, and survival status of newborns [10]. With an improvement in breastfeeding practices, over 8,00,000 estimated children less than age 5 could be saved yearly, with newborns beneath six months of age constituting the majority group [11]. Another benefit of EBF is its role in reducing the risk associated with numerous early-life illnesses and complications such as diarrhea, inflammation, respiratory illnesses, and childhood obesity [12]. Findings from a review supported the hypothesis that EBF increases the duration of lactational amenorrhea [6], and breastfeeding among mothers has been shown to reduce the risk of breast and ovarian cancer [13]. UNICEF and WHO, 2002 global joint policy on Infant and Young Child Feeding (IYCF) stressed breastfeeding as a unique practice that offers children the ultimate nutrients required for optimal growth and development. The Innocenti Declaration of 1990 and the Baby-Friendly Hospitals Initiative (BFHI) of 1991 are the foundational blocks upon which the joint global policy was formed. The IYCF and BFHI programs are aimed at addressing the challenges of newborns birthed by HIV-infected mothers, low birth weight infants, and infants in critical illnesses. Breastfeeding was the central focus and regarded as being protective against the undesirable effects of poor nutrition and low immune response that helps children to attain their maximum abilities [7]. EBF was highly recommended in a famous policy statement in 1997 by the American Academy of Pediatrics which mentioned that EBF is a crucial practice and emphasized the different roles pediatricians can contribute to promoting the practice. In Ghana, as well as Africa at large, EBF is recommended and the introduction of complementary feeding that is age-appropriate with continued breastfeeding for two years of age [2,14].

One out of three infants have been exclusively breastfed in Africa (WHO, 2012) and in sub-Saharan Africa, the practice of EBF in some countries is underachieved when compared to the WHO and UNICEF recommendations [15]. A study noted that the practice in West Africa is depressing as only 6.1% of infants under the age of six months were breastfed exclusively [2,7]. There is an abrupt decrease in Ghana's EBF rates from 63% in 2008 to 52% in 2014 [15]. In Ghana, 98% of women reported ever breastfeeding their children with less than 40% of infants between four and five months of age being exclusively breastfed [4,16]. Despite the increased awareness in Ghana, exclusive breasting feeding practices are astonishingly low [2], accompanied by the greatest burden of sub-optimal levels. The declining rates may be attributed to not properly abiding by the recommendations, and the education gap in fully understanding the short- and long-term health advantages of exclusive breastfeeding, family, and diverse ethnic and cultural beliefs and practices [2,15]. Other factors negatively affecting exclusive breastfeeding practices are the early introduction of complementary feeding and pre-lacteal [17]. As a way of ensuring a smooth transition for infants to home-cooked or other meals, complementary feeding is introduced at a very early age. In its efforts to promote exclusive breastfeeding practices across the nation, Ghana has in the past and continues to team up with the United States Agency for International Development (USAID) to improve newborn and young child feeding by training over 1,570 health workers and

2,030 community volunteers [16]. Other intervention attempts include the Legislative Instrument of 1667 also referred to as the Ghana Breastfeeding Promotion Regulation 2000, the execution of the Baby-Friendly Hospitals Initiative (BFHI) of 1991 and the creation of the BFHI Authority, and Information, Education and Communication (IEC) and advocacy materials intended for health professionals and public use [15].

Even though breastfeeding after birth is a prescriptive way of life among Ghanaian women for infant feeding and nutrition, several factors may impact a woman's ability to exclusively breastfeed in the wake of the WHO and UNICEF recommendations for optimal results. To create fruitful interventions to improve the current rates and subsequently, increase better health outcomes for infants and their mothers and achieve WHO recommendations set about 25 years ago, a comprehensive comprehension of the predictors of why mothers are not practicing EBF in Ghana is required to plan interventions. The ultimate objective of this research is to explore the factors affecting not exclusively breastfeeding among Ghanaian women.

MATERIALS AND METHODS

Study population

The study population comprised mothers aged between 15 years to 49 years who had infants under 6 months of age and were breastfeeding. Data were analyzed using the 2014 Ghana Demographic and Health Survey (GDHS) from the individual Data-Children's Recode (KR) category. This data was gathered based on a mother or caregiver's breastfeeding history in the past 24 hours before the interview. The rate of EBF was recalculated using the '24-hours' definition utilized in the 2014 GDHS. The WHO defines the '24-hours' of EBF as the period a mother or caregiver gives only breastmilk to the baby in the last 24 hours before the interview or when the survey was conducted [4]. The GDHS offers wholesome household data which is nationally representative [4]. Overall, 12,831 households were chosen for the sample of which 12,010 were inhabited. A successful response rate of 99% (11,835 interviews) was achieved from the households occupied. The number of eligible women was 9,656 out of which 9,396 were interviewed. This translates to a 97% survey response rate. The GDHS is carried out every five years with the first survey being conducted in 1988. The Ghana Statistical Service (GSS), Ghana Health Service, and the National Public Health Reference Laboratory (NPHRL) implement all surveys by working closely to obtain information on all indicators including maternal and child health [4]. The individual child dataset because it contained information on both the mother and the child with the information being reported by the mother or caregiver on the current breastfeeding status as well as the predictors of EBF. The Population and Housing Census (PHC) in 2010 recorded was 24.7 million. The 2014 GDHS sampling frame employs an updated version from the 2010 Ghana PHC provided by the GSS. The 2014 GDHS utilized a two-phase sample model aimed to account for consistent estimates of major indicators at the national level, urban, and rural areas, and the 10 administrative regions of Ghana. In stage one, sample points (clusters) comprising Enumeration Areas (EAs) delineated for the 2010 PHC were selected. 427 total clusters were chosen of which 216 were urban and 211 rural areas respectively. A systematic sampling of households was conducted in phase two. For all selected EAs (i.e., January to March 2014), a household listing procedure was carried out. Random selection was used to choose the households to be included in the survey.

Approximately, 30 households were carefully chosen from each cluster to be the total sample size of 12,831 households. A detailed and complete description of the survey methods can be accessed from the GDHS 2014 report [4].

Predictors

The predictors in the study were mother's age (less than 19 years, 20 years-34 years, 35 years-49 years); marital status(married, living with partner, widowed/divorced/never in union/separated); education (no formal education, primary, secondary, college or higher education); household wealth status (poor, average, rich); place of residence (rural, urban); parity (number of children in last 5 years), infant size (small, medium, large), breastfeeding initiation (immediately, within one hour, other); mothers employment status (yes, no); delivery by caesarian section (no, yes); type of assistance received during delivery (skilled, unskilled); place of delivery (public, private, home); number of antennal visits, first timing of antennal visits, husband age, husband educational level (no formal education, primary, secondary, college or higher education), husband occupation (agricultural, professional, skilled manual, unskilled manual); ethnicity (major ethnic group, minor ethnic group); region (southern Ghana, Northern Ghana); religion (Christianity, Islam, Traditionalist, other), and maternal literacy (cannot read at all, some reading abilities).

Data analysis

After the application to DHS was approved and access granted to the data, descriptive statistics and logistic regression models were employed to analyze the data. The dependent variable was breastfeeding status (EBF=0, Not EBF=1) and the independent variables were the potential predictors of not exclusively breastfeeding. Descriptive statistics were utilized to illustrate the study sample by employing the Kruskal Wallis test which is a non-parametric test for categorical variables and the Chi-Square test for continuous variables. The descriptive statistics (Table 1), were presented by stratifying the mothers who exclusively breastfed and mothers who did. This also included the p-values, sample size, and percentages.

Three separate regression models were performed to assess the predictors of exclusive breastfeeding before six months of age. Model one/univariate model was an unadjusted model to evaluate the relationship between all the variables (i.e., predictors/covariates) and the primary outcome of interest. Model two also called the adjusted model was used to assess the relationship between the predictor variables and the primary outcome while adjusting for covariates. Model three was also an adjusted model that assessed the relationship between significant predictors from model one and the outcome. Predictors in the three models that had a P-value of less than 5% (i.e., 0.05) were considered statistically significant. The confidence interval range that contained 1 was not statistically significant.

A binary logistic regression model was utilized to determine predictors of exclusive breastfeeding among Ghanaian women. The analyses were conducted in Stata SE version 16.1 using the DHS weighting procedure to make up for the intricate random sample design and further balance the uneven sampling of subpopulations. The population stratification number was (v023), cluster number v001, primary sampling unit (v021), sampling weight (v005), and case identification (caseid) were applied to achieve precise parameter estimates and standard errors. The binary logistic regression model explored predictors of not exclusively breastfeeding for a length of 6 months.

RESULTS

This study comprised a total of 557 infants who were less than 6 months of age and were breastfeeding in Ghana in 2014. Most mothers were between the ages of 20 years-34 years (70%), were married (65%), resided in a rural neighborhood (58%), had at least a secondary school education (40%), and gave birth to their infants in a government/public health facility (61%), and introduced breastfeeding right after giving birth (51%) (Table 1).

Table 1: Characteristics of the study population (n=557).

Covariate	Exclusive breastfeeding	Not exclusive breastfeeding	Total (N=)	P value*
Number of antenatal visits median (IQR)	6(4)	6(4)	6(4)	0.585
First A and C check Median (IQR)	3(2)	3(2)	3(2)	0.071
Number of births median (IQR)	2(1)	2(1)	2(1)	0.075
Husband age (years) Median (IQR)	37(13)	35(11)	35(12)	0.071
Mother age (years) n%				0.023
20–34	240(70.38%)	180(68.70%)	420(69.56%)	
<=19	18(5.28%)	29(11.07%)	47(7.79%)	
>=35	83(24.34%)	53(20.23%)	136(22.55%)	
Marital status n(%)				0.013
Married	237(69.50%)	154(58.78%)	391(64.84%)	
Living with partner	73(21.41%)	68(25.95%)	141(23.38%)	
Widowed/Never in union	31(9.09%)	40(15.27%)	71(11.77%)	
Type of residence n(%)				0.16
Urban	124(36.36%)	110(41.98%)	234(38.81%)	
Rural	217(63.64%)	152(58.02%)	369(61.19%)	
Delivery site n(%)				0.506

Public	211(61.88%)	159(60.69%)	370(61.39%)	
Private	17(4.99%)	19(7.25%)	36(5.97%)	
Home	113(33.14%)	84(32.06%)	197(32.67%)	
Caesarian section n(%)				0.6
No	304(89.15%)	237(90.46%)	541(89.72%)	
Yes	37(10.85%)	25(9.54%)	62(10.28%)	
Assistance received n(%)				0.653
Skilled	235(68.91%)	185(70.61%)	420(69.65%)	
Unskilled	106(31.09%)	77(29.39%)	183(30.35%)	
Maternal education n(%)				0.79
Secondary	138(40.47%)	104(39.69%)	242(40.13%)	
No education	117(34.31%)	87(33.21%)	204(33.83%)	
Primary	68(19.94%)	60(22.90%)	128(21.23%)	
Higher	18(5.28%)	11(4.20%)	29(4.81%)	
Wealth n(%)				0.237
Poor	196(57.48%)	133(50.76%)	329(54.56%)	
Average	61(17.89%)	51(19.47%)	112(18.57%)	
Rich	84(24.63%)	78(29.77%)	162(26.87%)	
Literacy n(%)				0.568
Cannot read at all	216(63.34%)	160(61.07%)	376(62.35%)	
Some reading abilities	125(36.66%)	102(38.93%)	227(37.65%)	
Region n(%)				<0.001
Southern Ghana	186(54.55%)	181(69.08%)	367(60.86%)	
Northern Ghana	155(45.45%)	81(30.92%)	236(39.14%)	
Infant size n(%)				0.01
Average	131(38.42%)	74(28.24%)	205(34.00%)	
Small	45(13.20%)	53(20.23%)	98(16.25%)	
Large	165(48.39%)	135(51.53%)	300(49.75%)	
Employed n(%)				0.582
Yes	226(66.28%)	168(64.12%)	394(65.34%)	
No	115(33.72%)	94(35.88%)	209(34.665)	
Breastfeeding initiation n(%)				0.27
Immediately	167(48.97%)	141(53.82%)	308(51.08%)	
Within first hour	139(40.76%)	90(34.35%)	229(37.98%)	
Other	35(10.26%)	31(11.83%)	66(10.95%)	
Religion n(%)				0.421
Christianity	237(69.50%)	178(67.94%)	415(68.82%)	
Islam	64(18.77%)	59(22.52%)	123(20.40%)	
Traditionalist	17(4.99%)	14(5.34%)	31(5.14%)	
Other	23(6.74%)	11(4.20%)	34(5.64%)	
Ethnicity n(%)				0.011
Majority	250(73.31%)	215(82.06%)	465(77.11%)	
Minority	91(26.69%)	47(17.94%)	138(22.89%)	
Husband occupation n(%)				0.001
Agricultural	159(46.63%)	87(33.21%)	246(40.80%)	
Professional	65(19.06%)	39(14.89%)	104(17.25%)	
Skilled manual	56(16.42%)	57(21.76%)	113(18.74%)	
Unskilled manual	33(9.68%)	46(17.56%)	79(13.10%)	
Other	28(8.21%)	33(12.60%)	61(10.12%)	
Husband education n(%)				0.913
Secondary	145(46.18%)	110(47.83%)	255(46.88%)	
No education	102(32.48%)	72(31.30%)	174(31.99%)	
Primary	36(11.46%%)	23(10.00%)	59(10.85%)	
Higher	31(9.87%)	25(10.87%)	56(9.29)	

Note: *For categorical variables, the p-value was calculated using the chi-square test. For continuous variables, the p-value was calculated from the Kruskal-Wallis test.

The binary logistic regression revealed that infants whose mothers had no education have 2.62 times the odds of not exclusively breastfeeding their infants compared to mothers who had at least a secondary school certificate. [AOR=2.62, (95% CI=1.08-6.72)].

For infants whose mothers received education up to the primary school stage, the odds of not exclusively breastfeeding was 2.7 times compared to infants whose mothers received secondary education. [AOR=2.70, (95% CI 1.15-6.32)] (Table 2).

Table 2: Factors associated with not exclusively breastfeeding before 6 months of age.

Characteristic	Model 1 unadjusted or (95% CI)	Model 2 adjusted or (95% CI)	Model 3 adjusted or (95% CI)
Number of antenatal visits	1(0.98-1.03)	0.99(0.94-1.05)	
Timing of first antenatal visit	0.86(0.76-0.98)*	0.79(0.65-0.95)*	
Number of births in last 5 years	0.74(0.56-0.99)*	0.78(0.52-1.16)	
Husband age	1(0.98-1.02)	1.01(0.98-1.05)	
Mother age			
20-34 years	1	1	1
<=19 years	2.24(1.04-4.82)*	1.61(0.38-6.74)	2.61(0.87-7.86)
35-49 years	1.09(0.62-1.91)	1.02(0.5-2.1)	1.10(0.59-2.06)
Marital status			
Married	1	1	1
Living with part	0.88(0.52-1.49)	1.03(0.38-6.74)	0.70(0.40-1.24)
Widowed/Never in union	1.75(0.93-3.29)	1.04(0.5-2.18)	1.45(0.40-5.50)
Type of residence			
Urban	1	1	
Rural	0.88(0.58-1.34)	1.04(0.5-2.18)	
Delivery site			
Public	1	1	
Private	1.46(0.72-1.97)	1.3(0.55-3.1)	
Home	0.83(0.56-1.22)	0.59(0.19-1.77)	
Delivery by Caesarian section			
No	1	1	
Yes	0.92(0.48-1.78)	0.53(0.24-1.18)	
Assistance received			
Skilled	1	1	
Unskilled	0.82(0.56-1.21)	1.57(0.52-4.69)	
Maternal education			
Secondary	1	1	
No education	1.12(0.66-1.90)	2.62(1.08-6.72)*	
Primary	1.49(0.86-2.26)	2.70(1.15-6.32)*	
Higher	1.02(0.41-2.53)	0.93(0.3-2.84)	
Wealth status			
Poor	1	1	
Average	0.98(0.55-1.76)	0.63(0.29-1.36)	
Rich	1.29(0.8-2.07)	0.85(0.33-2.19)	
Literacy			
Cannot read at all	1	1	
Some reading abilities	1.04(0.65-1.67)	1.55(0.7-3.45)	
Region			
Southern Ghana	1	1	1
Northern Ghana	0.62(0.39-0.98)*	0.39(0.2-0.76)*	0.74(0.43-1.26)
Infant size			
Average	1	1	1
Small	1.92(1.11-3.33)*	1.70(0.87-3.32)	1.96(1.06-3.62)*
Large	1.33(0.89-1.97)	1.55(0.87-2.73)	1.48(0.92-2.37)
Mother employment status			
Yes	1	1	
No	1.01(0.64-1.59)	0.94(0.55-1.58)	
Breastfeeding initiation			
Immediately	1	1	
Within first hour	0.91(0.57-1.44)	1.09(0.64-1.87)	
Other	1.16(0.6-2.25)	1.04(0.43-2.47)	
Religion			
Christianity	1	1	
Islam	1.37(0.75-2.49)	1.89(0.96-3.72)	
Traditionalist	0.91(0.38-2.14)	0.83(0.24-2.82)	

Other	0.68(0.31-1.48)	0.72(0.28-1.86)	
Ethnicity			
Majority	1	1	1
Minority	0.68(0.42-1.10)	0.49(0.28-0.86)*	0.61(0.36-1.04)
Husband occupation			
Agricultural	1	1	1
Professional	0.96(0.50-1.84)	0.78(0.3-2.06)	0.89(0.44-1.78)
Skilled manual	1.95(1.1-3.56)*	2.70(1.22-5.6)*	1.78(0.94-3.36)
Unskilled manual	2.33(1.2-4.5)*	2.44(1.05-5.66)*	2.15(1.07-4.30)*
Husband education			
Secondary	1	1	
No education	1.05(0.68-1.62)	1.17(0.53-2.56)	
Primary	0.88(0.43-1.8)	0.96(0.36-2.42)	
Higher	1.16(0.62-2.17)	2.13(0.91-4.94)	

Note: *= P-value less than 0.05.

The odds of not exclusively breasting for infants whose mothers resided in the northern part of Ghana were 61% lower compared to mothers living in the southern parts of Ghana [AOR=0.39, (95% CI 0.2-0.76)].

Infants belonging to a minority ethnic group have a 51% lower odds of not exclusively breastfeeding compared with infants of a majority ethnic group [AOR=0.49, (95% CI 0.28-0.86)].

The odds of not exclusively breastfeeding among women whose husbands/partners' occupation was skilled manual was 2.7 times the odds of a husbands/partners in the agricultural sector [AOR=2.70, (95% CI 1.22-5.6)].

For mothers whose husbands/partners' primary occupation was unskilled manual, the odds of not exclusively breastfeeding is 2.33 times compared to husbands/partners in the agricultural sector [AOR=2.44, 95% CI 1.05-5.66)].

The odds for the timing of first antenatal visits are 21% lower among mothers who were not breastfeeding exclusively [AOR=0.79, (95% CI 0.65-0.95)].

DISCUSSION

This research explored the factors associated with not exclusively breastfeeding among Ghanaian women. From this current study, the prevalence of exclusive breastfeeding in Ghana was 52% compared to a reported 63% in 2008 from the GDHS (a 17% decrease) (Table 3). This corresponds to the GDHS 2014 report which indicated the same EBF of 52%. EBF according to the GDHS is the practice of giving newborns only breast milk for the first 6 months of life by a mother or caregiver in the past 24 hours before the survey. Based on this definition, the findings revealed the timing of the first antenatal visit, maternal education, region, ethnicity, and husband/partner occupation was significantly associated with not exclusively breastfeeding in Ghana.

Table 3: Infant age distribution and prevalence of exclusive breastfeeding (weighted).

Age of infant (Months)	n	Prevalence
0	32.93	11.22
1	69.72	23.76
2	61.94	21.11
3	48.06	16.38
4	39	13.29
5	41.8	14.24
Total	293.45*	52.68**

Note: *Total number of infants.
**Prevalence rate of exclusive breastfeeding for infants 0-5 months.

Based on the present findings, mothers who resided in the northern part of Ghana were less likely to not breastfeed exclusively compared to their southern counterparts. This may be the result of the wealth index difference as a mother who can afford pre-lacteal feeds may choose this route. Many women in Ghana from the northern part may fall below the poverty level since the northern part of Ghana is considered a disadvantaged geographical location compared to southern Ghana in terms of wealth or resource distribution. Lack of breast milk is also a contributing factor to giving infants pre-lacteal feeds. The overall decrease in EBF as indicated by all the regions may be associated with cultural beliefs. In Ghana, both the immediate and external families play a major when a baby is born. Water and other ceremonial drinks are first given to the child as a way of welcoming them into the family, and world, and to also quench their thirst as they believe is that the infant just arrived from a long journey into a world that is warm [2,15,17]. Awareness and knowledge of EBF practices are described as universal in Ghana. This is true for Nigeria which is a neighboring west-African country where about 95.3% of mothers possess some basic knowledge about the practice [17].

This current study showed a substantial relationship between the timing of maternal antennal care visits and not breastfeeding exclusively. This is synchronized with a study conducted in Ethiopia and Ghana. The possible justification for this association could be attributed to the fact that antenatal care is a period where adequate education is given to properly educate women about the importance of breastfeeding, EBF, and other crucial topics related to pregnancy and childbirth. Other studies found that antennal care visit is an opportunity for counseling on breastfeeding which is found to greatly improve EBF practices. This is an indication that antenatal care visits should be encouraged at the very early stages of pregnancy and women should continue to attend from their first to the third trimester of pregnancy or until they have given birth.

Also, this present research found a positive association between the educational level and the reasons mothers are not breastfeeding exclusively. Mothers who had no formal education and mothers with up to primary school level education were more likely to not exclusively breastfeed their newborns compared to mothers who had at least a secondary school certificate. These findings correspond with previous work of mothers who possessed a secondary school certificate and above were more likely to be well educated and better informed on EBF practices than their contemporaries with little to no formation education.

Another important association was between the type of husband occupation and not exclusively breastfeeding. Women whose

husband's occupation was skilled manual or unskilled manual labor were more likely to not exclusively breastfeed compared with women whose husbands worked in the agricultural sector. These findings contradict a recent study in Ghana that found no significant association between husband occupation and EBF practice. This may be due to the sample size used over 180 people and the focus of the research although; both studies derived data from the same source but different files or datasets.

LIMITATIONS

Since this research was a representative one, it implied that the findings can be generalized in Ghana. However, given the cross-sectional nature of this study design, causal relationships cannot be established. Furthermore, recall bias might have been introduced since the study variables were self-reported. Although similar recall bias can be speculated between mothers who exclusively breastfed and those who do not.

CONCLUSION

This study has explored the predictors that prevented mothers from practicing exclusive breastfeeding in Ghana and the results revealed a significant decrease in EBF rates. The factors associated with not exclusively breastfeeding were the timing of the first antenatal visit, maternal education, ethnicity, region, and husband/partner occupation. Even though the findings revealed some of the factors that prevented mothers from practicing exclusive breastfeeding across the nation, planned interventions have to go beyond creating awareness to scale up the practice. Intensive training on the health and economic benefits of EBF needs to be considered at the community and individual levels. Social media such as creating WhatsApp groups and telehealth to share important information through animations, videos, and other media based on the sub-population on the importance of EBF. Videos should be developed in the community-specific local language instead of in English. Family-to-family support group systems can also be created within the communities to help encourage mothers to attend antennal care regularly and promote breastfeeding exclusively by sharing their experiences. Furthermore, qualitative research should be considered to investigate maternal perceptions and motivations behind the reasons for not breastfeeding exclusively.

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Competing interest

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Ethics approval and consent to participant

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Consent for publication

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Code availability

Available upon request

Authors' contributions

Mary-Ann Wepiamo Chanase conceived the study, analyzed the data, wrote the manuscript, and edited the final version.

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Conflict of interest disclosure

Patient consent is not required because no personal information or details are included.

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