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Correlates of early breastfeeding initiation among mothers in western region: Inferences from the 2014 ghana demographic and health survey.

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Abstract

Background: Early initiation of Breastfeeding (EIBF) within an hour of delivery protects the baby from illness and reduces neonatal mortality, according to the World Health Organization (WHO). This notwithstanding there is anecdotal evidence that suggests that in some parts of Ghana, the practice of EIBF is affected by multiple factors which have not been well interrogated.
As a result, the Western Region (WR) study assessed the correlates of early breastfeeding beginning.
Methods: The study examined data from the 2014 Ghana Demographic and Health Survey (GDHS) child file. The data was weighted and filtered by region (Western Region) and children aged 24 or younger months using SPSS Version 20. A total of 257 children were included in the sample. Frequencies, bivariate, and binary logistic regression were used to display the results. The cutoff for statistical significance was set at 0.05.
Results: The findings of this study indicate that maternal, paternal, household and community factors did not predict EIBF. However, initiation of EIBF in WR was predicted by the child and institutional factors. Less frequently were children who were female and in higher birth orders nursed within an hour. Children of average size and those whose mothers had high access to healthcare, on the other hand, were more likely to be breastfed within an hour.
Conclusions: There is a high prevalence of early EIBF in the Western Region (78.2%). Nevertheless, Ghana health service must include in child health initiatives early EIBF policies targeting female and higher birth order children.

Keywords: Early initiation, Exclusive Breastfeeding, Influencing Factors, Ghana

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Introduction

Early Initiation of Breastfeeding (EIBF)

It is widely acknowledged that breastfeeding is an important public health strategy that can improve outcomes for both mothers and children. According to World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) guidelines, infants should begin nursing within an hour of birth and should only consume breast milk for the first six months of life, which means no other foods or liquids, including water, should be provided [1]. According to a recent study, The Adjusted Odds Ratio (AORs) for severe illness remained significantly higher among all late breastfeeding initiator groups (1-23 hours) and 48 hours or more when compared to newborns who started breastfeeding early [2].

Globally, two out of five newborns (42%) are put to the breast within the first hour of their life [3]. In Africa, it can range from as low as 34.7% in Nigeria to as high as 98.4% in Angola. This differing prevalence's are undoubtedly due to differences in governmental enacted policies, implementation of these policies and other sociocultural practices [4]. A study was conducted using population-based study conducted between 2008 and 2017 using the demographic and survey of 35 sub-Saharan African countries, reported that early initiation of breastfeeding within one hour after birth was lowest in Chad (23.0%) and highest in Burundi (85.0%). The pooled median duration of breastfeeding was 12 months. Female children had 3% significantly lower odds of consuming tinned, powdered, or fresh milk, compared with male children [5]. In Ghana, neonates were 2.5 times more likely to die when breastfeeding initiation began after 24 hours than when breastfeeding began within the first hour after birth [6].

According to source in Ghana, slightly more than half (56%) of children are breastfed within the first hour after birth. This situation is concerning due to the fact that 12% of children experienced diarrhea in 2014, and the neonatal mortality rate was 29 deaths per 1000 live births. In a study conducted in Ghana by source, it was recommended that efforts to improve

the timely initiation of breastfeeding should concentrate on providing breastfeeding assistance to mothers who have undergone a cesarean section and those with small-sized infants. Source conducted a study in Western Nepal, which suggested that infants born to older mothers (aged 30-45 years) were less likely to be breastfeed within one hour of birth. Additionally, a study in southeast Ethiopia by source 3 revealed that married mothers were more likely to breastfeed their children within the first hour compared to unmarried mothers. The study did not find a significant relationship between marital status and the early initiation of breastfeeding [7-9].

Materials and Methods

Study setting

The Western Region of Ghana is located in the southwestern part of the country and is bordered by Ivory Coast to the west, Central Region to the east, the Ashanti and Brong-Ahafo Regions to the north, and the Gulf of Guinea to the south. According to the Ghana statistical service, the region had approximately 2,057,225 people in 2021. The World Bank estimated that the region's GDP was USD 3.5 billion in 2018, which represented approximately 11% of Ghana's total GDP. The region has a diverse landscape that includes coastal plains, low hills, and forested areas. It is home to several major cities and towns, including Sekondi-Takoradi, the regional capital, as well as mining communities such as Tarkwa and Prestea. The region is also known for its production of cocoa, timber, and minerals such as gold and bauxite [10].

Study design

The Ghana Demographic and Health Survey (GDHS), whose 2014 version is the most recent, provided the data for this study's child recode file. All children aged 0 to 59 months who were born within the previous five years as of the survey date were included in the data collection. Every five years, the GDHS conducts a national survey. This survey covered all the former ten regions. The Ghana Statistical service and the Ghana Health Service are responsible for conducting the survey, while Inner City Fund (ICF) International provided technical assistance through the measure Demographic Health Survey (DHS) program. Two stages of sampling are used in the survey's design. Measure DHS gave its consent for the dataset to be used. The public can access the dataset at www.measuredhs.org

Sample size and design

A cross-sectional study design was used for the 2014 GDHS, and stratified two-stage random sampling was used to create a nationally representative survey sample. The first step entails choosing clusters made up of enumeration regions drawn up for the Population and Housing Census that came before the survey. Households from each cluster were chosen in the second step. 5695 women in all were questioned for the survey in the child file, which had a 96% response rate. The survey provides a complete birth history of women and their children. Further details of the methodology can be found in the final report [11]. Data from last-born children between the ages of 0 and 24 months were chosen in order to the relationships between various parameters and EIBF as well as its causes. 257 children made up the actual sample of mothers with children who had full cases on the variables used in this investigation.

Classification of variables

"When the child was put to the breast?" led to the development of the outcome variable. The responses were counted in hours or days. Our outcome variable "early initiation breastfeeding" was expressed as a dichotomous variable, with category 0 denoting commencement of breastfeeding within one hour and category 1 denoting initiation of breastfeeding beyond one hour. The independent factors were chosen based on existing research, the lack of studies on some of the variables, and their accessibility in the Ghana Demographic Health Survey (GDHS) dataset. While some variables were adopted as reported in the 2014 GDHS, the majority were recoded. These comprised child's sex, birth weight, and birth order (child factors). The maternal factors were the age of the mother at birth, education level, working status, marital status, religion and ethnicity. The variables under paternal factors were age, education level and the number of other partner. Household wealth index and source of drinking water (household factors). The number of ANC visits access to healthcare and place of childbirth (institutional factors). Place of residence is community education level and community wealth index.

Data analysis

SPSS V.21 was used to weigh and clean the GDHS before use. The weight variable (V005) was divided by 1,000,0000 to correct for over and under sample. Western region which was recorded 1 in the variable (V024) was filtered out after which missing values were dealt with. When Western Region was filtered out, the sample size was 567 and after cleaning and dealing with missing numbers, the sample size was reduced to 257. This was the number of children 0-24 months of age whose mothers were subjected to initiation of breastfeeding either within an hour or after an hour.

To determine the relationship between early initiation of breastfeeding and the independent variables, the first step of the analysis involved distributing early initiation of breastfeeding across the child, maternal, paternal, household, institutional, and community factors in frequencies and percentages. Finally, binary logistic analysis was carried out to identify the factors that influence early breastfeeding onset.

Results

Distribution and the bivariate relationship between initiation of breastfeeding across the independent variables

The distribution of early breastfeeding initiation across the infant, mother, paternal, household, institutional, and personal

factors is shown in Table 1. Within an hour of birth, 78.2% of the children were nursed. Children's gender was roughly evenly distributed and highly correlated with EIBF. The majority of children were large in size as reported at delivery and the majority (81.3%) breastfed their children right away. Within an hour, many children in the birth order 2-4 (78.1%) started nursing. Compared to children born to mothers in the other age categories, those born to mothers in the 15–24 age group had the highest likelihood of being nursed within an hour of birth (87.5%). A higher percentage (77.6%) of infants delivered to women with secondary or higher education was nursed within an hour. Within an hour, women who were working when their children were born nursed 136 of them. In contrast, mothers who had ever been married started nursing their 135 children within an hour. Christian mothers initiated breastfeeding to 180 children within 1 hour. Compared to mothers from the other ethnic groups, Ga/Dangme mothers were more likely to breastfeed their newborns for an hour (81.3%).

Early breastfeeding commencement within the first hour of delivery was less common (75.9%) among fathers who were older than 47 and did not have any formal education, but it was roughly equal (78.2%) among fathers who had one to two partners (78.9%). Out of all the children born to mothers who used water from sources other than improved or unimproved sources, only seven were breastfed within one hour, whereas the majority of 154 children born to mothers who used improved water sources achieved this. When comparing mothers from poor households (17.9%), it was found that children born to wealthier mothers (25.2%) were more likely to be breastfed within an hour after delivery. In terms of healthcare access, children whose mothers visited the ANC facility four or more times were breastfed the most (184), while their counterparts whose mothers visited the ANC facility 0-3 times had a significantly lower count (17).

Variables	**Initiation of breastfeeding (N=257)**		χ^2	**P-value**
	Within 1 hour	**After 1 hour**		
	N (%)=201 (78.2)	**N (%)=56(21.6)**		
		Child factors		
Sex of child				
Male	95 (72.5)	36 (27.5)	5.078	0.024*
Female	106 (84.1)	20 (15.9)		
Size at birth				
Large	126 (81.3)	29 (18.7)	3.108	0.224
Average	46 (70.8)	19 (29.2)		
Small	29 (80.6)	7 (19.4)		
Birth order				
1	30 (68.2)	14 (31.8)	4.522	0.104
2-4	188 (78.1)	33 (21.9)		
5+	53 (85.5)	9 (14.5)		
		Maternal factors		
Age at birth				
15-24	35-49	5 (12.5)	15 (20.3)	15 (20.3)
25-34	107 (74.8)	36 (25.2)		
35-49	59 (79.7)	15 (20.3)		
Education level				
No education	42 (82.4)	9 (17.6)	0.681	0.711
Primary	45 (76.3)	14 (23.7)		
Secondary/higher	114 (77.6)	33 (22.4)		
Working status				
No	35 (81.4)	8 (18.6)	0.307	0.579
Yes	166 (77.6)	48 (22.4)		
Marital status				
Ever married	135 (77.6)	39 (22.4)	0.125	0.729
Never married	66 (79.5)	17 (20.5)		
Ethnicity				
Akan	150 (77.81)	43 (22.2)	0.101	0.951
Ga/Dangme	13 (81.3)	3 (18.8)		
Mole-Dagbani	36 (78.3)	10 (21.7)		

Paternal factors				
Age				
17-26	19 (86.4)	3 (13.6)	0.991	0.803
27-36	96 (78.0)	27 (20.0)		
37-46	70 (77.8)	20 (22.2)		
47+	15 (75.0)	5 (25.0)		
Education level				
No education	22 (75.9)	7 (24.1)	0.234	0.972
Primary	27 (79.4)	7 (20.6)		
Secondary	130 (77.8)	37 (22.2)		
Tertiary	21 (80.8)	5 (19.2		
Household factors				
Source of drinking water				
Improved	154 (76.2)	48 (23.8)	3.868	0.145
Unimproved	40 (88.9)	5 (11.1)		
Others	7 (70.0)	3 (30.0)		
Wealth index				
Poor	64 (82.1)	14 (17.9)	1.47	0.479
Middle	53 (79.1)	14 (20.9)		
Rich	83 (74.8)	28 (25.2)		
Institutional factors				
ANC visits				
0-3	17 (85.0)	3 (15.0)	0.587	0.444
4 or more	184 (77.6)	53 (22.4)		
Access to healthcare				
Low access	113 (83.1)	23 (16.9)	4.182	0.041*
High access	87 (72.5)	33 (27.5)		
Place of birth				
Home	47 (78.3)	13 (21.7)	0.001	0.979
Health facility	154 (78.2)	43 (21.8)		
Community factors				
Place of residence				
Urban	70 (76.1)	22 (23.9)	0.379	0.538
Rural	131 (79.4)	34 (20.6)		
Community education level				
Low	83 (85.6)	14 (14.4)	4.948	0.026*
High	118 (73.8)	42 (26.2)		
Community wealth index				
Poor	92 (83.6)	18 (16.4)	3.323	0.068
High	109 (74.1)	38 (25.9)		

Table 1. Bivariate relationship between factors and initiation of breastfeeding.

There was a strong correlation between early initiation of breastfeeding and healthcare access. Children whose mothers had limited access to healthcare over the previous 12 months had a higher proportion of breastfeeding initiation within one hour. Likewise, children whose counterparts had better access to healthcare (27.5%) experienced the opposite. In comparison to children born in homes (47) only 154 of the total sample size who were born in health facilities started nursing during the first hour after their delivery. The highest percentage of Western Region children breastfed within an hour belonged to mothers from rural areas (79.4%), while the lowest percentage belonged to mothers from urban areas (23.9%).

118 mothers from communities with high education levels had initiated breastfeeding to their children within an hour while 87 from communities with low education levels had initiated breastfeeding to their children within an hour after birth. 25.9% of the mothers from communities with high wealth index breastfed their children after an hour compared to their counterparts 16.4% who breastfed their children after an hour (Table 2).

Characteristics	Exp (ß)	[95% CI]		P-Value
		Lower	Upper	
Sex of child				
Male (RC)	1	1	1	1
Female	0.494	0.245	0.997	0.049
Size at birth				
Large (RC)	1	1	1	1
Average	2.48	1.125	5.465	0.024
Small	0.973	0.34	2.783	0.959
Birth order				
1 (RC)	1	1	1	1
2-4	0.254	0.092	0.704	0.008
5 and above	0.08	0.17	0.381	0.002
Age of mother at birth				
15-24 (RC)	1	1	1	1
25-34	3.815	0.908	16.031	0.068
35-49	4.047	0.69	23.734	0.121
Education level of mother				
No education (RC)	1	1	1	1
Primary	1.712	0.57	5.14	0.338
Secondary and Higher	1.209	0.399	3.668	0.737
Working status of mother				
No (RC)	1	1	1	1
Yes	1.213	0.429	3.429	0.716
Marital status				
Ever married (RC)	1	1	1	1
Never married	1.101	0.472	2.568	0.823
Ethnicity of the mother				
Akan (RC)	1	1	1	1
Ga/Dangme	0.753	0.148	3.826	0.732
Mole-Dagbani	0.574	0.173	1.9	0.363
Partner's education level				
No education (RC)	1	1	1	1
Primary	0.556	0.125	2.475	0.441
Secondary	0.607	0.185	1.995	0.411
Higher	0.256	0.049	1.336	0.106
Partner' age				
17-26 (RC)	1	1	1	1
27-36	1.478	0.301	7.244	0.63

37-46	2.643	0.465	15.019	0.273
47+	6.897	0.771	61.713	0.084
Household Wealth				
Poor (RC)	1	1	1	1
Middle	0.755	0.234	2.488	0.638
Rich	0.435	0.096	1.981	0.282
Source of drinking water				
Improved (RC)	1	1	1	1
Unimproved	0.441	0.122	1.594	0.212
Others	2.023	0.388	10.562	0.403
Number of ANC visits				
0-3 (RC)	1	1	1	1
4 or more	1.784	0.357	8.903	0.403
Access to healthcare				
Low (RC)	1	1	1	1
High	2.516	1.151	5.501	0.021
Place of birth				
Home (RC)	1	1	1	1
Health facility	0.646	0.248	1.683	0.371
Place of residence				
Urban (RC)	1	1	1	1
Rural	1.03	0.396	2.679	0.951
Community educational level				
Low (RC)	1	1	1	1
High	0.998	0.4	2.488	0.996
Community wealth index				
Poor (RC)	1	1	1	1
Rich	1.755	0.549	5.614	0.343

Table 2. Binary logistic regression on early initiation of breastfeeding.

Discussion

This study demonstrated that social factors can have conflicting effects on infant breastfeeding initiation. The study's findings also revealed that several other factors had a strong correlation with EIBF. The sex of the child is a significant predictor of early breastfeeding beginning in this study. Female children are less likely to be breastfed within an hour of birth than male children, which contradicts previous research [5,12].which discovered that male children were less likely than female children to be breastfed within an hour of birth. According to the findings, the child's birth weight is a statistically significant predictor of early breastfeeding initiation.

This finding contradicts previous research [4,7] who revealed that early breastfeeding had a significant relationship with birth weight and that the majority of the babies that started breastfeeding early were larger than usual at delivery, respectively. According to this study, babies with average birth weights are two times more likely to be breastfed than babies with big birth weights; babies with small birth weights are less likely to be breastfed than babies with large birth weights. It was discovered that birth order is a significant predictor of early initiation of breastfeeding. Children in all categories of birth order (2-4 and 5 and above) are more likely to be breastfed one hour after birth than children in birth order 1. This runs counter to the findings of women with first-born

children are less likely to start breastfeeding within one hour of birth [2,12].

The age of the mother at birth was found to be a non-significant predictor of early breastfeeding initiation. Children whose mothers are between the ages of 25 and 34 are three times more likely to breastfeed their children within an hour of birth than children whose mothers are between the ages 15-24. When compared to the age group 15-24, mothers aged 35 to 49 were four times more likely to breastfeed within an hour. This result affirms the findings of the earlier studies by [3,12,13]. The study indicates that there is no statistically significant relationship between mothers' educational level and early breastfeeding initiation. However, the study found that children whose mothers have a primary, secondary, or higher level of education are more likely to be breastfed within an hour than those whose mothers have no education. This outcome is consistent with that of, which found maternal education not to be significantly related to early initiation of breastfeeding. On the contrary, the study conducted by established a strong link between maternal education and EIBF. Once more, the mother's employment status is not a significant predictor of when she will start nursing [14,15].

The study's findings show that children with moms who are presently working are more likely than their peers with mothers who are not currently working to be nursed within one hour. These findings affirm studies documented by the study concluded that the employment status of mothers does not play a significant role in predicting the early initiation of breastfeeding. Likewise, the marital status of mothers is not a significant predictor of early initiation of breastfeeding. However, children whose mothers were never married are more likely to be breastfed within the first hour compared to those whose mothers were previously married [16,17]. These findings are consistent with studies conducted by [3,18,19] which also found no significant relationship between marital status and early initiation of breastfeeding. Conversely, study 3 discovered that married mothers were more likely to initiate breastfeeding within the first hour compared to their unmarried counterparts.

In the present study, the religion of the mother does not serve as a significant predictor of early initiation of breastfeeding. However, Muslim mothers are more likely to breastfeed their children within the first hour compared to Christian mothers. This result aligns with studies conducted by [20,21] which similarly found no significant association between the mother's religion and early initiation of breastfeeding. In contrast, a study by 15 reported that the religion of the mother had a significant impact on early initiation of breastfeeding practices.

Furthermore, the ethnicity of the mother is not a significant predictor of early initiation of breastfeeding. Children born to Ga/Dangme and Mole-Dagbani mothers are less likely to be breastfed within the first hour compared to those born to Akan mothers.

The result of this study is in line with the studies by [4,7] which initiated that coming from the local Akan ethnicity was significantly associated with the time to breastfeeding initiation, and children whose mothers were Mole-Dagbanis were less likely to initiate breastfeeding early than those whose mothers were Akans, respectively..

Education level of partners does not predict early breastfeeding initiation. Children born to partners with primary, secondary, and tertiary education, on the other hand, were less likely to be breastfed within an hour than those whose fathers had no education. This finding is consistent with that of which discovered no statistically significant relationship between the father's educational level and EIBF [22]. In disparity, found an association between early initiation of breastfeeding and the father’s education and alluded that children whose fathers attended primary education had increased odds of early initiation of breastfeeding compared to those whose fathers had no education. Similarly, the partner’s age is not significantly correlated with early initiation of breastfeeding. Nevertheless, children of partners within the age group 27-36 are 1.48 likely to be breastfed within an hour, children of partners within the age group 37-46 were two times more likely to be breastfed within 1 hour and children of partners within the age group 47+were 6.9 times more likely to be breastfed within 1 hour compared to children of partner’s 17-26. Furthermore, the number of additional partners is not a statistically significant predictor of EIBF [23].

Children born to partners with 1-2 partners, on the other hand, are more likely to be breastfed within an hour than those born to partners with no other partner. Household wealth was not a significant predictor of early breastfeeding initiation. However, children born to mothers from middle and upper-income families are less likely to be breastfed within an hour compared to those whose were mothers from poor households. This is consistent with studies by [7,24]. According to the former study, the household wealth index is inversely related to EIBF, and women in rich households are 15% less likely to initiate early breastfeeding than women in poor households. The latter study also found no significant association between the household wealth index and EIBF. In dissimilarity, a study by indicated mothers from wealthier households had significantly higher odds of EIBF compared to mothers from poorest households and that was a statistically significant relationship between household wealth index and EIBF [25].

Early breastfeeding initiation appears to not be greatly impacted by the source of the drinking water. Mothers who used water from less-improved sources, however, were less likely to nurse their children within an hour, while mothers who used water from other sources were twice as likely to do so as mothers who used water from more-improved sources. Due to concerns regarding the safety and cleanliness of water obtained from unreliable sources, there is a possibility that mothers who rely on such water may exhibit lower likelihood of initiating breastfeeding within the first hour after childbirth.

However, the frequency of Antenatal Care (ANC) visits does not serve as a significant predictor of early initiation of breastfeeding. In contrast, children whose mothers attended ANC visits four or more times are 1.78 times more likely to be breastfed within the first hour after birth compared to those

whose mothers had fewer than four ANC visits. This outcome affirms the finding by which found that number of ANC visits is not a significant predictor of early initiation of breastfeeding. Access to healthcare is a significant predictor of early initiation of breastfeeding. Children born to mothers who were highly exposed to healthcare are two times more likely to initiate breastfeeding within an hour compared to those who were less exposed to healthcare [16].

The anticipated outcome of this study stems from the notion that mothers with extensive exposure to healthcare services are more likely to possess better access to breastfeeding-related information and resources. This includes factors such as access to knowledge about the significance of initiating breastfeeding within the initial hour after giving birth, as well as access to resources like breast pumps or lactation consultants that aid in breastfeeding. However, there is no statistically significant correlation observed between the place of birth and the initiation of early breastfeeding. However, there is no statistically significant correlation observed between the place of birth and the initiation of early breastfeeding. But, children born in health facilities were less likely to be breastfed within an hour compared to children born in homes. This result is similar to the findings from the studies conducted by which found that women who delivered in health facilities had lower odds of early initiation of breastfeeding, but these studies found a significant association between place of birth and early initiation of breastfeeding. Place of residence is not a significant predictor of early initiation of breastfeeding [15,26,27].

However, the study suggests that children born to mothers from urban areas are more likely to breastfeed their children after 1 hour compared to those from rural areas. The present result aligns with the findings of a study conducted by which demonstrated that the location of residence did not serve as a noteworthy predictor of Early Initiation of Breastfeeding (EIBF). Furthermore, the study revealed no significant link between place of residence and EIBF, and it indicated that mothers residing in urban areas were comparatively less inclined to initiate breastfeeding early when compared to their rural counterparts. Furthermore, the study revealed no significant link between place of residence and EIBF, and it indicated that mothers residing in urban areas were comparatively less inclined to initiate breastfeeding early when compared to their rural counterparts. Moreover, Community education level is not a significant predictor of early initiation of breastfeeding. Nevertheless, compared to children whose mothers come from low-educated communities, those whose mothers are from high-educated groups are less likely to continue breastfeeding their kids after an hour [8, 28]. This result is consistent with the hypothesis, according to which women from high-education communities would have been more likely to start nursing young children. Additionally, the community wealth index is not a reliable indicator of early breast beginning. However, when compared to mothers from rich communities, mothers from poor communities were more likely to continue breastfeeding their children after an hour.

Conclusion

Given that Ghana's national average for early breastfeeding initiation is 57%, which is lower than the prevalence discovered in this study, the high prevalence of early breastfeeding initiation (78.2%) in the Western Region of Ghana is particularly noteworthy. However, Ghana Health Service must incorporate early EIBF programs that target females and children with higher birth orders into child health activities. This shows that efforts to encourage early breastfeeding beginning have been successful in Ghana's Western Region and emphasizes the significance of ongoing efforts to encourage this crucial practice in other regions of the nation. It's crucial to remember that encouraging and supporting the early start of breastfeeding might be difficult in some environments, particularly in low-resource settings where access to services like healthcare may be restricted. Additionally, cultural and socioeconomic variables may influence breastfeeding patterns, thus it is important to consider these while promoting early breastfeeding initiation.

Strengths and Limitations of This Study

- This analysis was based on a sample of children 0-24 months representative of mothers in the Western Region, Ghana.
- The analysis was based on the 2014 GDHS which is the most recent survey data collected from Ghana.
- Breastfeeding data were collected based on maternal recall.
- The analysis was based on surveys conducted cross-sectional and therefore causal inference cannot be made.

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Competing Interests

None declared.

Patient and Public Involvement

Patients and/or the public were not involved in the design, conduct, reporting, or dissemination plans of this research.

Patient Consent for Publication

Not required.

Ethics Approval

We accessed the DHS data after getting permission from the DHS programme. Primary data were collected from each country by adhering to relevant local and international ethical guidelines. All procedures and questionnaires of DHS are

reviewed and approved by the ICF international Institutional Review Board (IRB). Additionally, each country-specific DHS has been reviewed and approved by ICF IRB and an IRB in the host country.

Data Sharing Statement

Appendices to the extended report are available in English.

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