

Knowledge and Practice of Exclusive Breastfeeding Among Women of Childbearing Age in Ganga Gari Community of Katsina State, Nigeria

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Abstract: Exclusive breastfeeding (EBF) within the first 6 months of life is one of the critical and life-saving natural interventions which promote growth, development and protection of the young infant. However, its prevalence is generally low and this becomes a problem in places like northern Nigeria where poverty is high and malnutrition is common. In this study, the level of knowledge and practice of EBF; level of association between knowledge, practice and antenatal care; and common barriers to EBF among women of childbearing age in Ganga Gari community of Katsina State of Nigeria are determined. Data was collected through interviewer-administered, structured questionnaires; and participants were recruited based on systematic random sampling. Sample size was 200 women while data was analyzed predominantly through descriptive statistics and Chi-squared analysis. The results reveal that Participants generally had adequate knowledge of EBF (54.5%) while only 13% (95% CI) practiced it. Knowledge of EBF and tribe/ethnicity were weakly associated with practice of EBF. Antenatal care was not associated with either knowledge or practice of EBF. The most commonly identified barrier to EBF was a perception that breast milk alone is inadequate to meet an infant's nutritional needs. In conclusion, Knowledge of EBF is increasing but this has not strongly influenced its practice because of deeply-held socio-cultural beliefs about breastfeeding. Interventions that target these beliefs and perceptions are more likely to have an impact in improving EBF rates. Antenatal care services need to be designed to be effective enough to improve both knowledge and practice of EBF.

Keywords: Exclusive Breast Feeding (EBF), Antenatal Care (ANC), Women of Childbearing Age (WCA), Quantitative Methodology, Katsina State

1. Introduction

Breastfeeding has been identified as a critical natural intervention designed to support the nutrition of infant and young children, and contribute significantly to their growth and development. The Innocenti Declaration [1] by the United Nations Children Emergency Fund (UNICEF) and the World Health Organization (WHO) emphasizes the crucial importance of breastfeeding children in order to ensure proper growth and development. The Declaration goes further to point out the unparalleled benefits of breast milk alone in the first six months of life particularly when given without water or any other foods except prescribed drugs and supplements. This practice is Exclusive Breastfeeding (EBF) and it has both health and nutritional advantages for the

young infant as well as economic benefits for the community and the country at large.

Infant and Young Child Feeding (IYCF) practices have a significant determining influence on the development of malnutrition of any type or severity [2-3]. One of the most important IYCF practices is EBF which gives the young infant all the nutrients - both micro and macro, required for adequate growth, development and protection from common and potentially fatal childhood illnesses. In essence, the prevention of malnutrition will not be complete without considering adequate IYCF practices including EBF. This is why EBF has been identified as one of the essential nutrition interventions required to

reduce malnutrition in infants and young children. Malnutrition itself is a deadly killer and contributes to one third of the 9.7 million deaths of children annually [4]. This astounding death rate can be reduced through simple and natural interventions like promoting exclusive breastfeeding.

From a national survey, Nigeria records an exclusive breastfeeding rate of 13% [5]. The average duration of EBF in the NW and NE zones was significantly shorter than for other zones in the country. The average duration of EBF in the NW zone where Katsina is located is 12 days compared to a national average of 15 days. This falls far below the expected standard of 6 months, or about 180 days. Katsina state shares a similar food security context with other northern states which are part of the Sahel – Zamfara, Kebbi, Sokoto, Yobe, Jigawa, Borno [6]. There are high levels of malnutrition and child mortality associated with food insecurity, and this situation is aggravated by the current state of insecurity in the affected areas [7].

Due to the low EBF rates in these areas (and in the Sahel in general), children in this region begin life with a significant health and nutrition disadvantage which dramatically increases their vulnerability to the negative consequences of recurrent food shortages. A high level of poverty also compounds this scenario considering that the NW and NE are the poorest regions in Nigeria [8]. Therefore, this study intends to evaluate the problems of EBF in Katsina state (NW Nigeria) by analysing the associations between the different variables. The study aims to elucidate the chain of transmission of breastfeeding information from the ANC clinics to the beneficiaries in communities; and how such knowledge may translate into actual practice of the acquired information. The most common barriers to exclusive breastfeeding among communities in the Sahel, a region with rather peculiar characteristics, will also be highlighted.

2. Theoretical Background

The factors of knowledge and practice of EBF are quite variant in different regions of the world. Also, determining whether knowledge of EBF is adequate can be challenging as it often depends on what survey tool is used to assess the knowledge and what cut-off point is agreed upon and used. This is also because few breastfeeding assessment tools have been proven to have both reliability and validity [9]. An analysis of relevant surveys suggests that EBF knowledge is higher than agreed cut-offs among some sampled populations [10-12], but majority of reviewed studies report a less than adequate knowledge of EBF [13-14]. The prevalence of EBF globally is low across most countries and regions. In the US, 16.8% of the national average for infants still exclusively breastfeeding at 6 months is 16.8% [15]. The figure for Tanzania and Malaysia is 41% and 43% respectively [16-17]. While the National Demographic and Health Survey (NDHS) reports 13% for Nigeria, there are varying reports from studies

(both national and regional) within the country: 16.4% [17], 10% [18], 20% [19], 27% [20] and 28.3% among HIV positive mothers [21]. The implication of this is that there may be variations on the EBF rate related to geographical location, ethnicity, health status and other variables.

Few studies have also shown the relationship between knowledge and practice of EBF. In a randomized trial, [22] found significant difference in practice between the test group which had been given breastfeeding education postnatal and the control group which had not. A similar study was also carried in Nigeria and a significant improvement was recorded by the test group which had benefited from a health promotion intervention on breastfeeding versus the control which had not [18]. The proposed survey is not experimental but will look for significance of association between women who have adequate breastfeeding knowledge scores and practice of EBF.

Antenatal care has often been seen as a very useful platform for health promotion interventions aimed at behaviour change and achieving healthier outcomes even beyond the period of pregnancy. The relationship between ANC and breastfeeding is based on two assumptions: breastfeeding messages were given at the ANC and the messages translate into better knowledge of good breastfeeding practices. Of the 108 mothers attending an ANC class, only 21% of mothers were reported to have received counselling on breastfeeding [23]. This agrees with another finding from a similar research which recorded 13% for mothers who had received any instruction on breastfeeding from health workers [24]. Consequently, there are suggestions that more mothers who exclusively breastfed had attended ANC [25]. However, studies directly associating antenatal breastfeeding instruction/counselling and adequacy of knowledge of EBF were not found. Therefore, this study will analyse these relationships in order to aid understanding of the problem and to guide the design of future approaches to improve EBF rates and by extension, child survival.

3. Research Method

3.1. Population Setting

Ganga Gari is a small community located just west of Daura, a major commercial town in Katsina State, Nigeria. Its population is made up of mostly farmers, traders and cattle herdsman. The women are mostly housewives but are also involved in farming and trading. It shares characteristics of the Sahel region including flat topography dotted by scanty shrubs and occasional trees, and it is prone to occasional droughts.

3.2. Sampling Method and Frame

The sampling frame used was the total number of Women of Childbearing Age (WCA) in Ganga Gari community of

Katsina State because this was the group the study set out to survey. The sampling frame consisted of 331 WCA (calculated as 22% of the total population) and this was based on the National IPD survey by National Primary Health Care Development Agency (NPHCDA 2012). However, the sampling method was systematic rather than directly random since one WCA was randomly selected from each household until the sample size was reached. This was bearing in mind that some households had more than one WCA (a man having more than one wife is a common practice in the community and indeed the region in general). The total number of households in Ganga Gari is 252 (NPHCDA 2012).

3.3. Sample Size

The sample size (N) at 95% Confidence Interval (5% error level) was determined using the national prevalence of Exclusive Breastfeeding Practice of 13% (NDHS 2008):

$$N = [1.96^2 P (1 - P)] / [\varepsilon^2] \quad ([26] \text{ p. } 158 - 159)$$

$$= [1.96^2 \times 13 \times 87] / [5^2]$$

≈ 174 allowing for at least 10% variation due to non-response
 $= 200$

3.4. Eligibility Criteria

Study participants were WCA between the ages of 16 – 44 years of age (16 and 44 years inclusive). They were resident in the community and had either given birth or had been pregnant before the time of the study.

3.5. Data Collection

A structured interviewer-administered questionnaire was used for the study in order to meet its survey design requirements. It was a four-section questionnaire which was developed as an adaptation of the validated tool developed by [27] from a study in Malaysia. Elements from the standard Breastfeeding Knowledge Questionnaire (BKQ) and Breastfeeding Self-Efficacy Scale (BSES) were incorporated.

3.6. Data Analysis

Data was collated, entered and analyzed using EpiData, SPSS and Microsoft Excel. All variables were treated as categorical data. During data entry, scoring and grading was done for knowledge while only grading was done for practice. There was a total of fifteen questions on knowledge, for each question, a right response was assigned 1 score and each wrong one 0 score and then the total scores were added. A score of 7 and less was given a knowledge grade “Inadequate” and 8 and above “Adequate”. Using two related variables (Prac1 and Prac4) to grade practice, practice grade assigned could either be “practices EBF” or “does not practice EBF”.

Given below is a summary flow chart of the research methodology

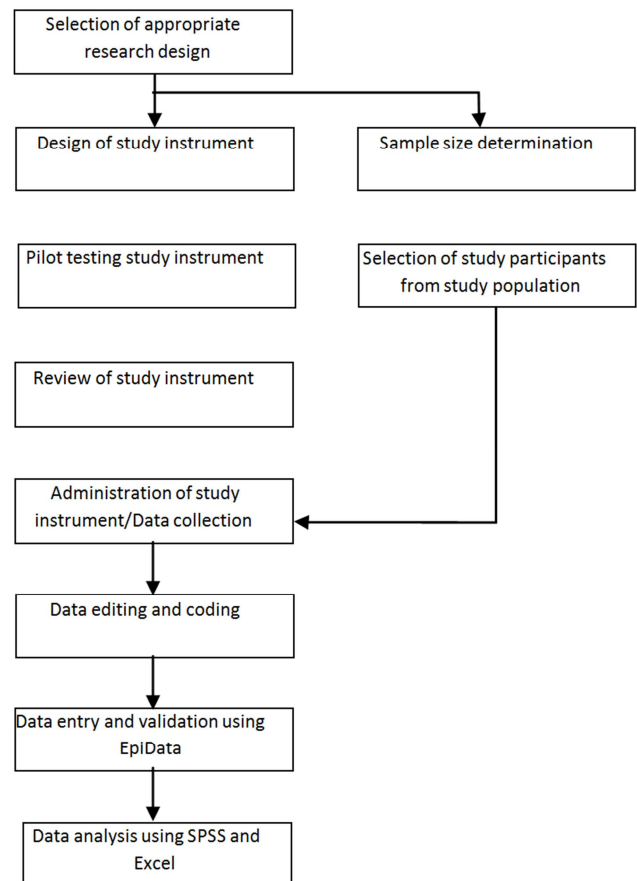


Figure 1. Flowchart of methodology.

4. Results and Discussion

4.1. Socio-demographic Characteristics

The demographic findings are in keeping with the demographic characteristics of the country where for females, the age groups from 15 to 24 years form the largest proportion of all age groups above 14 years of age [7]. Most respondents in the survey had one form of the education or the other with Quran School being the most common form. This was likely to have an impact on their understanding of breastfeeding practices. Majority of the women were very poor and earned less than \$30 monthly. This is below the poverty line of less than \$1 a day and is in keeping with the fact that the northeast and northwest of the country have the highest poverty levels at above 70% in 2004 [28]. Details of the demographic data is presented in Table 1 below.

Table 1. Socio-demographic variables.

Parameter	Frequency	Percent	Cumulative Percent
Age			
16 -17 years	43	21.5	21.5
18 - 25 years	69	34.5	56.0
26 - 35 years	54	27.0	83.0
36 - 44 years	34	17.0	100.0
Occupation			
Full housewife	175	87.5	87.5

Parameter	Frequency	Percent	Cumulative Percent
Farmer only	4	2.0	89.5
Civil servant	4	2.0	91.5
Trader/Businesswoman	17	8.5	100.0
Religion			
Christianity	1	0.5	0.5
Islam	198	99.0	99.5
Traditional religion	1	0.5	100.0
Tribe/Ethnicity			
Hausa	165	82.5	82.5
Fulani	32	16.0	98.5
Others	3	1.5	100.0
Educational status			
None	5	2.5	2.5
Quran school only	147	73.5	76.0
Primary	28	14.0	90.0
Secondary	18	9.0	99.0
Tertiary	2	1.0	100.0
Number of children			
First pregnancy	2	1.0	1.0
One child	46	23.0	24.0
2 to 5 children	93	46.5	70.5
6 to 10 children	49	24.5	95.0
More than 10 children	10	5.0	100.0
Monthly income			
Less than N5 000 (\$30)	170	85.0	85.0
N5 001 (\$30) to N10 000 (\$60)	22	11.0	96.0
N10 001 (\$60) to N20 000 (\$120)	6	3.0	99.0
N20 001 (\$120) to N50 000 (\$300)	2	1.0	100.0
Greater than N50 001	0	0	

4.2. Knowledge and Practice of EBF

Using the 15-point scale for knowledge of EBF contained in the survey instrument, the median score of 8 was used as a passing threshold. In other words, participants with a score of 8 and above were considered to have adequate knowledge of EBF. Table 2 shows individual performances in the knowledge domain.

Table 2. Knowledge scores of respondents.

Score	Frequency	Percent	Cumulative Percent
4	3	1.5	1.5
5	14	7.0	8.5
6	28	14.0	22.5
7	46	23.0	45.5
8	52	26.0	71.5
9	29	14.5	86.0
10	21	10.5	96.5
11	6	3.0	99.5
12	1	0.5	100.0
Total	200	100.0	

A proportion (26%) of participants scored the median 8 points while very few (2%) scored either 12 points (the maximum) or 4 points (the minimum). Analysing each knowledge question shows that the question most participants consistently got right is: 'breastfeeding is important for a child's growth and development' with 99% agreeing. The one most wrongly answered is: 'Belching after feeding shows that the baby is full' with 84.5% agreeing.

Figure 2 shows the ratio of participants with adequate knowledge of EBF to those with inadequate knowledge of

the subject. 54.5% of participants had adequate knowledge while 45.5% had inadequate knowledge. This therefore means that using the agreed cut-off, more than half of the sample population had adequate knowledge of EBF.

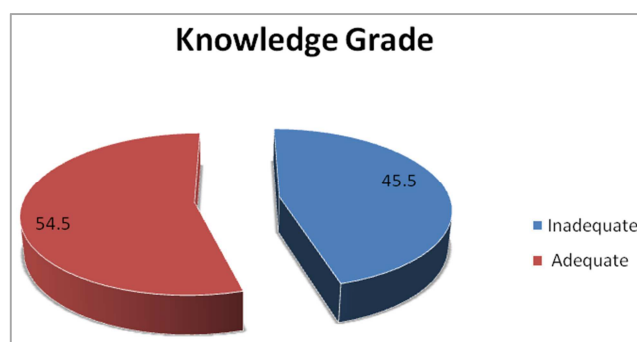


Figure 2. Knowledge grade of sample.

4.3. Practice of EBF

Figure 3 shows the practice grade for participants in the study using questions 1 and 4 in the practice section of the questionnaire:

- 1) Your last child was given water in addition to breast milk during the first six months of life (Question 1). During interviews, this was clarified to mean giving water on a continuous basis during the six-month period.
- 2) Your last child was given "no-no" (cow milk) to support breast milk during the first six months of life (Question 4)

These questions are pivotal and a correct answer (no) on both of them strongly points at practice of EBF. Two participants who were having their first pregnancy at the time of interview were not assessed for practice as they were yet to have any breastfeeding experience.

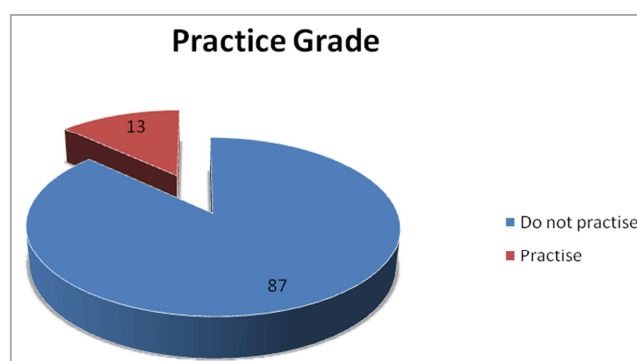


Figure 3. Practice grade of sample.

87% of the study sample does not practice EBF while 13% practices it based on the chosen key questions. When asked about common barriers to EBF experienced, a number of respondents opted out of choosing any barrier by stating that they practice EBF. This self-perception of EBF practice was cross-tabulated against actual practice of EBF. There was no statistical significance between actual practice and self-perception of EBF practice (Chi sq.=0.563, df=1, p=0.453).

This means that there is no difference between those practicing and those not practicing EBF in terms of their self-perception.

Tables 3 and 4 relate practice grade for EBF to the various socio-demographic variables. There was no significant relationship between practice grade and age (Fisher's Exact=1.885, $p=0.612$), occupation (Fisher's Exact=5.574, $p=0.105$) and religion (Fisher's Exact=1.285, $p=1.000$). There was also no significant relationship between practice

grade and educational status (Fisher's Exact=2.015, $p=0.672$), number of children had (Fisher's Exact=2.648, $p=0.435$) and monthly income (Fisher's Exact=0.830, $p=0.757$). There was a significant relationship between practice grade and tribe/ethnicity (Fisher's Exact=12.439, $p=0.002$). However, the strength of this relationship though significant is considered weak (Cramer's Phi=0.332).

Table 3. Relationship between practice grade and socio-demographic variables I.

Socio-demographic variable	Practice grade	
	Does not practise EBF	Practises EBF
Age ($p<0.05$)		
16 – 17 years	88.1%	11.9%
18 – 25 years	85.5%	14.5%
26 – 35 years	84.9%	15.1%
36 – 44 years	94.1%	5.9%
Occupation ($p<0.05$)		
Full housewife	88.5%	11.5%
Farmer only	50.0%	50.0%
Civil servant	75.0%	25.0%
Trader/businesswoman	88.2%	11.8%

Table 4. Relationship between practice grade and socio-demographic variables II.

Socio-demographic variable	Practice grade	
	Does not practise EBF	Practises EBF
Number of children had ($p<0.05$)		
First pregnancy	N/A	N/A
Had one child	87.0%	13.0%
Had 2 – 5 children	83.9%	16.1%
Had 6 – 10 children	91.8%	8.2%
Had more than 10 children	100.0%	0.0%
Monthly income ($p<0.05$)		
Less than N5 000 (\$30)	87.5%	12.5%
N5 001 (\$30) to N10 000 (\$60)	86.4.0%	13.6%
N10 001 (\$60) to N20 000 (\$120)	83.3%	16.7%
N20 001 (\$120) to N50 000 (\$300)	100.0%	0.0%
Religion ($p<0.05$)		
Christianity	100.0%	0.0%
Islam	87.2%	12.8%
Traditional religion	100.0%	0.0%
Tribe/ethnicity ($p<0.05$)		
Hausa	87.8%	12.2%
Fulani	93.5%	6.5%
Others	0.0%	100.0%
Educational status ($p<0.05$)		
None	100.0%	0.0%
Quran school only	88.4%	11.6%
Primary	82.1%	17.9%
Secondary	82.4%	17.6%
Tertiary	100.0%	0.0%

4.4. Relating Knowledge to Practice of EBF

While 54.5% of participants have adequate knowledge of EBF, only 13% actually practice it. This justifies an analysis of the relationship between knowledge and practice of EBF. Table 5 shows the cross tabulation between knowledge grade

and practice grade. This analysis helps to determine if knowledge is significantly associated with practice. Adequate knowledge is significantly associated with practice of EBF (Chi Sq.=7.477, $df=1$, $p=0.006$). However, this relationship is a weak one when further analysed with Cramer's Phi (value=0.194).

Table 5. Cross tabulation of knowledge grade and practice grade.

			Practice grade		Total
			Does not practice EBF	Practices EBF	
Knowledge Grade	Inadequate	Count	85	5	90
		% within Knowledge Grade	94.4%	5.6%	100.0%
		% within Practice grade	49.1%	20.0%	45.5%
		% of Total	42.9%	2.5%	45.5%
	Adequate	Count	88	20	108
		% within Knowledge Grade	81.5%	18.5%	100.0%
		% within Practice grade	50.9%	80.0%	54.5%
		% of Total	44.4%	10.1%	54.5%
Total		Count	173	25	198
		% within Knowledge Grade	87.4%	12.6%	100.0%
		% within Practice grade	100.0%	100.0%	100.0%

4.5. The Role of ANC

From the survey result, 101 respondents had attended ANC at least once during a previous or current pregnancy but only 15 of them practiced EBF. This signifies that the ANC attendance was not significantly associated with practice of EBF. Similarly, EBF education at ANC did not increase

tendency to practice as 87 of the 101 participants who attended ANC admitted receiving EBF education but only 13 practiced it. ANC attendance did not have a significant association with knowledge grade for EBF as a significant proportion of participants who had attended ANC did not have adequate knowledge of ANC. See Tables 6 and 7 below.

Table 6. Cross-tabulation of ANC attendance versus practice grade.

			Practice grade		Total
			Does not practice EBF	Practices EBF	
ANC attendance for current/last pregnancy	NO	Count	87	10	97
		% within ANC attendance for current/last pregnancy	89.7%	10.3%	100.0%
		% within Practice grade	50.3%	40.0%	49.0%
		% of Total	43.9%	5.1%	49.0%
	YES	Count	86	15	101
		% within ANC attendance for current/last pregnancy	85.1%	14.9%	100.0%
		% within Practice grade	49.7%	60.0%	51.0%
		% of Total	43.4%	7.6%	51.0%
Total		Count	173	25	198
		% within ANC attendance for current/last pregnancy	87.4%	12.6%	100.0%
		% within Practice grade	100.0%	100.0%	100.0%

Table 7. Cross-tabulation of EBF education at ANC versus practice grade.

			Practice grade		Total
			Does not practice EBF	Practices EBF	
If attended ANC, EBF education received?	NO	Count	12	2	14
		% within If attended ANC, EBF education received?	85.7%	14.3%	100.0%
		% within Practice grade	14.0%	13.3%	13.9%
		% of Total	11.9%	2.0%	13.9%
	YES	Count	74	13	87
		% within If attended ANC, EBF education received?	85.1%	14.9%	100.0%
		% within Practice grade	86.0%	86.7%	86.1%
		% of Total	73.3%	12.9%	86.1%
Total		Count	86	15	101
		% within If attended ANC, EBF education received?	85.1%	14.9%	100.0%
		% within Practice grade	100.0%	100.0%	100.0%
		% of Total	85.1%	14.9%	100.0%

4.6. Barriers to EBF

The failure to achieve sustainable improvements in EBF rates in several parts of the world warrants a closer look at those obstacles and barriers that prevent women from breastfeeding their infants exclusively in the first six months of life. The most common barrier identified by participants in

this survey is breast milk not being enough to meet the nutritional needs of their babies. This is similar to the findings of [29, 30]. Such women believe that breast milk is unsatisfying and that there is a need to augment with other family foods in order for the infant to get optimal growth. This barrier is closely related to the belief that the mother does not produce sufficient milk for the baby's consumption,

and both obstacles combined account for a large proportion of identified barriers to exclusive breastfeeding. Summary of

the survey is given in the figure 4 below.

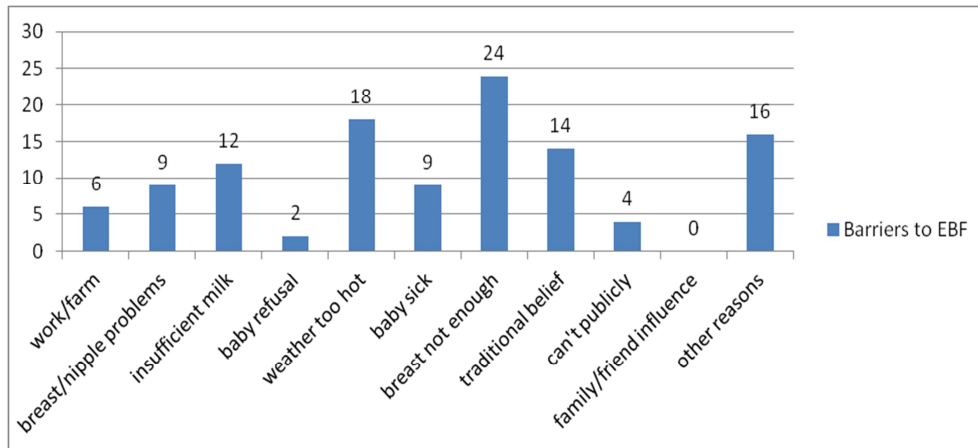


Figure 4. Barriers to EBF.

5. Conclusion

This survey provides an insight into breastfeeding knowledge and practice in typical northern Nigerian rural communities, and the findings are noteworthy. Majority of women know about good breastfeeding practices but do not practice them as a result of certain beliefs about breastfeeding the most common of which is that breast milk cannot meet the nutritional needs of the young infant and hence has to be supplemented with water, family and other foods.

The study shows that women of Ganga Gari community of Katsina state, Nigeria have an adequate knowledge of exclusive breastfeeding but do not practice it adequately. Their knowledge level is therefore not linked to the level of practice. The survey confirms what many studies have shown; EBF rates are still low and are likely to remain so unless interventions that reach deep into socio-cultural beliefs and values are designed and implemented effectively. Antenatal care can be a force for change in such women, but only if the prenatal services are designed to effectively deliver key IYCF messages in a way that is appropriate, relevant and context-specific. However, a mix of quantitative and qualitative methodology is recommended for further studies. This is due to the limitations of quantitative studies in understanding the barriers to EBF.

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