Constraints to the optimal breastfeeding practices of breastfeeding mothers in the rural communities of Arba Minch Zuria Woreda, Ethiopia: a community-based, cross-sectional study

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Abstract

Objective: The aim of this study was to identify the constraints and factors associated with breastfeeding practices.

Design: This was a community-based, cross-sectional study.

Subjects and setting: Three hundred and eighty-four breastfeeding mothers of infants aged two years and younger were randomly selected from rural communities in Arba Minch Zuria Woreda.

Outcome measures: Data were collected using structured questionnaires, and from using an observation checklist and in-depth interviews. Quantitative data from binary logistic regression were used to determine the strength of association between the independent and dependent variables using odds ratios and 95% confidence intervals. Multivariate logistic regression analysis was employed to identify predictors of the delayed initiation of breastfeeding and non-exclusive breastfeeding practices.

Results: Breastfeeding is considered to be a natural gift from God in Arba Minch Zuria Woreda. The delayed initiation therefof was common in this study. Only 57% of the mothers initiated breastfeeding within an hour of delivery. Some women rejected their colostrum as they considered it to be an expired substance capable of causing abdominal pain to their infants. The delayed initiation of breasfeeding was positively associated with a lack of education and failure to attend health education sessions. Thirty-one per cent of the mothers did not exclusively breastfeed their infant up to six months of age months. Non-exclusive breastfeeding was significantly associated with having a radio, attending antenatal care and attending health education.

Conclusion: The promotion of strong community-based networks tp ensure optimal infant and young child feeding is recommended through both governmental and non-governmental organisations.

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Introduction

There is international consensus on the fundamental importance of breastfeeding for infants' adequate growth and development, and for their physical and mental health.[1] Breast milk provides the basic nutrients needed for healthy growth and development. It is also an integral part of the reproductive process, with important implications for maternal health.[2] Artificial feeding formula is unable to replace breast milk in terms of providing basic nutrients and protection against disease.[1,2]

Globally, 80% of mothers do not conform to current exclusive breastfeeding recommendations. Seventy per cent of infants are typically supplemented with non-breast milk liquid before six months of age, often within a few weeks of birth in developing countries.[3,4]

The early cessation of breastfeeding, followed by the introduction of unhygieneic and unsound artificial feeding of infants with diluted milk products which are poor in nutrients, is common in developing countries such as Ethiopia.[2,4] With the decline in breastfeeding, there has been a shift to bottle feeding, which can be hazardous if not performed aseptically, and is inadequate in terms of nutrition owing to overdilution and exposure to infection, as the nutrient store of an infant's body is not well developed.[5,6] An infant's right to adequate food needs to be ensured, as only one third of the world's children begin breastfeeding within one hour as well as being exclusively breastfed for the first six months.[1,7]

Perceived breast milk insufficiency is the most common reason for discontinuing exclusive breastfeeding, or any type of breastfeeding in Ethiopia.[4,8] It has been demonstrated in many African studies that breast milk insufficiency, traditional beliefs, the nature of the

mother's work, lack of privacy with regard to breastfeeding, the high cost of day care, and lack of specific resources in terms of assets, act as barriers to mothers putting their knowledge of the importance of breastfeeding into practice.[1,8] Plain water is given to newborn infants as a cultural practice in some societies as a way of welcoming the infant, while the colostrum is discarded because it is considered to be unclean.[9]

Breastfeeding is nearly universal in Ethiopia. However, a large proportion of the women do not optimally breastfeed their children.[10,11] Nationally, 69% of newborn infants are put to the breast within an hour of birth, and 38% of the mothers introduce complementary feeding early.[10,12] Although breastfeeding is universal in Ethiopia, it has been shown in studies that the majority of mothers do not optimally breastfeed their infants. Understanding the factors behind suboptimal breastfeeding, and the knowledge and attitudes of the mothers is essential when designing appropriate communiqués with the intention of encouraging optimal breastfeeding behaviour.

Method

A community-based, cross-sectional study was carried out in Arba Minch Zuria Woreda from January to March 2012. Arba Minch Zuria Woreda is part of the Gamo Gofa zone which is located in the southern part of Ethiopia. Nine kebeles (administrative units) were randomly selected from a total of 31 in Arba Minch Zuria Woreda. A simple random sampling technique was used to select the mother and infant pairs from each chosen kebele. A total of 384 mothers of index children aged 0-24 months were interviewed. Ten key assistants were selected purposively to conduct in-depth interviews to capture the study participants' in-depth knowledge of infant- and young child-feeding practices. A sample size of 384 breastfeeding mothers was calculated using a single population proportion formula with a 5% margin of error, 95% confidence interval (CI) and 50% estimated prevalence of non-exclusive breastfeeding in the study area. Structured and in-depth interviews questionnaires were used in this study. In-depth unstructured interviews were utilised to generate a description of the women's knowledge, experiences and perceptions of infant feeding. The interviews were conducted by the interviewers in the participants' homes. Audiotaped records were used, with the consent of each individual. The questionnaire was pretested for its understandability by being administered to selected subjects before the data collection began. Adjustments were made to the terminology and formatting of the questionnaires based on the pretest. Based on a pretest, additional adjustments were made to the terminology, formatting of the questionnaire and other areas requiring improvement.

The data were entered in double, and checked for missing values and outliers, then analysed using SPSS®. Binary logistic regression was used to determine the strength of the association between the independent and dependent variables, using odds ratio (OR) and 95% CIs. Finally, multivariate logistic regression analysis was used to identify predictors of the delayed initiation of breastfeeding and non-exclusive breastfeeding practices.

The qualitative data were analysed using an open coding system involving note taking, coding, sorting, examining, comparing and categorising the data, and then writing up the findings. These categories of data were compared and contrasted in order to generate themes from the analysis and discussion.

For the purposes of the study, the delayed initiation of breastfeeding was defined as giving any type of food or liquid given to an infant before he or she was six months of age. Non-exclusive breastfeeding was believed to have occurred when any type of food or liquid was given to the infant before he or she had attained the age of six months.

The study was ethically approved by the Arba Minch University Ethical Review Committee. Informed verbal consent was also obtained from each study participant.

Results

The mean (± standard deviation) age of the study participants was 29 years (± 6 years). The range was from 15-47 years. Almost all of the mothers (98%) had breastfed their children at least once (Table I). It was revealed through the in-depth interviews with the mothers that the majority of them perceived breastfeeding to be a natural gift. One 27-year-old mother said: "Breastfeeding is a natural gift of God. It is the only option to give a newborn infant".

Of those who had ever breastfed, more than half (57%) had initiated breastfeeding within the first hour of delivery (Table I). One hundred and twenty (31%) of the mothers had knowledge of breastfeeding initiation within the first hour of childbirth (Table II). The qualitatitive data also showed that some of the mothers knew when to initiate breastfeeding. One 20-year-old breastfeeding mother said: "I gave breast milk to my child as soon as I gave birth, since my mother told me to do so. I knew when breastfeeding should be initiated".

However, some of the mothers said that they could not start breastfeeding within the first hour of giving birth because of lack of time and adherence to traditional ceremonies. One 25-year-old mother said: "I started breastfeeding after finishing all the traditional ceremonies".

Forty-two (11%) mothers squeezed their initial breast milk out until it turned to white milk, then discarded it, since they believed that colostrum caused disease (Table I). However 200 mothers (52%) considered colostrum to be the first stage of immunisation in the protection of their infants against disease (Table II).

It was indicated in the interviews conducted by the assistants that infants were given milk, butter, water and traditional food soon after birth. They believed that it cleansed the stomach and protected against abdominbal pain. A 25-year-old breastfeeding mother said: "Butter is used to make the stomach smooth so the child will not develop colic, and water is used to cleanse the stomach".

It was shown in the multivariate regression model that women who had no education were four times more likely to delay the initiation of breastfeeding compared to those who had received formal education (adjusted OR = 4.01, 95% CI: 1.12-14.33). Similarly, women who had not been informed of the advantages of breastfeeding were 2.5 times more likely to delay the initiation of breastfeeding than those who did have this information (adjusted OR = OR = 2.54, 95% CI: 1.23-5.56) (Table III).

Table I: Child feeding patterns in Arba Minch Zuria in 2013

Characteristics	n (%)
Ever breastfed	
Yes	377 (98)
No	7 (2)
Breastfeeding initiation	
Within one hour	220 (57)
After one hour	164 (43)
Frequency of breastfeeding	
< 8 times/day	257 (67)
≥ 8 times/day	124 (33)
Exclusive breastfeeding duration*	
0-2 months	38 (10)
3-5 months	82 (21)
0-6 months	264 (69)
Discarded colostrum	
Yes	42 (11)
No	342 (89)
Breastfed at night	
Yes	373 (97)
No	11 (3)
Provision of prelacteal feeding	
Yes	34 (9)
No	350 (91)
Types of prelactation	
Water	14 (41)
Milk	6 (18)
Fruit	8 (23)
Others**	6 (18)
Child attachment	
Not attached at all	78 (20)
Poorly attached	197 (51)
Well attached	109 (28)
Child positioning	
Poorly positioned	274 (71)
Well positioned	110 (29)

* The rates of exclusive breastfeeding at the respective time intervals were 92%, 9% and 69%, respectively
** Butter, fenugreek and rue, with soup

Approximately one fourth (25%) of the mothers reported that gave their infant complementary food before he or she had attained six months of age because he or she cried (Table II). It was shown in the in-depth interviews with the mothers that some of them did not believe that breast milk alone was sufficient for the optimal growth and development of their infant: "Since my child was too small and was not satisfied with breast milk, I gave cow's milk. My mother also encouraged me to do so".

Table II: Maternal knowledge of and attitudes towards breastfeeding in Arba Minch Zuria in 2012

Knowledge and attitudes	n (%)*
Knowledge	
Breastfeeding should be initiated within one hour of giving birth	120 (31)
Breast milk is sufficient for the infant up to six months of age	214 (56)
Colostrum is good for infant health	200 (52)
Have no information on breastfeeding initiation	100 (26)
The infant should consume breast milk at least eight times day	127 (33)
Don't know when breastfeeding should be initiated	39 (10)
Attitudes	
Believe colostrum causes disease	33 (9)
Believe water is used to "clean" the infant's stomach	14 (4)
Provide prelacteral feeds without reason	18 (5)
Giving prelacteal feeds is part of our culture	29 (8)
I gave my child additional food because he or she cried	94 (25)
Believe that prelacteal feeds help to maintain the infant's health	34 (9)

* The percentages did not add up to 100 as there was more than one response

It was demonstrated through the findings of this study that women who did not have a radio were 52% more likely to breastfeed non-exclusively (adjusted OR = 0.48 (95% CI: 0.28-0.83), compared to those who had one. Similarly, women who did not attend antenatal care sessions were 67% more likely to breastfeed non-exclusively than those who had done so (adjusted OR = 0.33, 95% CI: 0.15, 0.69).

Women who had no information on the optimum duration of exclusive breastfeeding were 79% more likely to breastfeed non-exclusively than those who had been informed in this regard (adjusted OR = 0.21, 95% CI: 0.06-0.72).

Similarly, health education on breastfeeding played a significant role in the promotion of optimal breastfeeding practices. Mothers who did not attend health education sessions provided by health extension workers were 70% more likely to breastfeed non-exclusively than those who had done so (adjusted OR = 0.30, 95% CI: 0.17, 0.51) (Table IV).

Discussion

This study showed breastfeeding to be common practice in Arba Minch Zuria Woreda. It was also considered to be a natural gift in the rural communities. However, despite this, optimal breastfeeding practices were not widely practised. This could have been owing to lack of knowledge on optimal breastfeeding practices.

Despite the national recommendation of breastfeeding initiation within the first hour of delivery, only 57% of mothers in Arba Minch Zuria Woreda did so. The late introduction of breast milk was shown to be more common in women with no education, or

Table III: Factors associated with the delayed initiation of breastfeeding in Arba Minch Zuria Woreda in 2012

Predictors	Breastfeeding initiation after one hour	Breastfeeding initiation within one hour	Crude OR (95% CI)	Adjusted OR (95% CI)
	n (%)	n (%)		
Maternal education				
Illiterate	112 (47.70)	123 (52.00)	123 (52.30)	3.64 (1.18-11.22)*
Can read and write	30 (38.00)	49 (62.00)	49 (62.00)	2.45 (0.75-8.02)
Primary school	18 (36.70.00)	32 (64.00)	31 (63.30)	2.32 (0.65-7.76)
Secondary school and higher	4 (20.00)	16 (80.00)	16 (80.00)	1
Caregivers' age (years)				
15-19	14 (50.00)	14 (50.00)	0.60 (0.20-1.82)	0.74 (0.23-2.38)
20-24	95 (41.10)	136 (58.90)	0.42 (0.18-0.20)*	0.50 (0.20-1.27)
25-29	39 (39.00)	61 (61.00)	0.38 (0.16-0.99)*	0.46 (0.18-1.20)
≥ 30	15 (62.50)	9 (37.50)	1	1
Paternal education				
Illiterate	89 (48.90)	93 (51.10)	1.55 (0.62-3.93)	-
Can read and write	22 (29.30)	53 (70.70)	0.68 (0.26-1.93)	-
Primary school	44 (41.90)	61 (58.10)	1.17 (0.45-3.07)	-
Secondary school and higher	8 (38.10)	13 (61.90)	1	-
Have a radio				
Yes	78 (42.39)	106 (57.61)	0.97 (0.64-1.44)	-
No	86 (43.20)	113 (56.80)	1	
Have a television				
Yes	11 (34.40)	21 (65.60)	0.67(0.32-1.46)	-
No	153 (45.60)	198 (56.50)	1	-
Birthplace				
Home	158 (42.70)	212 (57.30)	0.87(0.29-2.63)	-
A health centre	6 (46.20)	7 (53.80)	1	
Attended antenatal care				
Yes	140 (43.88)	179 (56.12)	1.30 (0.75-2.25)	-
No	24 (37.50)	40 (62.50)	1	-
Received information on infant feeding				
Yes	151 (44.50)	188 (55.50)	1.92 (0.96-3.77)	2.54(1.23-5.56)*
No	13 (29.50)	31 (70.50)	1	1
Delivery assistant				
Traditional birth attendant	83 (41.90)	115 (58.10)	0.86 (0.56-1.33)	-
Health extension worker	8 (33.30)	16 (66.70)	0.60 (0.24-1.49)	-
Nursing and midwifery	7 (43.75)	9 (56.25)	0.94 (0.30-2.32)	-
Relative	66 (45.50)	79 (54.50)	1	-
Maternal occupation				
Housewife	107 (40.22)	159 (59.88)	0.71 (0.46-1.09)	-
Farmer	57 (48.70)	60 (51.30)	1	-
Had knowledge of exclusive breastfeeding**				
Yes	148 (41.11)	212 (58.89)	0.35 (0.15-0.84)*	0.41(0.16-1.07)
No	16 (66.70)	8 (33.30)	1	1

CI: confidence interval, OR: odds ratio
* Significant at p-value < 0.05
** Knew about the optimum duration and advantages of exclusive breastfeeding

those who had no formal education using the multivariate regression model, similar to findings from Turkey.[13] The findings of the qualitative data also showed that promoting the advantages of breastfeeding through education resulted in a significant contribution to the timely initiation of breastfeeding. The qualitative data likewise showed that maternal knowledge of the importance of breastfeeding played a significant role in ensuring optimal breastfeeding practices.[14-16]

In this study, some of the women (11%) squeezed their first milk out and discarded it because of traditional beliefs. This figure is relatively low compared to the national figure of 38% of mothers who did not provide colostrum to their newborn infants. Some women consider colostrum to be immature breast milk; likely to cause abdominal pain. Mothers having information on the benefits of breastfeeding has been shown in studies to play a significiant role in ensuring optimal breastfeeding practices.[17] Despite national efforts to disseminate information on the importance of optimal breastfeeding, 32% of women in the rural communities of Arba Minch Zuria Woreda did not breastfeeding exclusively for the first six months of their infants' lives. This finding is relatively low when compared to the 2005 and 2011 Ethiopia Demographic and Health Survey reports. [12,18,19] However, a large proportion of the mothers (56%) reported that they knew that breast milk was sufficient for their infants' nutritional needs up to six months of age. However, a significant number introduced complementary food before this time in the belief that breast milk alone was insufficient in this regard. It was also shown in studies from South Africa and Gambia that women gave their infants additional food in the belief that breastfeeding alone would not satisfy them in terms of satiating their hunger or to putting them to sleep.[20,21]

The study findings indicated that advertisements in the media, such as those on the radio, played a significant role in the promotion of exclusive breastfeeding. Radio programmes reach rural populations and deliver key messages on infant-feeding practices, especially on breastfeeding and complementary feeding.

Table IV: Factors associated with non-exclusive breastfeeding practices in Arba Minch Zuria Woreda in 2012

Predictors	Not exclusively breastfed	Exclusively breastfed	Crude OR (95% CI)	Adjusted OR (95% CI)
	(n, %)	(n, %)		
Maternal education				
Illiterate	100 (42.60)	135 (57.40)	6.67 (1.51- 29.39)*	4.98 (0.87-28.42)
Can read and write	18 (22.80)	61 (77.20)	2.67 (0.56-12.55)	2.45 (0.42-14.28)
Primary school	9 (18.00)	41 (82.00)	1.98 (0.39-10.08)	1.17 (0.19-7.06)
Secondary school and higher	2 (10.00)	18 (90.00)	1	
Caregivers' age (years)				
< 19	9 (32.10)	19 (67.90)	0.47 (0.15-1.46)	-
19-23	73 (31.60)	158 (68.40)	0.46 (0.20-1.08)	-
24-28	35 (34.70)	66 (65.30)	0.53 (0.22-1.30)	-
≥ 29	12 (50.00)	12 (50.00)	1	-
Paternal education				
Illiterate	78 (42.90)	104 (57.10)	2.4 (0.84-6.83)	-
Can read and write	20 (26.30)	56 (73.70)	1.14 (0.37-3.53)	-
Primary school	26 (24.80)	79 (75.20)	1.05 (0.35-3.16)	-
Secondary school and higher	5 (23.80)	16 (76.20)	1	-
Have a radio				
Yes	38 (20.50)	147 (79.50)	0.31 (0.20-0.48)	0.48 (0.28-0.83)**
No	91 (45.70)	108 (54.30)	1	
Have a television				
Yes	6 (18.80)	26 (81.20)	0.43 (0.17-1.07)	
No	123 (34.90)	229 (65.10)	1	
Attended antenatal care				
Yes	92 (28.80)	228 (71.20)	0.29 (0.17-0.51)*	0.33 (0.15-0.69)**
No	37 (57.80)	27 (42.20)	1	
Used family planning				
Yes	104 (30.60)	236 (69.40)	0.34 (0.18-0.64)*	
No	25 (58.80)	19 (43.20)	1	
Delivery assistant				
Traditional birth attendant	66 (33.30)	132 (66.70)	0.82 (0.52-1.28)	
Health extension worker	6 (25.00)	18 (75.00)	0.55 (0.20-1.46)	
Nursing and midwifery	2 (11.80)	15 (88.20)	0.22 (0.05-0.99)	
Relative	55 (37.90)	90 (62.10)	1	
Breastfeeding education				
Received it	63 (23.60)	204 (76.40)	0.24 (0.15-0.38)	0.30 (0.17-0.51)**
Did not receive it	66 (56.40)	51 (43.60)	1	
Had knowledge of exclusive breastfeeding* **				
Yes	109 (30.30)	251 (69.70)	0.09 (0.03-0.26)	0.21 (0.06-0.72)**
No	20 (83.30)	4 (16.70)	1	
Discarded colostrum				
Yes	19 (45.20)	23 (54.80)	1.74 (0.91-3.33)	
No	110 (32.20)	232 (67.80)	1	

CI: confidence interval, OR: odds ratio
* Significant at p-value < 0.05
** Significant at p-value < 0.01
*** Knew about the optimum duration and advantages of exclusive breastfeeding

It has been demonstrated in studies from different countries, like Bolivia and Tanzania, that the mass media plays a significant role in increasing mothers' knowledge of optimal breastfeeding practices.[21,22]

Maternal health services, like antenatal care, were significantly associated with exclusive breastfeeding practices, in this study. This might have been the result of key messages on infant feeding being delivered to pregnant women by healthcare workers during the mothers' attendance at antenatal care. It has been reported in different studies that maternal health services significantly contribute to the promotion of optimal infant-feeding practices.[20,23] Maternal knowledge of exclusive breastfeeding was also found to be a predictor of exclusive breastfeeding practices in this study. It was indicated through the in-depth interviews with mothers that the health education provided by health workers played a significant role in the promotion of optimal infant-feeding practices. Findings from a study performed in Bahir Dar, in north-west Ethiopia, also revealed that infant-feeding counselling contributed significantly to exclusive breast-feeding practices.[23]

Conclusion

Our results suggest that a large proportion of mothers did not optimally breastfeed their children. Both the qualitative and quantative data provided clues that socio-economic and traditional beliefs played a significant role in determining infant-feeding practices. The delayed initiation of breastfeeding was significantly associated with maternal education and mothers' knowledge of optimal breastfeeding practices. Having a radio, receiving antenatal care, and having knowledge of exclusive breastfeeding was significantly associated with the practice of non-exclusive breastfeeding. The promotion by non-governmental and governmental organisations of a strong, community-based support network to ensure optimal infant and young child feeding is recommended in this rural community. Health workers at grassroots level, and especially health extension workers, need to provide counselling and support relating to optimal infant-feeding practices.

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