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Determinants of Early Weaning of Infants Below Six Months Among Lactating Mothers at Wajir County Referral Hospital

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Abstract

Breastfeeding is one of the most important determinants of child survival, birth spacing and the prevention of childhood infections. The beneficial effects of breastfeeding depend on its initiation, duration and the age at which the breastfed child is weaned. Little information exists on breastfeeding and infant feeding practices in sub-Saharan Africa, Kenya included. The aim of this study was therefore to asses weaning practices that influencing lactating mothers to early weaning of infants below six months. A cross sectional study was conducted in Wajir County Referral Hospital. A total of 100 respondents were included in the study. All mothers coming to immunization clinics for their children's immunization six months and below were interviewed. The information about subjects socio-demography knowledge, cultural believes and weaning practices during breast feeding were collected from the mother on pre designed and pretested questionnaires during the month of November 2014 to March 2015 over a period of five months. A total of 100 lactating mothers were included in the study. Majority of the subjects (49%) were in the age group 21-31 years.

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Majority of the lactating mothers (40 %) introduced complementary or weaning foods to their infants from 3-4 month of life, while 31 % and 27.0 % of them introduce complementary or weaning foods to their infants from 5-6 months and 1-2 months of life respectively. Most common cause of early weaning were inadequate milk from mothers breast (42%). On cultural believes, majority 57% blames the mother for lack of enough milk while 21% fear their breast becoming shapeless. This study has shown that majority of lactating mothers commence complementary feeding prematurely and the concept of exclusive breastfeeding has continue to meet a lot of resistance from all social class of lactating mothers in Wajir county. This study recommends the development of interventions targeting women, health care workers and policy makers aimed at bridging the gap between current breastfeeding practices especially in the rural areas and adhere to recommendations by World Health Organization.

***Keywords**:* Weaning; knowledge; practices; lactating mothers; infants.

1. Introduction

After the birth of the baby, its health depends on the nurturing practice adopted by the family [1]. The ideal food for the young infant is human milk which has the specific characteristics that match the growing infants' nutritional requirements. According to WHO, exclusive breastfeeding for the first six months starting from the first hour of life is critical for a child's growth and development. Any damage caused by nutritional deficiencies during this period could lead to impaired cognitive development and compromised educational achievement. Exclusive breastfeeding also protect the infant from infectious and chronic diseases [2]. Poor breastfeeding and complementary feeding practices, together with high rates of morbidity from infectious diseases are the prime proximate causes of malnutrition in the first two years of life [3]. Breastfeeding confers both short-term and long-term benefits to the child and it reduces infections and mortality among infants, improves mental and motor development including protection against obesity and metabolic diseases later in the life course [4].

Several studies have shown that breastfeeding has decline worldwide in recent years especially in urban areas [1]. According to the United Nations Children's Fund (UNICEF), exclusive breastfeeding in the first six months of life can reduce mortality rates by 13% in children less than five years in developing countries while those promoting optimal complementary feeding could prevent another 6% of deaths in countries with high mortality rates [5]. Poor breastfeeding and complementary feeding practices have been widely documented in the developing countries. Of the 39% of infants in the developing countries, 25% in Africa are exclusively breastfed for the first six months while 6% of infants in developing countries are never breastfed [6].

In Kenya, according to Kenya Demographic and Health Survey 2011-2012, 32% of children under the age of six months are exclusively breastfed, improving from only 13% in 2003 [5]. As a result, substantial levels of child malnutrition and poor child health and survival have been documented in Kenya [1]. Deriving from the broad principles of the joint WHO and UNICEF's Global Strategy for infant and young child feeding developed in 2002, the Ministry of Public Health and Sanitation, 2007-2010), through the government of Kenya implemented a strategy aimed at improving infant and young child feeding practices in Kenya [1].

A number of studies have shown that in developing countries, urban slums and rural areas present unique challenges with regards to child health and survival as demonstrated in [9] according to [10-13]. Majority of slums in sub-Saharan Africa are expanding at a fast rate and the majority of urban residents now live in slum settlements [5]. These slums are characterized by poor environmental sanitation and livelihood conditions [13]. Contrary to the long-held belief that urban residents are advantaged with regards to health outcomes, urban slum dwellers tend to have very poor health indicators [13]. For example, in Kenya, slum children are reported to be frequently sick and have a higher mortality rates than any other sub-group in Kenya including the rural areas as observed in [5,13]. In view of this, infants born to mothers that reside in the urban slums may be exposed to sub-optimal breastfeeding and complementary feeding practices.

Various factors associated with inadequate breastfeeding and complementary feeding practices have been documented in various studies as shown by [9-11]. These include maternal characteristics such as age, marital status, occupation, education level, neonatal and maternity health care, health education exposure, socio-economic status, cultural believes, area of residence, and the child's characteristics such as birth weight and method of delivery as demonstrated in [10]; according to [5,4].

2. Materials and Methods

This study is a cross-sectional descriptive study conducted from November 2014 to March 2015 among breast feeding mothers attending Wajir County Referral Hospital in Kenya. This area is mainly inhabited by community whose main occupation is nomadic life. A sample size of 100 was obtained using formula by [14] with an exclusive breastfeeding prevalence of 32 % from a national survey as explained in [15].

The interviewer administered questionnaire was pre-tested in order to obtain information with respect to maternal characteristics (age, educational status, occupation, marital status), knowledge on weaning, type of weaning foods, preference for weaning foods, infant feeding style, frequency of feeding baby with weaning foods, period of introduction of weaning foods and cultural believes associated with weaning practices.

3. Ethical approval

Ethical approval for this study was obtained from the Ethics and Research Committee from the National Council of Science Technology and Innovation Kenya.

4. Data analysis

Data generated were analyzed using SPSS version 21 statistical software package. Proportions and tables were used in data analysis. This was followed by a chi-square analysis. The level of significance was set at $P< 0.05$.

5. Limitations

The findings obtained could not be generalized because the sample size and also only those that visited the health facility participated in the study. However we were able to achieve the objectives of the study in relation to the health facility.

6. Result

The socio-demographic characteristics of lactating mothers interviewed for the study are shown in Table 1.

Table 1: Socio-demographic characteristics of lactating mothers

Age of the weaning mothers	Frequency (no.)	Percentage
< 20 years	15	15
21-31	49	49
31-40	26	26
> 40	10	10
Marital status		
Single	0	0
Married	70	70
Divorced	20	20
Widowed	10	10
Education status		
No formal education	13	13
Primary	26	26
Secondary	40	40
College	13	13
University	8	8
Occupation		
Employed	24	24
Unemployed	39	39
Self employed	37	37

Of 100 lactating mothers studied, 49% were in the age range of 21-31 years, 26% and 15% in the range of 31-49 and less than 20 years respectively. Majority 61% of the lactating mothers had attained secondary and tertiary education, while 26% and 13% of them had primary and nil formal education respectively. In addition, (70 %) of the nursing mothers were married, followed by 20% of them who were divorced, 10% widowed and none were single. On occupation status, (24 %) were employed, 39% and 37% unemployed and self employed respectively.

The weaning practices of the lactating mothers who participated in the study are shown in Table 2.

Table 2: Weaning practices among lactating mothers

Months of weaning foods	Frequency (no.)	Percentage
Introduction		
1-2 months	27	27
3-4 months	40	40
5-6 months	31	31
> 6 months	2	2
Knowledge on weaning		
Foods		
Yes	82	82
No	18	18
Definition of weaning		
Foods		
Know	84	84
Don't know	16	16
Preferred weaning foods		
Carmel milk	16	16
Mashed potatoes	29	29
Porridge	13	13
Powdered milk	42	42
Reasons for early weaning		
Don't have enough milk	42	42
Make the baby gain weight	15	15
Working	20	20
Advice from family members	5	5
Lack of knowledge	13	13
HIV status	5	5
Cultural believes on weaning		
Colostrum bad for the child	10	10
Long shapeless breast	21	21
Breast milk not enough	57	57
Tiresome	12	12
Frequency of weaning		
Once daily	10	10
Twice daily	20	20
Three times daily	30	30
Several times daily	40	40
Infant feeding method		
Using hand	10	10
Using plate and spoon	30	30
Feeding bottle	60	60

Most of the nursing mothers (40%) introduced complementary or weaning foods to their infants from 3-4 months of life, while (31%) and 27% of them introduce complementary or weaning foods to their infants from 5-6 months and after 1-2 months of life respectively while 2% introduces the weaning foods after 6 months. On the type of weaning foods given to the infants, 42% of the nursing mothers had preference for powdered milk, while 29%, 16% and 13 % of them had preference for mashed potatoes, carmel milk and porridge respectively. In addition, the reasons that makes them prefer early weaning, 42% of the nursing mothers do not have enough milk for the infant, 15% of them give supplementary foods so as to increase the weight of the infant while 13%

and 5% stated that they no knowledge on when to wean the infants and HIV positive respectively. Of the study subjects, some of the cultural believes associated with early weaning were inadequate milk 57%, flatten breast 21% while 10% stated that colostrums is bad for the infant and 12% as being tired. On the frequency of weaning, 40% of the nursing mothers fed their infants several times daily with weaning foods, while 30%, 20% and 10% of them fed their infants three times daily, twice daily and once daily with weaning foods respectively. Over half 60%) of the breast feeding mothers fed their infants using feeding bottle, while 30% and 10% plate and spoon and hand respectively.

According to age distribution in relation to weaning practices of the lactating mothers, the results are shown in Table 3.

Table 3: Age distribution among lactating mothers in relations to weaning practices

Months of weaning foods	< 20 years	21-31 years	31-40 years	> 40 years	Total
Introduction					
1-2 months	6	13	5	3	27
3-4 months	5	20	13	2	40
5-6 months	4	16	7	4	31
> 6 months	0	0	1	1	2
Total	15	49	26	10	100
$\chi2 = 8.84$ df = 9 p = 0.45					
Preferred weaning foods					
Carmel milk	5	3	0	7	15
Mashed potatoes	7	18	10	14	49
Porridge	2	6	3	15	26
Powdered milk	2	2	0	6	10
Total	16	29	13	42	100
$\chi2 = 19.7$ df =12 p =0.07					
Feeding frequency of weaning foods					
Once daily	1	5	3	6	15
Twice daily	6	9	17	17	49
Three times daily	2	4	8	12	26
Several times daily	1	2	2	5	10
Total	10	20	30	10	100
	$\chi2 = 4.27$	df =9 p =0.89			
Infant feeding method					
Using hand	1	5	2	2	10
Using plate and spoon	3	13	11	3	30
Feeding bottle	11	31	13	5	60
$\chi2 = 4.45$ df = 6 p =0.62					
Cultural believes					
Colostrum not good for the child	2	4	3	1	10
Breast long and shapeless	4	7	6	4	21
Inadequate milk from breast	5	34	14	4	57
Tiresome	4	4	3	1	12
		$\chi2 = 10.12$	df =9	p =0.34	

The associations between the ages of the nursing mothers and the month of introducing weaning foods, the preference for weaning foods, frequency of feeding infants and infant feeding style and the with weaning foods including cultural believes, were found to be statistically insignificant (P>0.05). On the relationship between marital status and the weaning practices of the breastfeeding mothers, the results are shown in Table 4.

Table 4: Marital status among lactating mothers in relations to weaning practices

Months of weaning foods Introduction	Single	Married	Divorced	Widowed	Total
1-2 months	0	19	8	0	27
3-4 months	0	25	7	8	40
5-6 months	0	24	5	2	31
> 6 months	0	2	0	0	2
Total	0	70	20	10	100
		$\chi2$ =10.12 df =6 p =0.12			
Preferred weaning foods					
Carmel milk	0	12	4	0	16
Mashed potatoes	0	22	5	2	29
Porridge	0	10	2	1	13
Powdered milk	0	26	9	7	42
Total	0	70	20	10	100
		$\chi2$ = 6.47 df = 8 p = 0.59			
Frequency of weaning					
Once daily	0	7	2	1	10
Twice daily	0	15	3	2	20
Three times daily	0	19	8	3	30
Several times daily	0	29	7	4	40
			$\chi2$ = 1.34 df = 6 p =0.97		
Infant feeding method					
Using hand	0	8	2	0	10
Using plate and spoon	0	20	6	4	30
Feeding bottle	0	42	12	6	60
Total	0	70	20	10	100
			$\chi2$ =1.52 df = 4 p = 0.82		
Cultural believes					
Colostrum not good for the child	0	7	2	1	10
Breast long and shapeless	0	14	4	3	21
Inadequate milk from breast	0	41	11	5	57
Tiresome	0	8	3	1	12
			$\chi2$ =0.76 df = 6 p = 0.99		

The associations between the marital status of the nursing mothers and the month of introducing weaning foods, preference for weaning foods, frequency of feeding the infants, infant feeding style and cultural believes were found to be statistically insignificant (P<0.05. On educational status in relation to weaning practices of the lactating mothers, the observations are shown in Table 5.

There was no significant different between the educational status of the nursing mothers and the month of introducing weaning foods, the preference for weaning foods, frequency of feeding, infant feeding style with weaning foods including cultural believes($P<0.05$). The occupation in relation to weaning practices of the breastfeeding mothers, the results are shown in Table 6.

Table 5: Education status among lactating mothers in relations to weaning practices

Months of weaning foods Introduction	No formal education	Primary	Secondary	College	University	Total
1-2 months	5	11	7	4	0	27
3-4 months	7	7	15	4	4	40
5-6 months	0	7	18	5	4	31
> 6 months	1	1	0	0	0	2
Total	13	26	40	13	8	100
			$\chi2 = 18.56$ df = 12 p = 0.10			
Preferred weaning foods						
Carmel milk	3	4	8	0	0	16
Mashed potatoes	4	7	12	5	1	29
Porridge	1	5	5	1	1	13
Powdered milk	5	10	15	6	6	42
Total	13	26	40	13	8	100
			$\chi2 =12.09$ df = 16 p = 0.74			
Frequency of weaning						
Once daily	1	3	3	2	1	10
Twice daily	1	8	6	2	3	20
Three times daily	6	6	10	4	4	30
Several times daily	5	9	21	5	0	40
	13	26	40	13	8	100
			$\chi2 = 13.08$ df = 12 p = 0.36			
Infant feeding method						
Using hand	1	3	3	1	2	10
Using plate and spoon	1	10	12	6	1	30
Feeding bottle	11	13	25	6	5	60
Total	13	26	40	13	8	100
			$\chi2 = 9.19$ df = 12 p = 0.33			
Cultural believes						
Colostrum not good for the child	0	3	4	3	0	10
Breast long and shapeless	4	8	4	3	2	21
Inadequate milk from breast	8	13	24	6	6	57
Tiresome	1	2	8	1	0	12
Total	13	26	40	13	8	100
			$\chi2 = 15.50$ df = 12 p = 0.33			

While the associations between the occupation of the nursing mothers and the month of introducing weaning foods, the infant feeding style and the frequency of feeding infants with weaning foods were found to be

statistically insignificant (P>0.05); the associations between the occupation of the breastfeeding mothers and the cultural believes associated with weaning practices was found to be statistically significant (P<0.05). The contributing reasons among lactating mothers in relations to weaning practices interviewed are shown in Table 7.

Table 6: Occupation among lactating mothers in relations to weaning practices

Months of weaning foods Introduction	Employed	Unemployed	Self employed	Total
1-2 months	11	7	9	27
3-4 months	8	19	12	40
5-6 months	5	12	14	31
> 6 months	0	1	1	2
Total	24	39	36	100
		$\chi2 = 11.39$ df = 12 p = 0.50		
Preferred weaning foods				
Carmel milk	4	5	7	16
Mashed potatoes	7	10	12	29
Porridge	1	8	4	13
Powdered milk	12	16	13	42
Total	24	39	36	100
		$\chi2 = 9.95$ df = 16 p = 0.87		
Frequency of weaning				
Once daily	1	7	2	10
Twice daily	4	5	11	20
Three times daily	10	11	9	30
Several times daily	9	16	15	40
Total	24	39	37	100
		$\chi2 = 12.96$ df = 12 p = 0.37		
Infant feeding method				
Using hand	1	6	3	10
Using plate and spoon	8	9	13	30
Feeding bottle	15	25	21	60
Total	24	39	37	100
		$\chi2 = 7.46$ df = 8 p = 0.49		
Cultural believes				
Colostrum not good for the child	2	1	7	10
Breast long and shapeless	7	4	10	21
Inadequate milk from breast	13	31	13	57
Tiresome	2	3	7	12
Total	24	39	37	100
		$\chi2 = 27.03$ df = 12 p = 0.008		

Table 7: Contributing reasons among lactating mothers in relations to weaning practices

Months of weaning foods introduction	Occupation	Lack of knowledge	HIV status	No enough breast milk	Total
1-2 months	9	5	0	13	27
3-4 months	10	13	4	13	40
5-6 months	11	7	1	12	31
>6 months	0	0	0	2	2
Total	30	25	5	40	100
		$\chi2 = 9.73$ df = 9 p = 0.37			
Preferred weaning foods					
Carmel milk	2	6	2	6	16
Mashed potatoes	4	10	0	15	28
Porridge	8	1	0	4	13
Powdered milk	16	8	3	15	42
Total	30	25	5	40	100
		$\chi2 = 20.09$ df = 12 p = 0.07			
Frequency of weaning					
One daily	3	1	2	4	10
Twice daily	6	4	0	10	20
Thrice daily	14	4	1	11	30
Several times daily	7	14	2	15	40
Total	30	23	5	40	100
		$\chi2 = 17.51$ df = 9 p = 0.04			
Infant feeding method					
Using hand	6	1	0	3	10
Using plate and spoon	3	8	1	18	30
Feeding bottle	21	16	4	19	60
Total	30	25	5	40	100
		$\chi2 = 13.79$ df = 6 p = 0.03			
Cultural believes					
Colostrums bad for the child	3	3	1	3	10
Long and shapeless breasts	8	4	0	9	21
No enough breast milk	18	18	3	18	57
Tiresome	1	0	1	10	12
Total	30	2	4	40	100
			$\chi2 = 15.53$ pf=9 p=0.08		

While the associations between the reasons that contribute to early weaning by the nursing mothers and the month of introducing weaning foods including preferred weaning foods was statistically insignificant (P>0.05) , the associations between the reasons that contribute to early weaning of the nursing mothers and frequency of weaning foods and infant feeding method was found to be statistically significant (P<0.05). However, there was no significant different between the reasons for early weaning and cultural believes (p P>0.05).

7. Discussion

The World Health Organization recommends that breastfeeding be initiated within one hour of birth. Early initiation of breastfeeding provides benefits for both the baby and the mother. The Baby Friendly Hospital Initiative (BFHI) was designed to promote early initiative of breastfeeding, preferably immediately after birth and initiation of breastfeeding within one hour of birth was one of the ten steps of successful breastfeeding according to [16,17]. Despite the universal recommendation that infants be exclusively breastfed from birth to six months of age, only 39% of newborns in the developing world are put to the breast within one hour of birth and about 37% of infants under six month of age are exclusively breastfeed as mentioned earlier by [5,16]. Poor parental adherence to exclusively breast feeding and premature complementary feeding is common in many developing countries with high rates of morbidity from infectious diseases and proximate causes of malnutrition in the first two years of life as explained in [5,17].

In this study, most (40%) of the nursing mothers introduced weaning foods to their infants between the ages of 3 to 4 months. This study is similar to observation by 18 Mohoshina et. al., 2012) who observed that continue breastfeeding theirs infants and wean them within 6 months of life. This observation is similar to previous studies conducted in rural Kenya, Malawi and Uganda where complimentary foods were initiated too early as mentioned earlier [5]. However, this study differs from an observation by [4] who observed that 52.7% of the lactating mothers start weaning their infants between 4-6 months. Also this study disagrees with observation of [19] in rural Malawi, where weaning foods were introduced at the median age of 2.5 months as was observed by [19]. The trend in the present study though encouraging when compared to the report of [19], should be improved with appropriate health education interventions.

In the present study majority 49%, 26% 15% and 10% of lactating mothers uses mashed potatoes, porride, carmel milk and powdered milk as weaning foods respectively. This study observed that most weaning foods is mainly carbohydrates and it agrees with that of [4] who observed that weaning foods were largely carbohydrates. Although these weaning foods are cheap and readily available, studies have observed that the energy density and nutritive value of local weaning foods in many developing countries is suboptimal as demonstrated earlier by [4]. In addition, majority of the nursing mothers studied preferred home-prepared weaning foods. Such preference should be encouraged as the WHO/UNICEF advice that home-prepared weaning foods are socioeconomically more acceptable for families and communities because it eliminates the importation of expensive commercially-prepared weaning foods as demonstrated by [20]. In addition, WHO/UNICEF also advocates that nursing mothers should be encouraged to feed their infants with locally available home-prepared foods which contain calories, proteins, minerals and vitamins. In addition, to encourage lactating mothers to include more nutritive foods to infant weaning foods.

The present study also observed that majority (60%) of the lactating mothers fed their infant using feeding bottle. This practice is also encouraging as evidence have shown that many nursing mothers in developing countries during the weaning period do not maintain high standard of personal hygiene and therefore expose their babies to infections. WHO/UNICEF warns that one of the main problem of infections in infant feeding centers around the dangers inherent in the use of feeding bottles. Feeding infants with cup/plate and spoon had

in no little way helped to reduce the incidence of diarrheal disease among infants during the weaning period as explained by [20].

In relation to cultural believes, the study observed that majority (57%) of the lactating mothers starts early weaning because the breast does not produce enough milk. This observation is similar to a study by [21] who found less secretion of breast milk as the main cause of early weaning. Reasons given for not feeding colostrum to newborns included the traditional belief that colostrums is dirty because of the yellow color. This finding agrees with that of [22] who observed that the colostrums was dirty, indigestible and that children will suffer from stomach ache. In addition some mothers considered colostrum to be cheesy and breast milk that had been produced late in the mother's pregnancy and had no nutritional value as explained by [23]. Though there is need to promote exclusive breastfeeding, vigorous campaign is required to improve the counseling skills of community workers in order not only maternal caregivers, but also other family members, particularly husbands and paternal grandmothers, taking into account the social and cultural situation in rural Kenya.

8. Conclusion

The study has shown that a sizeable number of nursing mothers commence complementary feeding prematurely indicating poor adherence to WHO recommendations for breastfeeding and infants feeding practices. Intervention and further research should pay attention to factors such as cultural practices, access to and utilization of health care facilities, child feeding education and family planning.

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