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Factors Influencing Exclusive Breastfeeding among Mother with Infant Age 0-6 Months

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Abstract: ***Purpose: The health benefits of exclusive breastfeeding (EBF) on survival, growth and development of a child as well as health and wellbeing of a mother are well documented. The purpose of this study to determine factors affect exclusive breastfeeding practice. Objective:-The aimed of this study to identify the rate of exclusive breastfeeding and the factors influencing its practice among infants aged 0-6 months. Material and Methods: 244 mothers with infant's 0-6monthsold were interview at Abu Said South Administrative Unit Omdurman Locality Khartoum State-Sudan. Results: The rate of continuous exclusive breastfeeding since birth was 38.0% while the rate based on 24 hour recall was 56.7%. In univariate analyses, infant age and infant morbidity, maternal morbidity, maternal breast health and maternal knowledge on breastfeeding issues had significant associations with exclusive breastfeeding. Maternal knowledge aspects included; mothers correct knowledge on duration of exclusive breastfeeding (P=0.005) and P<0.001); In the logistic regression analyses, infant morbidity (P=0.01) for continuous EBF since birth and (P=<0.01) for EBF based on 24 hour recall was retained as the strongest predictor of exclusive breastfeeding.. Exclusive breastfeeding rate in Abu Said South Administrative unit Omdurman Locality Sudan was below the level recommended by WHO (90%) although higher than the Sudan national rate (41%). Conclusions: The study findings indicated that infant morbidity and maternal breast health are important factors to consider in the messages on the promotion of exclusive breastfeeding.***

Keywords: Maternal, Infant health, Mortality, Breastfeeding, Exclusive, Sudan

1. Introduction

Breastfeeding is an unequalled way of providing ideal nutrition for the healthy growth and development of infants. The global public health recommendation is that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health (**1**).

Exclusively breastfed (EBF) means giving only breast milk to the infants, without mixing it with water, other liquids, tea, herbal preparations or food in the first six months of life, with the exception of vitamins, minerals or medicines (**2**).

Exclusive Breastfeeding for the first six months of an infant's life is a cost effective intervention in saving children's lives and it is recommended by the WHO (**2**).

(EBF) infants obtain most of the nutrients required to support growth until six months. Vitamin D which is insufficient in breast milk is supplemented by exposure to sunlight for the skin to synthesize it while iron and zinc are supplemented by prenatal stores (3).Exclusive breastfeeding in the first six months of life stimulates babies' immune systems and protects them from diarrhea and acute respiratory infections, two of the major causes of infant mortality in the developing world and improves their responses to vaccination (4).Exclusive breastfeeding during the initial months of life and continued breastfeeding through at least the first year of life is associated with substantial reduction in the burden of infections (5) (6) (7). Exclusive breastfed infants have been shown to have lower rates of acute respiratory infections and diarrhea to have better neuro-developmental outcomes and have better physical growth compared to mixed or non-breastfed infants.(7)

Breastfeeding reduces the mother's risk of fatal postpartum hemorrhage, the risk of breast and ovarian cancer, and of anemia, and by spacing births, breastfeeding allows the mother to recuperate before she conceives again. In many Sub-Saharan Africa societies, exclusive breastfeeding is considered by far the best feeding option for women of unknown HIV status and for most HIV positive mothers, although it is challenged by low acceptability and feasibility(8).

However in all regions the percentage of infants under six months receiving the benefits of exclusive breastfeeding is less than 50% (9).

In the developing world, less than 40 % of infants under 6 months old receive the benefits of exclusive breastfeeding. The rate is particularly low in Africa, where less than one third of infants under 6 months old are exclusively breastfed (10).

1.1Regional Prevalence of EBF

In Sudan mortality rates of infants and children younger than five years are high (infant mortality rates 57.9 % per 1000 live births and death rates of children younger than five years is 55.64 % per 1000 live births respectively) while the prevalence of EBF among infants below six months is low (41%) Sudan (11).

There has been a major increase in exclusive breast feeding in 19 African countries including Rwanda (88%), Tanzania (41%), Ghana (63%), Benin(70%),Bangladesh (64%), Ethiopia (49%) , and Malawi (57%) among others.(12) (13).Countries with low practice of exclusive breastfeeding rates include Chad (2%), Cote d'Ivoire (4%), Gabon (6%), Kenya (32%), and south Sudan (36%) among others (14).

Studies have identified various factors that influence breastfeeding practices such as inadequate knowledge of the health benefits of breastfeeding (15)(16); inadequate antenatal counseling on breastfeeding (17) and belief that

breast milk is insufficient (18).A range of maternal and child health attributes such as marital status, economical status and child age also influence the practice of exclusive breastfeeding (19).

In Sudan as well as in the targets population and in developing countries children are suffered from high risk of death due to poor infant feeding and malnutrition. Nearly all women can breastfeed if they are supported to be confident and aware of good techniques and promotion of practices. In Sudan the determinants of exclusive breast feeding especially in resource-poor settings have not been fully investigated. This study therefore obtained information which would lead to a better understanding of factors influencing exclusive breastfeeding practice in Abu Said South Administrative Unit, Omdurman locality, Sudan.

1.2. Conceptual framework for the study

This study adopted WHO conceptual framework on factors associated with exclusive breastfeeding practices.

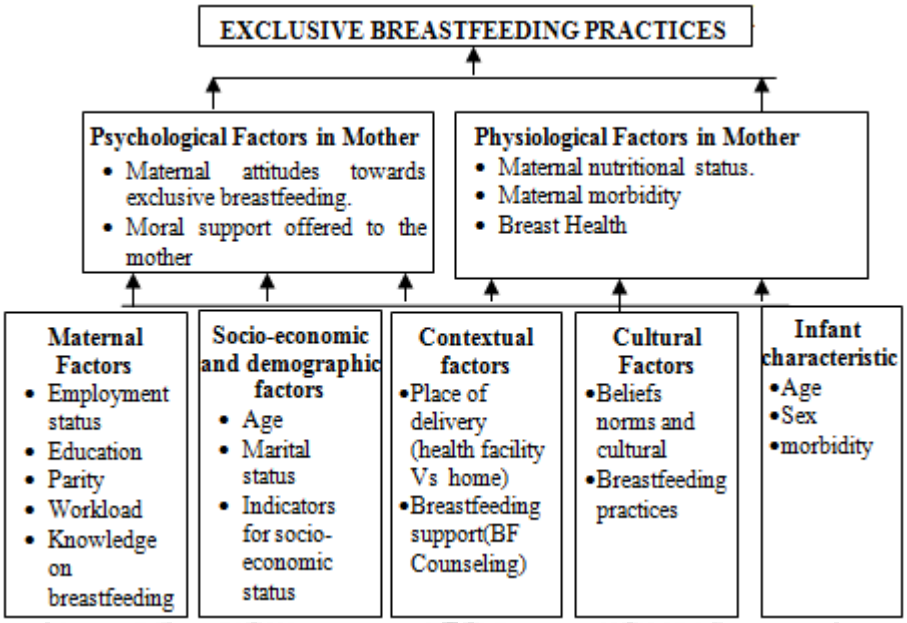

Figure 1: Factors associated with exclusive breastfeeding practices (1).

Breastfeeding is a complex process governed by Psychological and Physiological factors which are in turn conditioned by a wide spectrum of environmental, socio-economic and cultural factors (20). These factors affect breastfeeding and exclusive breastfeeding rates in different directions and to varying degrees depending on culture (21).

While there is a large body of published material on the factors affecting breastfeeding, there are few studies documenting factors influencing exclusive breastfeeding. A fundamental limitation of research in this area is lack of a conceptual or theoretical base to guide researchers in planning their studies or to assist readers to interpret results in a broad context (22).

Furthermore there are limited studies especially in Sudan that have investigated the factors associated with exclusive breast feeding.

In this study, the framework was used as a guide to investigate the maternal demographic characteristics (education, age and marital status), knowledge on breastfeeding, maternal morbidity, socio-economic factors (occupation, income source and item ownership) and contextual factors (place of delivery, type of delivery, breastfeeding support (breastfeeding counseling and sources of information) and attitudes and beliefs about breastfeeding practices.

2. Result and Discussion

Table 1: Socio demographic characteristics of Mothers. N=244

Characteristics	Category	n	%
Mothers Age in Years	Less than 18	10	4.1 %
	18-24	25	10.2%
	25-34	176	72.1%
	35-44	29	12%
	Total	**244**	**100%**
Marital Status	Married	200	82%
	Single	31	12.7%
	Separated	13	5.3%
	Total	**244**	**100%**
Family size	Less than 3	42	17%
	4-6 individuals	178	73%
	More than 6	25	10%
	Total	**244**	**100%**
State of Child on birth	Single	228	93.4%
	Twins	16	6.6%
	Total	**244**	**100%**
Mother's Educational level	Illiterate	3	1.2%
	kalwa	5	2.1%
	Primary education	14	5.7%
	Secondary edu.	175	72%
	University	47	19%
	Total	**244**	**100%**

Table 1.Shows the Socio demographic characteristics of Mothers. Majority of mothers age 72.1% were 25-34yrs, (82

%) of the mothers were married, (72%) had secondary school education.

Table 2: Illustrate the infant's Characteristics. N=244

Characteristics	*Category*	*n*	*%*
Gender	Male	88	36%
	Female	156	64%
	Total	**244**	**100%**
Infant age	0-1 month	61	25%
	1-2 month	44	18%
	3-4 month	54	22%
	5-6 month	85	35%
	Total	**244**	**100%**
Infant birth Order	First	96	40%
	Second	40	16%
	Third	59	24%
	Fourth and above	48	20%
	Total	**244**	**100%**

Table .2 represents infant characteristics. 35% were children age between 5-6 months, 64% were female's infants. 40% were first born.

Table 3: Socio-economic Status. N= 244

Factors	*Category*	*n*	*%*
Maternal occupation	Housewife	108	44.4%
	Casual worker	53	21.6%
	Self employed	34	14%
	Office worker	46	18%
	Total	**244**	**100%**
Husband Occupation	Employed	16	8%
	Vocational worker	24	12%
	Casual worker	112	56%
	Laborers	48	24%
	Total	**200**	**100%**
Maternal Monthly income	450-749 SDG	55	22.5%
	750-949 SDG	117	48%
	950-1149	44	18%
	1150 and above	28	11.5%
	Total	**244**	**100%**

Table .3 shows Socio-economic Status of the study population. (44.4%) were housewives, 21.6% were casual workers and the rest (18%) had regular jobs (employed) and self-employed (14.0%). (56.0%) of the married women reported their husbands were casual workers while those in self-employment were 24.8%, those vocational workers were 12%. and those employed were 8%. While the monthly income of the family/ Sudanese Pounds (SDG): most of the families (48%) had the family income of 750-949 SDG/Month

Table 4: Delivery History of the Mothers: N = (244)

Variable	**Category**	**n**	**%**
Place of delivery	Hospital	168	69%
	Home	76	31%
	Total	**244**	**100%**
No. child Delivered	Single	225	92%
	Twins	19	8%
	Total	**244**	**100%**
Mother type of delivery	Normal	228	93.4%
	caesarean	16	6.6%
	Total	**244**	**100%**

Table. 4 represents delivery history of the mothers. 69% deliver at hospital. 92% single child and 93.4% have normal delivery. Findings from focus group discussions revealed that most mothers who gave birth at home did so because they could not afford to pay for the cost charged at the health facility, the delivery occurred too fast or because they had done it with other children.

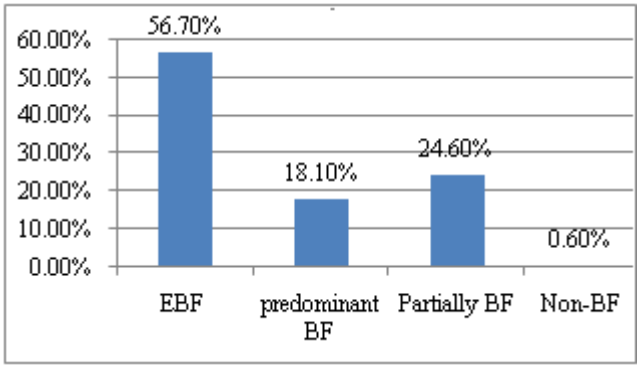

Figure 1 Represents the Breastfeeding status based on 24 hours recalls' definition, the prevalence of exclusive breastfeeding was 56.7% (95% CI; 49.3-64.2)

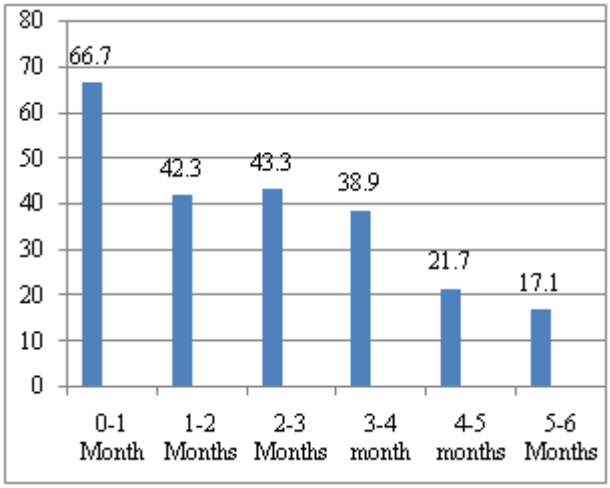

Figure 2 Shows that continuous exclusive breastfeeding since birth rate was 38.0% (95% CI; 30.7-45.3) The prevalence of continuous exclusive breastfeeding since birth was 66.7% (95% CI; 59.6-73.8) at 0-1 month, 42.3% (95% CI; 34.9-49.7) at 1 month, 43.3% (95% CI; 35.9-50.7) at 2 months, 38.9% (95% CI; 31.6-46.2) at 3 months, 21.7% (95% CI; 15.2-27.9) at 4 months and 17.1% (95% CI; 11.5-22.7) at 5 months.

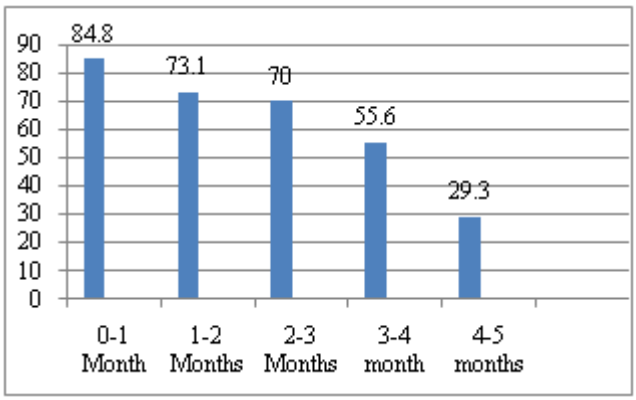

Figure 3 Show the prevalence of exclusive breastfeeding was 84.8% (95% CI; 79.4-90.2) at 0-1 month, 73.1% (95% CI; 66.5-79.8), at 1 month, 70.0% (95% CI; 63.1-76.9), at 2 months, 55.6% (95% CI; 48.2-63.1), at 3 months, 30.4%

(95% CI; 23.5-37.3) at 4 months and 29.3% (95% CI; 22.5-36.1) at 5 months

Table 6: Summary of the main findings on attitudes/perceptions and beliefs on exclusive breastfeeding and common agreements among the study groups

Main areas of Focus for FGDs	*Main and common findings on attitudes/perceptions and beliefs among the study groups*
Sources of breastfeeding information	• Health facility mainly public; Family, friends and peers; Media and Traditional birth attendants
Messages regarding breastfeeding	• Exclusively breastfeed for six months • Initiate breastfeeding within 1 hour after birth • Clean the breasts before breastfeeding • Breastfeed the baby on demand • Breastfeed a baby for 30 minutes • Breastfeeding mothers should eat a healthy diet
Benefits of exclusive breastfeeding	• Breast milk is natural food for babies that contains all nutrients • Breastfeeding protects babies from illnesses and promotes quick recovery from illnesses • Breast milk is safe, hygienic and always available • Exclusively breastfed infants grow healthy and strong • Breastfeeding enables mother and child to bond • Breast feeding delays pregnancy in some women
Exclusive breastfeeding practices in Abu said south .	• EBF not commonly practiced
Factors encouraging mothers to practice exclusive breastfeeding for six months	• Supportive husband, parents and friends • Having breastfed exclusively another child • Having adequate breast milk • Attending counseling sessions at the hospital • Mother being available always • Economically stable mothers have enough to eat and are able to breastfeed exclusively • Benefits especially to the baby
Factors discouraging mothers from practicing exclusive breastfeeding for six months	• Belief that some mothers have inadequate milk • High levels of poverty in Abu said south • Unsupportive husbands who drink a lot • Lack of knowledge on exclusive breastfeeding benefits • Employers do not allow casual workers to carry their babies to work • Exclusive breastfeeding is time consuming and a mother has many tasks to perform • Conceiving within six months after giving birth • Mothers give in to pressure from family and peers to introduce fluids and food. • Many infants need water to sooth stomach pain
Suggestions on how exclusive breastfeeding can be improved in Abu said south	• Educate mothers and the whole community on benefits of exclusive breastfeeding • Bring breastfeeding counseling to the community level • Encourage employers to allow casual workers to carry their babies to the place of work • Government to initiate employment opportunities for the community so that mothers can settle down and breastfeed
Expressing and handling of expressed breast milk	• Inappropriate to express human milk • Mothers may not get enough milk to express • Hygiene standards low in Abu said south to handle expressed breast milk

Table No.6 Emerged from the focus group discussions, negative attitudes and beliefs negatively influenced exclusive breastfeeding and other infant feeding practices. Viewing expressing of breast milk as a taboo denied the mothers the opportunity to express and leave breast milk for their infants as they left their homes to go to work. Another common belief was that mothers do not have adequate breast milk to sustain their infants for six months and also the belief that the child must take water to quench thirst and stop hiccups. It was also a common belief that when infants cry a lot even after breastfeeding the child is either hungry or has stomach pains and once given something else they calm down. Some mothers believed that breastfeeding would cause their so breast to sag or lose shape while others believed if they conceived while the child was still breastfeeding they had to stop breastfeeding

Table 7: Maternal morbidity and breastfeeding complications and the relationship with exclusive breastfeeding

Independent variable	Continuous EBF			EBF 24hrs recall		
	O.R	95%CI	P-value	O.R	95%CI	P-value
Maternal illness	3.12	1.28-7.62	0.012	2.17	1.03-4.57	0.043
Breastfeeding problem	3.82	1.65-8.86	0.002	4.27	2.06-8.88	< 0.001

Table No7 Agree with Islam *et al.* (2011), in a study involving two study groups, identified mothers sickness (pain at the operated site), cracked nipples and mastitis, breast abscess and inverted nipples as some of the causative factors involved in avoidance of breastfeeding. As it emerges from this and other studies, mothers need to be

educated on how to overcome problems faced during breastfeeding so that they can be able to achieve the six months exclusive breastfeeding as recommended by World Health Organization.

Table 8: Infant characteristics and their relationship with exclusive breastfeeding

Characteristic	EBF History				EBF 24 hrs. recall			
Infant age (months)	**n**	**%**	**X2 test**	**P-v**	**n**	**%**	**X2 test**	**P-value**
0-1 month	34	55.9	18.391	<0.001	48	79.7	32.910	< 0.001
2-3 months	18	41.7			28	64.6		
4-5 months	10	18.8	16.105	<0.001	16	29.7	30.459	<0.001
6 months	52	49.5			76	72.9		

Table8 shows that the rate is far from reaching the recommended level of 90% by WHO/UNICEF for exclusive breastfeeding of all infants less than six months. There is a wide variation in the exclusive breastfeeding rates as determined by the two definitions in this study. This is because the 24 hour recall does not account for feeding practices beyond the previous 24 hours and therefore giving an exaggerated rate of exclusive breastfeeding (WHO, 2008).

Table 9: Maternal knowledge score on breastfeeding issues

Characteristic	*N= 244*			
Continuous EBF since birth	*n*	*Mean score*	*Std Deviation*	*T – test p-value*
Yes	151	5.25	1.48	0.012
No	93	5.80	1.20	0.001
Non–EBF (24 hrs. Re-call) group	105	5.04	1.42	
EBF based on 24 hrs. recall group	139	5.77	1.31	0.001

Table No 9 .As revealed by the findings of this study adequate knowledge on exclusive breastfeeding is critical for its practice. It is therefore important to improve on strategies, education and training on information concerning exclusive breastfeeding in order to be able to reach mothers with low knowledge on the benefits and optimal duration of exclusive breastfeeding.

Table 10: Maternal knowledge on breastfeeding and relationship with exclusive breastfeeding

Independent variable	**Continuous EBF**			**EBF 24hrs recall**		
	O.R	**95%CI**	**P-value**	**O.R**	**95%CI**	**P-value**
Maternal correct knowledge on duration of EBF	2.661	1.345-5.069	0.005	3.418	1.807-6.465	0.001
Maternal knowledge that Breastfeeding protects against pregnancy	1.445	0.755-2.767	0.266	2.092	1.072-4.082	0.030
Maternal knowledge that semi solid/ solid food should be introduced at six months	2.683	1.142-6.306	0.024	3.102	1.450-6.634	0.004

As presented in table 10. Correct knowledge on duration of exclusive breastfeeding was only significantly associated with exclusive breastfeeding as defined using 24 hour recall (P=0.01).(** Adjusted Odd Ratio (AOR), * significant association)

3. Conclusions

The exclusive breastfeeding rate in Abu said South Administrative unit Omdurman locality falls way below the level recommended by W.H.O. The highest rates of exclusive breastfeeding are observed up to 3 months then they decline to very low rates at 5 months. For the majority of the infants, exclusive breastfeeding stops at around 3 months. From the findings of this study, factors that influenced exclusive breast feeding in the study community included; Infant age; Infant health; maternal morbidity; maternal experience of breastfeeding complications; maternal correct knowledge on duration of exclusive breastfeeding; maternal knowledge that breastfeeding delays pregnancy; maternal knowledge that semi-solid and solid foods should be introduced at six months and attitudes and beliefs regarding exclusive breastfeeding practice. The strongest predictor of exclusive breastfeeding in the study community was infant morbidity. Those children who were ill were less likely to receive exclusive breastfeeding. Maternal experience of breastfeeding complications was also a predictor of exclusive breastfeeding in the study community. Mothers who experienced breastfeeding complications were less likely to exclusively breastfeed their infants. Maternal correct knowledge on duration of exclusive breastfeeding was also a predictor of exclusive breastfeeding in the study community. Mothers who had correct knowledge on duration of exclusive breastfeeding were more likely to breastfeed their infants exclusively.

4. Recommendations

1) Breastfeeding promotion messages for mothers offered should emphasize the importance of prompt health seeking behavior as maternal and child morbidity influenced the practice of EBF; correct knowledge on breastfeeding issues particularly the health benefits of exclusive breastfeeding.
2) Negative attitudes and beliefs regarding exclusive breastfeeding should be addressed during counseling by the nutritionists, health and community health workers.
3) Additional research is required to establish ways of improving breastfeeding counseling at the health facility level in order to make it more effective.

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