INFANTS FEEDING AND WEANING PRACTICES AMONG MOTHERS IN NORTHERN KORDOFAN STATE, SUDAN

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Abstract

Background: Several studies undertaken in both developed and developing countries to identify an infant's feeding and weaning practices among mothers. In Sudan, however, few data available concerning this type of studies,particularly in Northern Kordofan.

***Objectives*:** This study aimed to identify the infants feeding and weaning practices among mothers of children from Zero to24 months of age in three towns (Bara, Al-Rahad, and Al-Nuhoud)in North Kordofan State.

Methods:Data was collected through personal interview and specifically designed questionnaire. Study sample consisted of 250 families.

Results:Breast feeding was initiated immediately after birth within 83.6 % of mothers. Almost half of the mothers (55.2%) stopped breastfeeding when the child was 24 months old**.** The age of termination of breast feeding was significantly influenced by the education of the mothers. (p value=0.01).

It was observed that only 6.8% of the mothers in the present study practiced exclusive breastfeeding. The majority of the mothers (91.6%)introduced complementary foods before six months of age while only 8.4 % started given foods at six month and over. Significant association was found between education and the age of introduction of complementary foods (p value = 0.002).

Almost half of the mothers (52%) abruptly weaned their children while only 11.6% gradually weaned their children and some foods were proscribed from the chidden diet.

This study concludes thatboth positive and negative infants feeding practices among mothers towards their children and recommended acceptable strategies to promote infant feeding to reduce infant mortality and morbidity rate in Sudan.

Keywords: Weaning, complementary food, exclusive breast feeding

Introduction

Ten million children under the age of 5 years old die each year (Bryce,et.al.,2005). More than half of the deaths occur because of malnutrition. If adequate health systems were in place nearly 2/3 of the deaths could be prevented. Part of the health systems picture is to promote appropriate feeding practices for infants and young children. If at all feasible breastfeeding is recommended during the first six months, the most vulnerable period for developing under-nutrition remains the transition from breastfeeding to family foods. Breast milk composition may vary dramatically between women and from the beginning and month six (Allen,et.al.,1991). Breast milk contains everything a newborn child needs to grow. Breastfeeding should continue throughout gradual weaning process through at least the first year of life and for two years if possible in order to provide the best nutrition for the growing child, with the exception of cases where there may be the risk for HIV transmission from mother to child(Laskey,et.al.,1990). Weaning is the process of transition from a breast feeding to a semi solid diet for the infant. A reduction in breast milk consumption and the protection it provides during gastrointestinal infection can increase the risk for illness due to diarrhea in children during weaning(Mata,et.al.,1974). Poor quality of weaning foods and improper weaning practices predispose infants to malnutrition, growth retardation, infection, diseases and high mortality (Onofiok,et.al.,2005).

The World Health Organization recommends a gradual weaning period from 6 months to 2 years (WHO,2006). This allows for the child to still receive the benefits from breastfeeding, while also consuming the necessary nutrients from the complementary foods. Foods should be prepared adequately containing the required nutrients as well as appropriately with a suitable texture and temperature (WHO,2004). Without the knowledge of proper weaning practices as well as a perception of the child's hunger needs, malnutrition and illness may ensue. The weaning period is therefore a vulnerable time when the child should be attentively cared for and observed so as to maintain health (Dewery,2001). Complementary foods in sub-Saharan Africa and in Sudan in particular, comprise thin gruels made from maize, millet, sorghum and cassava. These gruels have low levels of energy, protein and micronutrients and high concentrations of factors inhibiting absorption of nutrients (John and Tigani,2007).

Justification

In Sudan scattered studies had been carried out about infants feeding and weaning practices. Sudan has many different regions and weaning practices are differ from one region to another. This drew the researcher's

attention to establish study to explore weaning practices among mothers in Northern Kordofan.

Main objective

To describe infants feeding and weaning practices and believes among mothers towards their infants age from zero to 2 years in Northern Kordofan (Bara, El-Nuhoud and Al-Rahad towns).

Materials & methods

The present study is an observational case–finding community–based study.

Study Area

North Kordofan State located in the west of the Sudan between latitude North 15-10-14.15, East 29-25-4.56. It has cover an area of some (44700km²), with an estimated population in 2008 of 2.920,992 million.

Participant Selection

Population of this study includes 250 mothers with their infants age from zero - 2 years old .The participants were randomly selected from the three towns (Bara, El-Nuhoud and El-Rahad) in Northern Kordofan State. The researcher went from house to house, knocked the door asked for mothers having children less than two years, to be part of the study.

Simple random sampling technique was used , the researcher asked for mothers having children less than two years, to be part of the study.

Data Analysis

Data were coded for entry into a spread (Microsoft Excel 2007) and data was imported for analysis into (Epi Info). Descriptive analyses were done including frequencies of the variables and chi-square test used to determine the relationship between selected demographic variables and infant feeding and weaning practices.

Results and discussion

Demographic variables

Table (1): Family Size

Family size	**No.**	**%**
Small (2-4 persons)	110	44.0
Medium (5-7 persons)	104	41.6
Large (8+)	36	14.4
Total	**250**	**100**

Table 1 shows that the small and medium family sizes comprise 85.6% of the sample. Small and medium family size is a good sign for health and nutrition as there will be much care and less competition within family members for food and other services.

Table (2): Number of children under 5 years per family:

Number of Children under 5	Number of families	%	Total No of Children
1	68	27.2	68
2	130	52.0	260
3	46	18.4	138
4	6	2.4	24
Total	**250**	**100**	**490**

Table 2 reveals that almost more than 75% of the families have 1-2 children under 5 years old, with 52% having 2 children and 27.2% having 1 child. Families having 3-4 children less than five years are comprising 20.8%, which indicates closely spaced pregnancies. Higher birth spacing is likely to improve child nutrition, since the mother gets enough time for proper childcare and feeding.

Table (3): Classification of Infants by Age (Months) and Sex:

Age	Female	Male	No	%
0-5 months	17 (48.6%)	18 (51.4%)	35	14.0
6-11 months	51(59.3%)	35 (40.7%)	86	34.4
12-17 months	24 (32%)	51 (68%)	75	30.0
18-2 months	24 (44.4%)	30 (55.6%)	54	21.6
Total	**116 (46.4%)**	**134 (53.6%)**	**250**	**100**

Table No.3 which represents gender distribution among the selected children, Additionally, the children studied were between the age group range of zero – 24 months. The children were divided into 4 age categories; 21.6% of the children were at the age group (18-24 months), 30% (12-17 months), 34.4% (6-11 months) and 14% at the age group (0-6 months).

Table (4): Distribution of mothers according to age:

Age	No	%
15-19 years	19	7.6
20-29 years	121	48.4
30-39 years	99	39.6
40≥ years	11	4.4
Total	**250**	**100**

Table No. 4 shows that Younger mothers (15-19 years) represent 7.6% from the whole sample population which reflects urban life as this would have been much higher in rural areas. The two groups 20-29 and 30-39 years comprise almost 88% of the sample. Only 4.4% of mothers equal or over 40 years old. There is a high risk of mortality among mothers in both age group, below 20 and over 40 years old. Fortunately, this sample does not

have a large proportion of these two age groups. In other words, it could be noted that most of the mothers in the present study are in safer child bearing age.

Table (5): Distribution of subjects according to parents education:

Type of Education	Mothers		Fathers		Total	
	No.	%	No.	%	No.	%
Illiterate	40	16	37	14.8	77	15.4
Khalwa	6	2.4	18	7.2	24	4.8
Primary	87	34.8	65	26	152	30.4
Intermediate	15	6	26	10.4	41	8.2
Secondary	57	22.8	55	22	112	22.4
University	45	18	48	19.2	93	18.6
Postgraduate	0	0	1	0.4	1	0.2
Total	**250**	**100**	**250**	**100**	**500**	**100**

Table No. (5) It is of great interest to note that 34.8% of the mothers had primary school education compared to 26% of their husbands. Twenty two point eight percent of the mothers and 22% of their husbands had secondary school education, 18% of the mothers and 19.2% of the fathers had university degree. Illiteracy was predominant among 16% of the mothers and 14.8% of the fathers. Previous studies proved that knowledge of the mothers about proper weaning was significantly related to their educational level ($p = 0.02$), where mothers of high educational level knew better about proper weaning than those of low educational level. Lack of knowledge on the importance of appropriate feeding for infant and young children and awareness of nutritional needs depends on educational levels (Samson, and Lakech,2000) (Song-Suk,2005).

Table (6): Distribution of subjects according to parents occupation:

Father occupation	No	%	Mother occupation	No	%
Daily Laborer	90	36	Farmer	51	20.4
Office Job	77	30.8	Office workers	33	13.2
Farmer	37	14.8	Marginal job	11	4.4
Merchant	30	12	0	0	
Vocational Work	16	6.4	House wife	155	62
Total	**250**	**100**		**250**	**100**

Distribution of subjects according to parents occupation as illustrated in table 6 shows that fathers occupation was classified into 5 groups: 36% of fathers are daily labourers (building operations, cutting woods, cleaners, herders, farm workers etc), 30.8% office workers (officers and low scale workers: guards, cleaners, messengers etc), 14.8% are farmers, 12% are merchants. Vocational work includes mechanics, carpenters,

electricians and plumbers was predominant among 6.4% of the fathers in the present study.

On the other hand, mothers were categorized into 4 groups: 62% of the mothers were housewives, 20.4% were farmers, 13.2% were office workers and 4.4% of them doing marginal jobs such as selling foods, tea, coffee, spices and handcrafts. It was observed that both mothers and fathers have no real occupation. Certainly such occupations status wouldn't be sufficient for fulfilling all or most obligations for the families due to the low income of such occupations.

Table (7): Family Income per Month:

Income/Month (by SDG)	**No**	**%**
0-250	26	10.4
251-500	108	43.2
501-750	46	18.4
751-1000	26	10.4
1000 +	17	6.8
No information on income	27	10.8
Total	**250**	**100**

Table No. 7 shows that 53.6% of the families earn equal or less than 500 SDG per month, which is less than 20 Sudanese pound per day. It should be noted that all the families in the current study are living in urban societies, this income will be much less than covering daily needs which might lead to malnutrition for children under five because both food and health services will be under the family financial capacity. While 28.8% of families earn between 501 to 1000 SDG .Only 6.8% earn more than 1000 SDG per month. As observed in the above table (7) 10.8% were reluctant to admit their total income. The common **international poverty line** has in the past been roughly $1 a day. In 2008, the World Bank came out with a revised figure of $1.25 at 2005 purchasing-power parity(Song-Suk,et.al.,2009)

Breast feeding practices

Table (8): Initiation of breast feeding for the first time:

Time	**No**	**%**
After one hour	209	83.6
More than one Hour	41	16.4
Total	**250**	**100**

Table(9): Mothers education level and initiation of breastfeeding

Education		After one hour	More than one hour	**Total**
Low education	No	109	21	130
	%	83.8%	16.2%	100%
High education	No	100	20	120
	%	83.3 %	16.7%	100%
Total		209	41	**250**

P value = 0. 44

As shown in table 9,no significant association was found between both level of education and introduction of breast milk(p value=0.44) .

It is a good sign that more than 80% of mothers start breast feeding immediately after birth. Initiation of breastfeeding at birth was a health promoting practice,colostrum, the first milk has all the nutrients , energy and anti-bodies an infant needs for a good start in life (Song-Suk, et.al.,1991).

On the other hand, healthy mothers and babies should not be separated after birth or during the early days following birth. Benefits to babies from skin-to-skin contact include easier breathing, higher and more stable blood sugar levels, and a natural progression to breastfeeding. Previous Studies showed that newborns who have early contact with their mothers learn to latch on more efficiently than babies who are separated from their mothers in the hour or two following birth (Yamashiro,2003).

Table (10): Exclusive breast feeding practices among mothers:

Exclusive breast feeding	**No**	**%**
Yes	17	6.8
No	233	93.2
Total	**250**	**100**

It was observed that only 6.8% of the mothers in the present study practiced exclusive breastfeeding (Table10). Exclusive breastfeeding for six months confers additional protection against gastrointestinal infections, associated with a reduced risk of the sudden infant death syndrome (SIDS) and protected against long-term chronic conditions and diseases like obesity, type I diabetes mellitus, ovarian cancer and osteoporosis(Mata,1974). Children who are exclusively breast fed from healthy well-nourished mothers may not benefit from complementary foods before the age of 6 months. The question of the length of exclusive breast feeding is quite controversial. Although WHO recommends exclusive breast feeding for the first 4-6 months, they would actually prefer it to be the first 6 month (Torun,et.al.,1996). However, in the African setting, the completely exclusively breast fed infant, especially for a full 6 months is rare as in the present study. Mothers usually give some water, juice, cow's milk, cereal porridges etc in addition to breast feeding (Dewey,et.al.,1995).

Table (11):Mothers education and cessation of breast feeding:

Education		**Age (months)**			**Occurrence of pregnancy**	**Others**	**Total**
		12	**18**	**24**			
Low level	No	5	29	60	32	3	129
	%	3.9%	22.5%	46.5%	24.8%	2.3%	100%
High level	No	7	15	78	21	0	121
	%	5.7%	12.4%	64.5%	17.4%	0	100%
Total		**12**	**44**	**138**	**53**	**3**	**250**

P value = 0.01

Table No.11 shows that the age of termination of breast feeding was significantly influenced by the education of the mothers (p value=0.01). In Muslim religious belief as it is stated in the Holy Quran that 'a mother shall breastfeed her child for two years. In present study, 55.2% of mothers stopped breastfeeding when the child was 24 months old and 21.2% did so when the mother get pregnant, 17.6% when child was 18 months old and 4.8% stopped breast feeding when the child was 12 months old. Surprisingly, this is not like the trend seen in many developing countries, where the duration of breastfeeding is becoming shorter (Dewey,et.al.,1995).

Complementary feeding practices

Table (12): Age of introduction of Complementary foods

Infants age	No	%
0-5 Months	229	91.6
At 6 Months	17	6.8
After 6 Months and above	4	1.6
Total	**250**	**100**

As shown in table No.12 91.6%of the mothers introduced complementary foods from zero - five months of age which is too early for weaning as the child's alimentary system is not yet ready for the highly starchy foods commonly used for weaning in developing countries (Yamashiro,2003). Only 6.8% introduced it at right time and 1.6% after six months. Several studies carried out in developing countries, and in industrialized countries showed that the early introduction of complementary foods increases infant morbidity and mortality, as a result of the reduced ingestion of protective factors present in breast milk, in addition to the fact that, early introduction of complementary foods shortens the duration of breastfeeding, interferes with the uptake of important nutrients found in breast milk such as iron and zinc and reduces the efficiency of lactation in preventing new pregnancies (WHO,1998).

The late introduction of complementary foods also is disadvantageous, because infant growth stops or slows down and the risk of malnutrition and micronutrient deficiency increases (Onofiok,et.al.,2005) (WHO,2006). Moreover, lack of knowledge and misperceptions among elderly women like mothers-in law, who generally influence and guide child feeding practices in the family are often barriers to initiating complementary feeding at the correct age. Also the initiation and weaning of breastfeeding is strongly influenced by cultural beliefs.

Table (13): Mothers education level and infants age of introduction of complementary foods

Education		0-5 months	At 6 months	After 6 months	Total
Low level	No	113	12	4	129
	%	87.6	9.3	3.1	100%
High level	No	116	5	0	121
	%	95.9	4.1	0	100%
Total		**229**	**17**	**4**	**250**

p value = 0.002

In table 13 education of the mothers had a significant influence by the age of introduction of complementary food with a larger proportion of mothers with a higher level of education introducing su0pplements earlier than less educated counterpart. This is similar to study in rural Bangladesh found that education of mothers had significant effect on child care and feeding behaviors (Guldan,1983). Surprisingly, the current study showed that less educated mothers started complementary feeding of their infants at appropriate ages as compared to those who were highly educated. On the other hands no significant association was found between mothers' age and age of introduction of complementary food (p=0.6).

Table (14): Special complementary Foods:

Complementary foods	No	%
Special complementary food	182	72.8
Normalcomplementary food	68	27.2
Total	**250**	**100**

Table (15): Mothers education level and special complementary foods

Education		No	Yes	Total
Low level	No	43	86	129
	%	33.3%	66.7%	100%
High level	No	25	96	121
	%	20.7%	79.3 %	100%
Total		**68**	**182**	**250**

P value= 0.043.

Table No.14 showed that 72.8% of the families preparing special complementary foods for their infants while the rest feeding their young children from their family foods pots. It is well known that family foods are not suitable to the infant in its texture, energy content and other nutritional values such as vitamins and minerals.

Marginal association was found between education level and special complementary food given to the infants (P=0.043) (Table 15)

Table (16): Type of complementary foods:

Type of Foods	**No**	**%**
Introduction of fluids other than breast milk	**233**	**93.2**
Pure water	107	45.9
Water with salt and sugar	73	31.3
Water with date	20	8.6
Water with fenugreek	10	4.3
Milk (cow a16nd Goat milk)	23	9.9
Most common food/drinks introduced from 0-6 month while breast feeding	**No**	**%**
Porridge with molahsharmout(local stew made from dry or fresh minced meat)	121	48.4%
Pure water	107	42.8%
Rice	89	35.6%
Potatoes	55	22%
Water with salt and sugar	73	29.2
Baby Food (Cerelac) ready made meals made from wheat	14	5.6%%
Milk (goat)	23	9.2 %
Water with Date	20	8 %
Water with fenugreek	10	4 %
Egg	12	4.8%
Most common food during 6-12 month	**No**	**%**
Egg	38	15.2%
Roup (fermented milk)	15	6 %
Lentils	12	4.8%
Custards	11	4.4%
Meat	7	2.8
Biscuit	12	4.8%

Type of complementary foods

Table 16 shows that mothers in the current study introduced fluids to the infant from the first day of life. The right practice is that a child should not be given food or water before he (or she) reaches the age of 6 months, such fluids given at early weeks can interfere with breastfeeding. The infant who has a tummy full of water will drink less milk at his feedings, and his mother's breasts will decrease milk production in response and infants growth as well (Nemer,et.al.,2001). Moreover poor water, sanitation and hygiene are the primary causes of diarrhea, which is responsible for the deaths of between 1.6 million and 2.5 million children under five years of age every year-more than any other illness or disease (Marinelli,et.al.,2001). Similar data to the present study was reported in the Northwestern region of Cameroon, where women survayed reported having given water, foods prior to six months of age and more than a third of those surveyed giving water in the first month of life (Kakute,et.al.,2005).Additionally, 29.2% of the mothers in the present study gave their infants water with salt and sugar, 12% of them gave their infants water mix with date or fenugreek. As previously stated in the literature common first beverages given to infants in sub-Saharan Africa include water, herbal teas and sugar water are commonly given from birth and continue even after breastfeeding has been well established(Okolo,et.al.,1999).

The main items of food that consumed by infants age 0-6 were Aceda (porridge cooked from sorghum) and molahsharmout , rice and potatoes (Table 16). Providing infant whose age less than four months with porridge mixed with molahsharmout considered very heavy meal. It seems that part of mothers in these areas don't understand that their infants still have only a small stomach and cannot digest this type of heavy meals. Studies have revealed that foods other than breast milk should not be started before 6 months (Rapley,2006). Suitable foods after six months age are porridge made with maize, millets or sorghum flours or mashed soft boiled rice. Once the baby is used to the new taste, small amounts of other soft foods can be introduced gradually in sequence, allowing the baby to get used to one food before introducing another (Elegbe and Ojofeitimi,1984).

It's obvious from the results that none of infants consumed fresh fruits and vegetables. In general It is important that weaning foods contain oils, fats or sugar, fruits, dark green vegetables , yellow fruits or orange , food from animals sources and legumes (for example lentils and broad beans). These different types of food provide energy, vitamins and proteins.

The best type of weaning meals should contain something from all of these groups, with continue to give breastfeeds regularly between meals.

Table (17): Number of Meals eaten by children:

Number of Meals	**No**	**%**
1-3	204	81.6
4-6	40	16
7+	6	2.4
Total	**250**	**100**

Table No.17 show that 81.6% of the children have 3meals/day, while 18.2% of children eating more than 3 meals /day for reasons of hunger and satiety, stomach capacity and adequate growth. WHO currently recommends two to three meals a day with complementary foods for breastfed infants between 6 and 8 months of life and three to four meals a day for those between 9 and 24 months, with additional nutritious snacks (pieces of fruit or bread, homemade cake, cassava) once or twice a day at 12 months (PAHO/WHO,2003).

Table (18): Methods of giving the complementary foods

Type of Methods	**No**	**%**
Bottle feeding	30	12
Spoon	27	10.8
Cup	45	18
Hand	148	59.2
Total	**250**	**100**

Table No.18 indicates that more than half of the mothers feed their infants with their hand (59.2%), 18% using cups in feeding their infants,

12% use bottle while 10.8% feed their infant by spoons. Feeding complementary foods from a cup or bowl with a spoon also familiarizes the infant with textures, flavors and smells, whereas diluting these foods with prepared formula or other liquids, as is necessary to feed them by bottle, deprives the infant of these sensory experiences. Feeding from a cup is also thought to enhance the development of chewing and swallowing mechanisms. To decrease the risk of infection with introduction of complementary foods, it is often recommended that prepared formula and complementary foods be fed with a cup and spoon which is thought to be safer microbiologically than feeding with a bottle and hand (Knight,et.al.,1992).

Weaning practices

Table (19): Weaning practices methods and believes:

Weaning methods	**No**	**%**
Stop abruptly	130	52
Gradually wean	29	11.6
Separation	15	6
Unable to specify	46	18.4
Advice from sheikh	30	12
Total	**250**	**100**
Reason for infant weaning	No	%
Infant unable to walk	15	6
Other food s healthier than breast milk	30	12
Child refuse to suck	10	4
Too old to breast fed	105	42
New pregnancy	90	36
Total	**250**	**100**

Table No.19 Abrupt weaning was understood by the mothers stopping breastfeeding within one day. Almost half of participants said that they chose or will choose to abruptly wean their infants by paint their breast (with pepper, starchy materials (Ageen or dough), colored material (zaharamandRamad), 12% of the participants reported that they would wean their infants when the Sheikh (religion man)advise them, or had given his blessing to do so, and 11.6% of the mothers stated that they gradually wean their children, 18.4% unable to specify methods, only 6 % of the mothers separated their children by giving them to their grandmothers. Similar study in west Africa revealed that mothers also waited to wean their infants until the marabout (Muslim religious leader and teacher in west Africa) had given his blessing to wean their children (Schwartz,2008).

In general, in most of the Sudanese society women, it is the custom to physically separate children from their mothers at weaning and give then to their grandmothers.

When asked the mothers why they choose to wean their infant at a particular time, the most frequent reason given was that their infant would be 'too old to breastfeed 42%, a new pregnancy occurred 36%, other foods and beverages were healthier than breast milk 12%, the infant was unable to walk or refuse to suck 10%.

Table (20): Types of foods proscribed during the period of weaning

	No	**%**	
Food proscribed	89	35.6	
Food not proscribed	161	64.4	
Total	**250**	**100**	
Items proscribed	**No**	**%**	
Egg	24	27	Delay child talk
Goat Milk	4	4.5	Not digested easily
Yoghurt	6	6.7	Fermented breast milk and cause acidity
Meat	2	2.2	Very difficult to digest and may cause intestinal cramp
Legumes	2	2.2	Accumulation of gazes which create a great belly
Fat	4	4.5	Difficult to digest
Sesame	11	12.4	Delay child talk
Okra	6	6.7	
Watermelon	26	29.2	cause El-Lega (local name for vomiting and diarrhea
Sauce – spices	4	4.5	Abdominal distention
Total	**89**	**100**	

Types of foods proscribed during the period of weaning

As shown in table 20, 64.4% of families did not believe that their children should proscribe from certain foods during weaning period, which is a sign of good practice as these foods complement what is missing in breast milk both quality and quantity. While 35.6% of families excluded some foods during weaning. These include milk and milk products, egg, meats, and legumes which are very important source for protein. Other food items banned include watermelon, sesame, spices, and Okra which are not critical to child feeding. Reasons for exclusion these important foods as believed by mothers were stated in the above mentioned table. Most of Africans are similar in their cultural belief regarding some proscribed food during weaning.

Table (21): Sources of Nutritional Information on infant feeding and weaning practices

Source	**No**	**%**
Personal knowledge	55	22
Relative/ Friend	72	28.8
Health Worker	31	12.4
Media	68	27.2
Relief Organization	03	1.2
Don't know	21	8.4
Total	**250**	**100**

Table No. 21 shows that nutritional knowledge on infant feeding gathered from different sources, 22% of the respondents have personal nutritional knowledge, 27.2% received nutritional information from Media (Radio, TV, Papers etc.), 12.4% gather information from health workers and 28.8% from friends and relatives. None Governmental Organizations (NGOs) do play a very minor role in disseminating nutritional information (only1.2%) and this more likely because the presence of NGOs especially those involved in nutrition activity is not common in these areas. Nutrition education can easily be incorporated into primary health care programmes. Health workers and nutritionists can educate mothers about the importance of adequate weaning foods and practices, infant health, home-scale drying, processing and so on. The importance of varying the baby's diet and practicing good hygiene when handling and storing the baby's food can be included as well.

Conclusion

Infants feeding encompassing breastfeeding, complementary feeding and weaning are a multifaceted issue that greatly impacts the health, economical growth and overall development of societies worldwide. Northern Kordofan women have some positive practices toward infants feeding, they initiated breast feeding immediately after delivery and this guarantee infant to have the first milk colostrums. It was observed that the main food introduced for first time to the infants is porridge with molahsharmout, milk, rice and potatoes. Type of foods introduced to the infants lack of vegetables and fruit which provide essential micronutrients needed by the children in this period. On the other hand many of the mothers have negative practices particular in side of exclusive breastfeeding, most of them (93.2%) introducing water and other fluids to their infant from the first days of life. This is due to the fact that mothers were influenced by old women in their families, who generally guide child feeding practices. Moreover 91.6% of the mothers introduced complementary foods at age 0-5months which is too early for infant immature stomach.

Recommendations

Cooperation and Coordination of all sectors to identify food and nutrition problems and try to develop projects and programmes that promote nutrition. Production of especially complementary foods from local available diet and should be fortified with micronutrients "vitamins and mineral" so that young children do not suffer micronutrient deficiencies disorders. Ministry of Health, Food Research Center, Foods Industries should concern this issue. More efforts in nutrition education to raise maternal awareness towards appropriate infant feeding and weaning practices, (The timely

introduction of complementary foods, the types of food required, the quantities, hygienic practices , food preparation and storage). Future research in this area should be done to examine the multi-factorial dynamics of infant feeding and weaning practices and educational interventions to address these dynamics, as well as the rest of community members "village chiefs, elderly, religious leaders, and fathers, should be considered to correct their knowledge, practices and wrong believes about infant feeding.

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