Mother's Knowledge on Nutritional Requirement of Infant and Young Child Feeding in Mekelle, Ethiopia, Cross Sectional Study

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Abstract

Background: Nutrition is important part of child growth and development. Malnutrition still takes the lead in child mortality and morbidity. As Millennium Development Goal indicators no 1 and 4 is to reduce child mortality and improve nutrition respectively. A lot of children in this area have malnutrition and micronutrient deficiencies. That's why this research is motivated to assess mother's knowledge on infant and young child feeding and micronutrient.Objective: This study is mainly aimed at assessing mother's knowledge on Infant and young child feeding which is a child feeding indicator developed by the World health organization. The study also assesses the mother's knowledge on micronutrient.

Index terms— breast feeding, complimentary feeding, indicators.

1 Introduction a) Background

utrition is important part of child's growth and development. Especially the first two years of life are considered to be the window of opportunity where we can improve the wellbeing of a child.1 A child needs the right kind of nutrition in order to thrive and attain optimal development. As Millennium Development Goal No 4 indicators are to reduce child mortality rate, it should be supported by the standard practices of nutrition which is important in child survival, growth and development as well as MDG No1 to eradicate extreme poverty focusing on child nutrition. The Ethiopian Health care development program IV considers child health as a major priority. 3 To meet all of these goals we should consider mother's knowledge and practice on infant and young child feeding which is recommended by the WHO. 1 As a national public health recommendation, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health.7 After 6 months exclusive breast feeding and complimentary feeding should be initiated to supplement nutritional requirement.

Mother's knowledge on exclusive breast feeding is not sufficient enough on mothers to demonstrate practically. Complementary foods should provide approximately 25-50% of total daily requirements and 75-100% for phosphorus, zinc and iron. 2 The mother hence the direct care giver of the child is responsible for fulfilling these requirements to accomplish this she should have the right kind of knowledge and should practice this accordingly. Improvements in infant and young child feeding could lower the number of under-5 year child deaths by nearly 18%6. If the mother has insufficient knowledge on this standard practices, it would possibly lead to irreversible the child will suffer form irreversible damage to the body and to the brain. This is where the gap exists. In an area where there is lack of resource in the nutritional requirement will be more hampered by lack of knowledge. Cognizant of the high prevalence of inappropriate child feeding practice, the Ethiopian N under-five mortality rate in 2011was 88 per 1000 live births 3.Children are future of society and mothers are guardians of that future1.

A lot of children in this area have problems of malnutrition and deficiencies micronutrient. That's why the researcher is motivated to assess the knowledge and practice of mothers on these indicators. If the mother does not have the knowledge and is not practicing as required the child will suffer from health problems and growth and development delay.

As mention in EDHS 2011, infant and young child feeding (IYCF) indicators of breastfeeding status, 52 percent of children under six months and about half of children age 6-8 months (49 percent) consume solid, semi-solid, or soft foods. Almost seven children of every ten (66 percent) under the age of two receive ageappropriate breastfeeding3. Ninety-six percent of children continued breastfeeding at one year. Results show that only 4 percent of youngest children 6-23 months living with their mothers were fed in accordance with IYCF practices. More than nine children of every ten (96 percent) received breast milk or milk products during the 24-hour period before the survey, and half of the children (49 %) were feed at least the minimum number of times. Five percent of children were feed according to minimum standards with respect to food diversity (four or more food groups)3.

This study is aimed at assessing the knowledge of mothers on these five indicators that includes early initiation of breast feeding; exclusive breastfeeding under five months, introduction of solid, semi-solid or soft foods, minimum dietary diversity and minimum meal frequency. It also aims on assessing mother's knowledge on micronutrient.

Very few researches have been done addressing mothers knowledge and practice of this indicators in this part of the country. This research is one of its kinds trying to assess level of mother's knowledge on Infant and Young Child Feeding. The researcher expects from this study the information of these factors that determine the mother's knowledge and practice. And these findings were valuable addressing this issue and gaining the focus policy makers and resource allocators of health bureau and NGO organizations.

2 c) Significance of the Problem

Our country quest to be on the list of middle income countries is determined by having fully developed and optimal adults that is the child now. We can attain this if we have a child that is well nutritioned and the mother play a vital role for doing this so we should assess and identify if the standard practices are implemented and there is no knowledge gap in mothers. Studying these indicators has a public health importance of keeping the child healthy and to grow and thrive well. This study is also significant to all mothers, health worker, policy makers nursing and midwifery and health educators to disseminated information regarding Infant and young child feeding II .

3 Methods

The study was conducted in Mekelle capital city of Tigary region, Ethiopia. This city has administrative Weredas. There are 8 health centers 3 general hospitals and 1 referral hospitals. Mekelle have a total population of size of 289,756. The study was conducted from March up to June using community based crosssectional study design. The source population of this study was mothers that currently resides in Mekelle city and that have a child less than 24 months.

Independent variable s includes Socio-Demographic Variables (Age, Marital status, House hold income, Mothers occupation, mother's educational status, Age of parity), Mothers characteristics (antenatal visits, place of delivery, exposure to media, mothers exposure to mother to mother support group and source of information) and Mothers knowledge on micronutrient. Outcome variables were Mothers knowledge on Infant and Young Child Feeding and knowledge on micronutrient.

The sample size determination was calculated using the single proportion formula. Households that have mothers less than 24 months were selected by simple random sampling. The questionnaire was distributed according to the proportion of the selected ketenas population.

4 Data

was collected with structured questionnaire that was adapted from standard questioners and relevant literature reviews by using face to face interview. Five percent of the questionnaire was pretested before data collection relevance and applicability of the questioners. The data collectors were trained on how to collect the data and conduct the interview.

The data were edited, coded, entered in to a computer for cleaning and analysis using SPSS of windows version 20.0.0. Descriptive analysis on mean of mother and weighted mean followed by ANOVA was performed to the relative impact of predictor variables to the knowledge of feeding.

Ethical clearance was obtained from research committee at Mekelle University. Informed consent was read to the respondent before the interview. All information was kept private and confidential. Codes were given instead of the name for identifying the mothers. All mothers were told about the purpose of the study. Since this study is for the wellness of the child the interviewer gave education for the mother on the nutritional requirement and a child with obscured signs of nutritional deficiency was sent to the nearby hospital for further evaluation and every individual's right was respected.

5 III.

Result a) Socio-Demographic and Socio Economic characteristics Out of the 541 responding mothers about 212 (32.9%) were on the age of 25-29 years. Majority of the mothers about 367(67.1%) of this mothers were not working currently. Concerning income about 124(22.9%) had an income greater than 1000. Fifty three percent about half of the sex of the respondent's children was male. (Table **??**) Table **??** : Socio-demographic

characteristics and Socio-economic status of mothers and their children in Out of these children most of them about 237(43.8%) were on the age range of 13-24. Among mothers participated in this study 180(33.3 %) were on primary education 160(30.1%) were on the secondary education 84(15.5%) were with no education 78(14.4%) were with college diploma and the rest 36(6.7%) those who can read and write (Table **??**) b) Obstetrics and health service history of mothers Out of 541 mother participated in this study 519 (95.9%) has followed antenatal follow up care and 354(65.4%) has followed antenatal care 4 times and above. Majority of this mothers about 355 (65.6%) delivered their child at hospital. **??**oncerning Result show on source of information only 37 (6.8 %) of the mothers do not watch, listen or read any sort of media. From those who watch, listen or read to media 290 (53.6 %) of them listen to radio 195(36.0 %) of them watch television and 19(3.5%) reads magazines or news paper. Thirty seven (six point eight percent) do not any of this media at home. (Figure 1) Mother to mother support is also another major source of information for mothers on infant and young child feeding 24. On this study from the mothers participated in this study 366 (67.7%) of them do not have mother to mother support group in their area. Out of those who have support group in their area 175(32.3 %) only 95(54.3%) of them were involved in this support group. (Figure 2) In this study the result revealed that majority of the mothers get information of feeding their child form community health worker and nurses/midwifes which is 154(28.5%) and 145(26.8%) respectively.(Figure 3) The rest get the information from doctors 65(12%) health educators, auxiliary midwife, trained birth attendance, grandparents and elderly. 3)Looking at whether there is difference between groups there is statistically significant difference between groups on the knowledge of importance of Vitamin A in diet, F(4, 536)=19.17, p=000. iii. Mother's knowledge on Iron Iron which is important for child's health and development is also part of the knowledge assessment of these mothers. The result discloses that mothers were slightly knowledgeable on the importance of iron for the child's health (x=3.67+ 0.99) and mothers were moderately knowledgeable on the less contents of iron whole cow's milk(x=3.84+ 0.94). (Table 5) ii. Mothers knowledge on food diversity and minimum food requirement

In the mean result tells us that mothers were moderately knowledgeable on the initiation of complimentary feeding(x=4.47+ 0.83).

Mother's knowledge the seven food groups that a child should have as a complimentary feeding as part of the infant and young child feeding has been assessed. They were moderately knowledgeable that a child should have grains, roots and tuber as a complimentary feeding(x=4.45+0.68) to slightly knowledgeable on flesh foods as complimentary feeding (x=3.59+ 1.28). (Table 7) f) Mother's knowledge on infant and young child feeding and level of education

The analysis of variance has been whether a knowledge difference exists on the frequency of breast feeding a child with education level of the mothers. There were no outlier and data was normally distributed for each group as assessed by box plot and Shapirowilk test (p<.05) respectively. Of variance assessed by using Leven's test and the homogeneity variance was violated (p=1.32). There were statically significant difference between groups F(4,535)= 4.29, p= 0.002.

The other analysis of variance tested was whether there is a knowledge difference on initiation of complimentary feeding. There was no outlier and the data was normally distributed and the assumption on homogeneity of variance was kept (p=0.007). There were statically significant difference between groups F (4,532) =7.91, p=.000. Using Tukey post hoc test that the mean score on the knowledge on initiation of complimentary feeding were significantly mother on primary education were less knowledgeable than mothers with no education mean difference, standard error and significance level reservedly -.301, 0.103, p=0.030.

There is also complimentary feeding knowledge mean difference of mothers that can read and write were less knowledgeable than mothers that have primary education -0.718, 143, p=000. There is also mean difference of mothers that can read and write were less knowledgeable than mothers that have secondary -0.593*, 0.144, p=0.000 There a significant income group difference of mothers on the knowledge that a child should be feed at least 8 times a day so the null hypothesis is rejected at F(4,535)=4.64, p=.001. A significant income group difference also exists on feeding a child with grains, roots and tubers as a complimentary feeding so the null hypothesis is rejected at F(4,535)=4.67, p=.001. Mother's knowledge on feeding a child legumes and nuts as complimentary feeding have also a statically significant group difference of income F (4,531) =5.86),p=000. The other statically significant income group difference exists on mothers knowledge on feeding a child dairy products and egg as a complimentary group difference so the null hypothesis is rejected at F(4,531)=4.64,p=001 and F(4,533)=3.40,p=.009 respectively.

There is also statically significant difference between income groups regarding mother's knowledge of feeding a child vitamin A rich fruits and vegetable so the null hypothesis that there is no knowledge difference of mothers in the income group is rejected at F(4,532)=2.63,p=0.03. Mother's knowledge on feeding a child other fruits and vegetable is also statically significant group difference so the research hypothesis is accepted at F=(4,534)=2.62,p=.034 . Finally there is a significant group difference of mothers knowledge on feeding a 6-8 month child at least 2 times a day (minimum food frequency) so the null hypothesis is rejected at F=(4,534)=5.06 ,p=.001.(Table 9)

IV.

6 Discussion

The purpose of this study were to assess mothers knowledge on infant and young child feeding and to test the hypothesis that there is no knowledge difference between mothers socioeconomic and socio demographic characters these were the level of income and level of education.

This study have used the cross-sectional study design and used the mean value to indicate mothers knowledge used and multivariate analysis which is the analysis of variance at 95% confidence interval and p=0.05 to check whether knowledge difference prevails in the mothers with their educational level. But some of the studies listed have used Pearson's correlation Coefficient19, Spearman's Chi square test 20, 21were used.

Unlike in our study the educational status in study conducted at Mosul city revealed that less than one half (44%) of mothers age falls within 25-34years.One tenth (12%) of mothers were illiterate and 20% of them have no formal education certificate. Almost one quarter (24%) of mothers have primary education certificate and the same fraction (24%) were with higher education19comparing this to our study mothers participated 180(33.3 %) were on primary education 160(30.1%) were on the secondary education 84(15.5%) were with no education 78(14.4%) were with college diploma and the rest 36(6.7%) those who can read and write. Most of the mothers are at the primary school level. In study conducted at Pakistan, Jamshoro mother educational status 312 (62.2%) were illiterate. 21 As in our study the study conducted Gölba?? town center of Ankara city, Turkey the investigation of mean knowledge scores and education levels revealed that knowledge scores increased in parallel with the education level, which was found statistically significant (literate ? = 14.36±2.54, primary school graduate 15.64±2.01, secondary school graduate ? ? = 15.75±1.92, high school graduate ? = 16.61±1.89, university or master's degree holder ? =17.00±1.75. 22 Seeking antenatal care is important as a source of information, out of 541 mother participated in this study 519 (95.9%) has followed antenatal follow up care but in national nutritional survey in Pakistan results showed that only 63.5 % of pregnant women sought ANC during pregnancy.23

As in this study 355 (65.6%) delivered their child at hospital, and a study in Gaza revealed 224(83.6%) delivered at home.5 In our study majority of the mothers about 367(67.1%) of this mothers were not working currently and the study conducted at Mosul city about two thirds of studied mothers (70.0%) were housewives and only one third(30.0%) were employed 19 In our study mothers about 212 (32.9%) were on the age of 25-29 years where as in this study conducted at Jamshoro, Pakistan mothers 324 (64.8%) were between the ages of 21 -30 years. While below 21 years were 60 (12%), and above 35 years were 39 (7.8%). 21 In our study on number of children 410(75.8%) of mothers have only one child and 107(19.8%) of them have 2 children and 20(3.7%) have more than 3 children and in this study conducted and Mosul city number of children 20.0% of the included mothers have 2-3 children, and 20.0 % have more than five children. 19 In the study conducted at Jamshoro, Pakistan mothers 231(46%) mothers had < 3 children, while 269 (53.8%) mothers had 3 or > 3 children. 21 In the study conducted at Jamshoro, Pakistan regarding the source of knowledge for infant feeding, in 390 (78%) CF was advised by family members while in 110 (22%) by doctors and health workers. Regarding mothers perception of C F, it was essential in 456 (91.2%), while 44 (8.8%) mothers considered it not essential.21 In this study the result revealed that majority of the mothers get information of feeding their child form community health worker and nurses/midwifes which is 154(28.5%) and 145(26.8%) respectively. The rest get the information from doctors 65(12%) health educators, auxiliary midwife, trained birth attendance, grandparents and elderly.

In the study conducted at Mosul city infant feeding shows the value of odds ratio(OR), 95% confidence limit interval (95% CT) and P-value : mothers with higher educational level (OR=0.429 , P = 0.050). 19 Where knowledge of infant feeding also increase with educational status as our study revealed initiation of complimentary feeding were significantly higher mother on primary education than mothers with no education mean difference, standard error and significance level reservedly -0.301, 0.103, p=0.030. In this study mothers were moderately knowledgeable on immediate initiation of breast feeding and in the study conducted in Jamshoro, Pakistan regarding the knowledge of breast feeding practices (66-80%) mothers were well informed. 21 Mother knowledge on Vitamin A most of the mothers where moderately knowledgeable and slightly knowledgeable(Table 3) The majority of the respondents were able to correctly identify dark green leaves (92%), yellow fruits (85%), yellow-colored vegetables (82%) and animal products like egg, fish and meat (82%) as good sources of vitamin A20.

In our study knowledge regarding Iodine mothers was slightly knowledgeable and moderately knowledgeable (table 4) and in the study conducted at Weeraketiya DS division Sri Lanka the knowledge of the subjects regarding the iodine nutrition was not satisfactory. Although about 74% of the respondents knew that the goiter was caused by iodine deficiency only 6% knew that it was food related . 20 Mothers were slightly knowledgeable on the importance of Iron for child's health unlike in this study conducted at Weeraketiya DS division Sri Lanka only 74% of the mothers have heard or known about anemia as shortage of blood and others (26%) did not know about it.

Mother's knowledge regarding breast feeding was they are moderately knowledgeable. This could be related to the fact that most of mothers get their information from community health worker and nurses. Mother in our study mothers had good knowledge compared to the study conducted in adolescents in Gonder. Adolescents' attitudes and knowledge towards early child feeding behaviors deviated substantially from the current international recommendation that infants be exclusively breastfed for the first six months a large majority (75%) also believed that infants should be consuming some water by 1 month 6

In the same study conducted in Gonder mothers attitudes and knowledge regarding complementary feeding

also deviated from current international recommendations and 'best practices" 38% of adolescents agreed that a 6 month old infant should be consuming these items. Fewer (27%) agreed that children should be consuming animal source foods at 6 mo. Very few girls responded "don't know." 6. In our study mother's knowledge on complimentary feeding initiation of complimentary feeding and food diversity were moderately knowledgeable with mean score of 1.22 this could be also do the large number of mothers get their information form health professionals.

V.

7 Limitation and Strengths a) Strength

The strengths of this study were it have assessed the mothers knowledge on both infant and young child feeding and micronutrients

8 b) Limitation

The study doesn't include practice of mothers on infant and young child feeding.

9 VI.

10 Conclusion

In a general sense, it can be said that mothers included in the study had a good level of nutritional knowledge. It is considered that the training given by health care centers contributed to this situation. Mothers didn't have mother to mother support groups in their area. Even for those that have this support group the involvement is about half percent.

The knowledge scores increase in parallel with the educational level, which revealed the importance of education. Knowledge also increases with differs with the level of income. But mother knowledge regarding Vitamin A and iron were lower. Mothers were also lower compared with the other IYCF indicators.

11 VII.

12 Recommendation

Mass communication and media, nongovernmental organizations, universities, policy makers and various other institutions should work together in nutritional education. It will be useful to provide an effective and persistent nutritional education and active involvement could enhance a better outcome.

Nurses and midwifery should also be engaged in improving mother knowledge on this guideline so that there will be a well nutritioned and healthy child. Further research could also be done including that includes practices of mother on infant and young child feeding. [1] [2] [3] [4] [5]

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[4] ( )

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1 

Figure 1: Figure 1 :

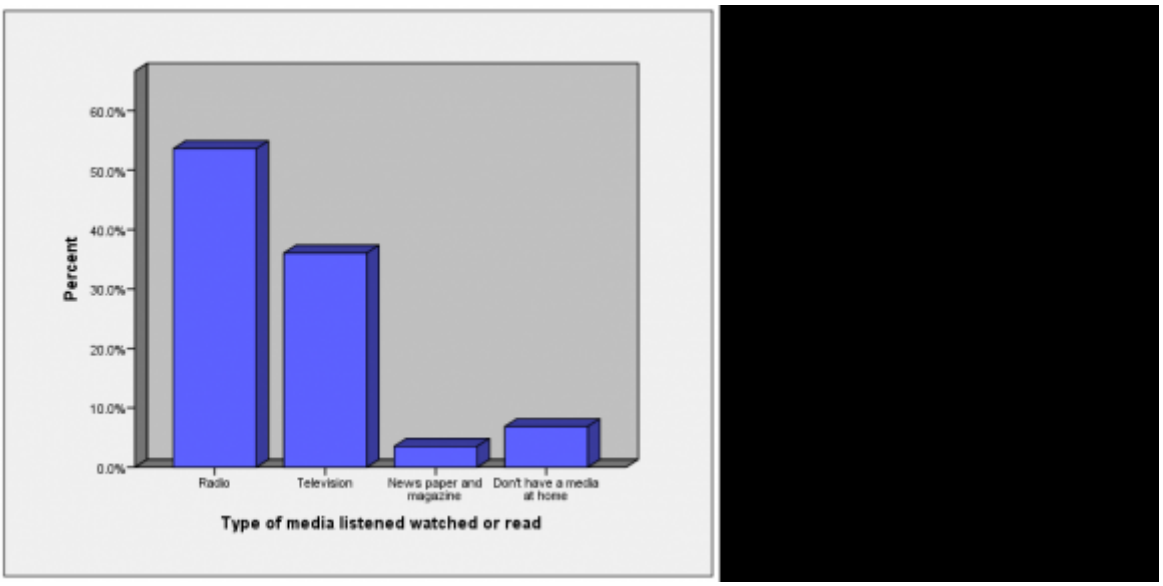
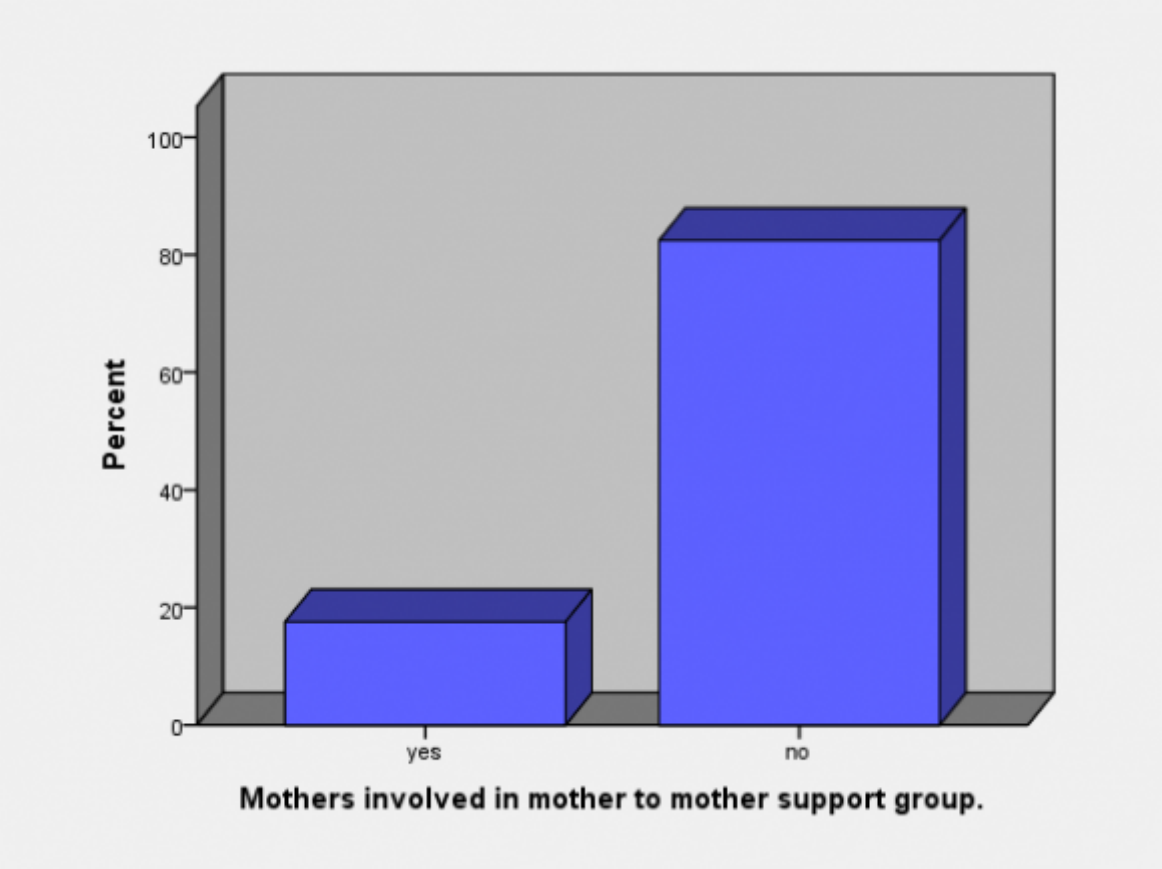
2 

Figure 2: Figure 2 :



3

Figure 3: Figure 3 :

2

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2
Year

[Note: number of children 410(75.8%) of mothers have only one child and 107(19.8%) of them have 2 children and 20(3.7%) have more than 3 children. []

Figure 4: Table 2)

2

	Variable	Number	Percentage
Followed antenatal care	Yes	519	95.9
	No	22	4.1
Number of antenatal	1	1	.2
	2	8	1.5
	3	44	8.1
	4 and above	354	65.4
	Don't remember	113	20.9
Place of delivery	At home	51	9.4
	At health center	135	25.0
	At hospital	355	65.6

[Note: c) Source information]

Figure 5: Table 2 :

3

ii. Mother's knowledge on Iodine

Iodine which is also one of the most important nutrients is required by the child. In this study the mothers knowledge on iodine they were moderately knowledgeable that goiter is caused by iodine deficiency(x=4.22+ 0.90) and they were slightly knowledgeable on salt storage on dark and closed container(x=3.89+ 1.09). The average weighted mean of mother's knowledge on iodine was x=3.96(Table 4)

Figure 6: Table 3 :

4

Mean	VI	Std.Deviation

Figure 7: Table 4 :

5

Mean	VI	Std.Deviation

Figure 8: Table 5 :

6

Mean	VI	Std. Deviation

Figure 9: Table 6 :

2013.

	Mean	VI	Std.Deviation
Initiation of complimentary feeding	4.47	Moderately knowledgeable	.831
Knowledge on feeding Grains, roots and tuber as a complimentary feeding	4.45	Moderately Knowledgeable	.691
Knowledge on feeding Legumes and nuts as a complimentary feeding	3.97	Slightly Knowledgeable	1.004
Knowledge on feeding Dairy products (milk, yogurt, cheese) as a complimentary feeding.	4.03	Moderately Knowledgeable	1.035
Knowledge on feeding Flesh foods (meat, fish, poultry) as a complimentary feeding	3.59	Slightly Knowledgeable	1.280
Knowledge on feeding Eggs as a complimentary feeding	4.39	Moderately Knowledgeable	.764
Knowledge on feeding Vitamin-A rich fruits and vegetables as a complimentary feeding	4.39	Moderately Knowledgeable	.901
Knowledge on feeding Other fruits and vegetables as a complimentary feeding	4.37	Moderately Knowledgeable	.825
Average	4.18	Moderately knowledgeable	.94

Figure 10: Table 7 :

8

Ethiopia, April 2013

	Mean	VI	Std.Deviation
Feed a child of 6-8 months at least 2 times	3.66	Slightly Knowledgeable	1.319
Feed a child of 9-23 months at least 3 times	4.03	Moderately knowledgeable	1.173
Average	3.84	Slightly Knowledgeable	1.24

Figure 11: Table 8 :

9

Northern Ethiopia June 2013

ANOVA

		Sum of Squares		df	Mean Square	F	Sig.
Frequency of breast feeding	Between Groups	13.653		4	3.413	4.068003	
	Within Groups	449.770		536	.839		
	Total	463.423		540			
Child should be feed grains, tubers and roots	Between Groups	8.915	249.037	257.952	4	2.229	4.797001
	Within Groups				536	.465	
	Total				540		
Child should be feed vitamin-A rich fruits and vegetables	Between Groups	12.491	425.993		4	3.123	3.929004
	Within Groups	438.484			536	.795	
	Total				540		
Child should be feed other fruits and vegetables as	Between Groups	21.596	345.938		4	5.399	8.365000
	Within Groups	367.534			536	.645	
	Total				540		
Feed a child of 9-32 months at least 3 times a day	Between Groups	18.991	723.593		4	4.748	3.517008
	Within Groups	742.584			536	1.350	
	Total				540		

Mothers knowledge that a child should be breast feed at least 8 times a day ANOVA yields significant variation among mothers educational status F(4, 536)= 4.06,p=0.003. Tukey HSD showed that mothers with college diploma(x=4.52), secondary education (x=4.47) and primary education (x=4.44 more knowledgeable that mothers that can read an write x= 3.89.

Figure 12: Table 9 :

10

Northern Ethiopia June 2013

		ANOVA					
Level of income and mother's knowledge		SS		df	MS	F	Sig.
Frequency of breast feeding	Between Groups	15.35		4	3.839	4.645	.001
	Within Groups	442.21		535	.827		
	Total	457.57		539			
Child should be feed grains, tubers and roots	Between Groups	8.310	237.71	4	2.077	4.675	.001 Sig
	Within Groups	246.02		535	.444		
	Total			539			
Child should be feed legumes and nuts	Between Groups	22.035	503.846 531	4 525.881 535	5.509	5.806	.000 Sig
	Within Groups				.949		
	Total						
Child should be feed dairy products	Between Groups	18.608	532.131 531	4 550.739 535	4.652	4.642	.001 Sig
	Within Groups				1.002		
	Total						
Child should be feed eggs	Between Groups	7.281		4	1.820	3.407	.009 Sig
	Within Groups	284.756 533			.534		
	Total	292.037 537					
Child should be feed vitamin-A rich fruits and vegetables	Between Groups	7.629	384.594 532	4 392.223 536	1.907	2.638	.033 Sig
	Within Groups				.723		
	Total						
Child should be feed other fruits and vegetables as	Between Groups	6.745	343.800 534	4 350.545 538	1.686	2.619	.034 Sig
	Within Groups				.644		
	Total						
Feed a child of 6-8 months at least 2 times a day	Between Groups	34.001		4	8.500	5.065	.001 Sig
	Within Groups	896.217 534			1.678		
	Total	930.219 538					

Figure 13: Table 10 :

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