



GLOBAL JOURNAL OF MEDICAL RESEARCH
INTERDISCIPLINARY

Volume 13 Issue 6 Version 1.0 Year 2013

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals Inc. (USA)

Online ISSN: 2249-4618 & Print ISSN: 0975-5888

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GJMR-K Classification : *NLMC Code: WD 100, WS 113*



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

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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.

Method: The study was conducted in Mekelle in two of its sub cities Kedamy Weyane and Ayder subcities. This cross-sectional study involves 541 mothers and multistage sampling design was used.

Result: The results revealed that average mean of mothers knowledge on vitamin A were .95 which is moderately knowledgeable and the knowledge average mean for mother's knowledge on Iodine were 1.02, and 0.7 for iron mothers average mean knowledge for breast feeding were 1.34, 1.22 for knowledge of the mother on food diversity. Knowledge on minimum food frequency the mother's average mean score were 0.85. There is also a mean knowledge difference among the monthly income and mother's educational level.

Conclusion and recommendation: Over all mothers had a moderate and slight knowledge on infant and young child feeding. Knowledge increases in parallel with educational and income level. Better knowledge enhancement is recommended by involving the mass media and the health care profession.

Keywords: breast feeding, complimentary feeding, indicators.

I. INTRODUCTION

a) Background

Nutrition is important part of child's growth and development. Especially the first two years of life are considered to be the window of opportunity

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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 government adapted the Infant and Young Child Feeding (IYCF) guideline in 2004. 1

b) Statement of the Problem

Malnutrition still takes the lead in child mortality and morbidity having 57% as a cause of mortality in children. Malnutrition poses a treat for health of children that are the futures of productive manpower. Ethiopia's

under-five mortality rate in 2011 was 88 per 1000 live births. Children are the future of society and mothers are guardians of that future.

A lot of children in this area have problems of malnutrition and deficiencies in micronutrients. 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 mentioned 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 age-appropriate breastfeeding. 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 fed at least the minimum number of times. Five percent of children were fed according to minimum standards with respect to food diversity (four or more food groups).

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 at assessing mother's knowledge on micronutrients.

Very few researches have been done addressing mothers' knowledge and practice of these indicators in this part of the country. This research is one of its kinds trying to assess the 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 for addressing this issue and gaining the focus of policy makers and resource allocators of health bureau and NGO organizations.

c) *Significance of the Problem*

Our country's 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-nourished and the mother plays 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 workers, policy makers, nursing and midwifery and

health educators to disseminate information regarding infant and young child feeding.

II. METHODS

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

Independent variables include Socio-Demographic Variables (Age, Marital status, Household income, Mother's occupation, mother's educational status, Age of parity), Mother's characteristics (antenatal visits, place of delivery, exposure to media, mother's exposure to mother-to-mother support group and source of information) and Mother's knowledge on micronutrients. Outcome variables were Mother's knowledge on Infant and Young Child Feeding and knowledge on micronutrients.

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.

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

The data were edited, coded, entered into 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 assess the relative impact of predictor variables on the knowledge of feeding.

Ethical clearance was obtained from the 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 requirements 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.

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 1)

Table 1 : Socio-demographic characteristics and Socio- economic status of mothers and their children in Mekelle, Northern Ethiopia, March 2013

| Variable | Number | Percentage (%) | |
|---------------------------------------|---------------------------|----------------|------|
| Age of mother | 15-24 | 197 | 36.4 |
| | 25-29 | 212 | 39.2 |
| | 30-49 | 132 | 24.4 |
| Occupation status | Currently working | 178 | 32.9 |
| | Not working | 363 | 67.1 |
| Monthly income | <=500 | 84 | 15.5 |
| | 501-1000 | 68 | 12.6 |
| | >1000 | 124 | 22.9 |
| | Don't have income | 57 | 10.5 |
| | Don't know income | 208 | 38.4 |
| Level of education | no education | 84 | 15.5 |
| | can read and write | 36 | 6.7 |
| | primary education | 180 | 33.3 |
| | secondary education | 163 | 30.1 |
| | college diploma and above | 78 | 14.4 |
| Sex of child | Male | 290 | 53.6 |
| | Female | 251 | 46.4 |
| Age of child | <=6 | 115 | 21.3 |
| | 7-12 | 189 | 34.9 |
| | 13-24 | 237 | 43.8 |
| Age of mother at the time of delivery | 16-24 | 228 | 42.1 |
| | 25-29 | 216 | 39.9 |
| | 30-49 | 97 | 17.9 |

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 1)

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. Concerning 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. (Table 2)

Table 2 : Obstetrics and health service distribution of mothers in Mekelle, Northern Ethiopia, April, 2013

| 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 |

c) Source information

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)

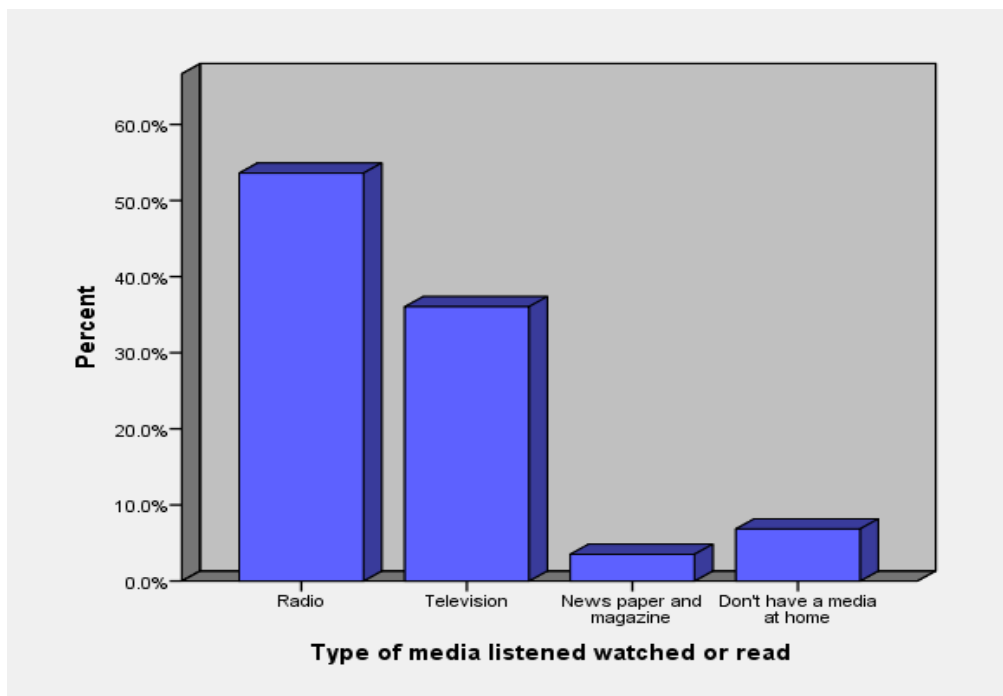


Figure 1 : Type of media watched, listened or read by mothers in Mekelle, Northern

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)

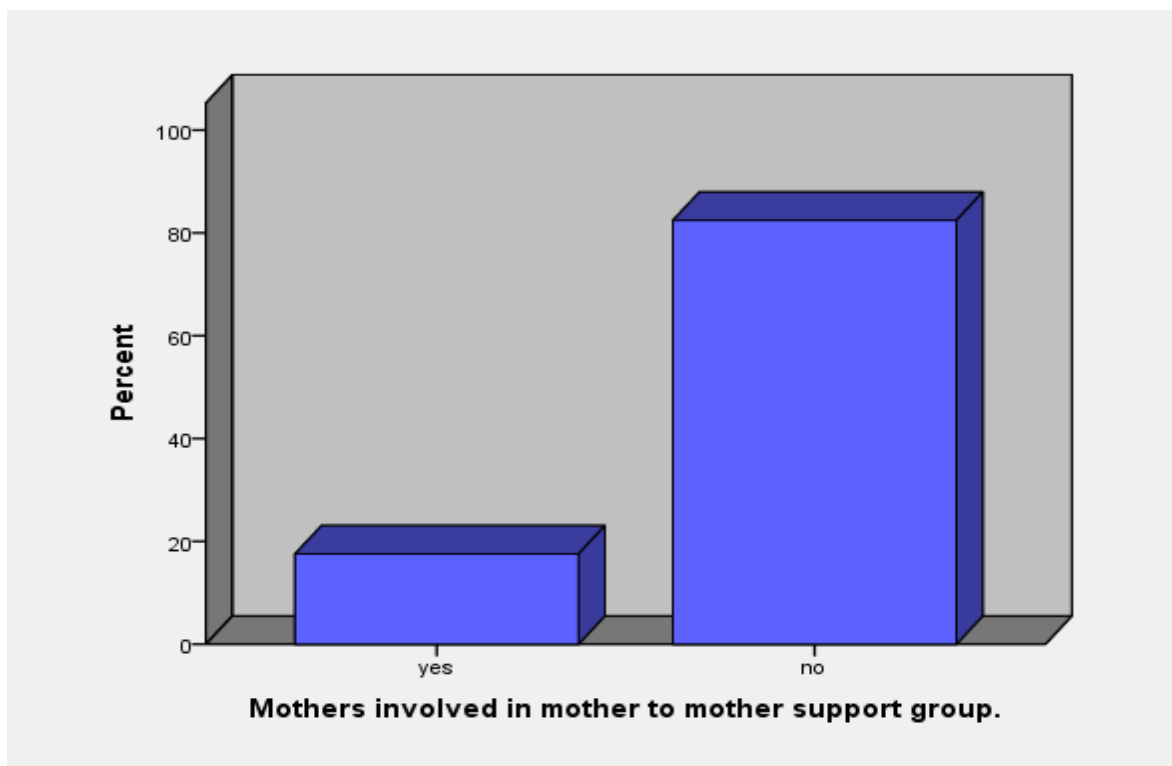


Figure 2: Mothers involved in mother to mother support group in Mekelle, Northern Ethiopia, April 2013

In this study the result revealed that majority of the mothers get information of feeding their child from community health worker and nurses/midwives 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.

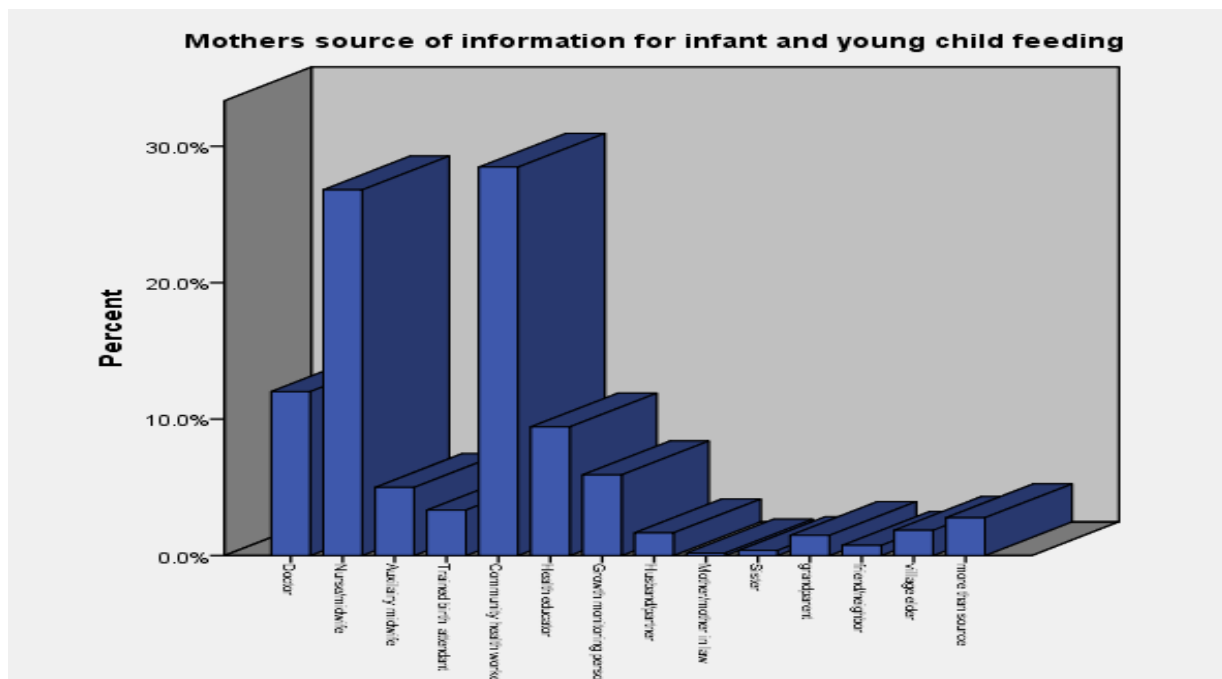


Figure 3: Source of information on infant and young child feeding of mothers in Mekelle, Northern Ethiopia, April 2013

d) *Mother's knowledge on Micronutrient*

i. *Mother's knowledge on Vitamin A*

The average weighted mean indicated that mothers knowledge on vitamin A were moderately knowledgeable $x = 3.89$. The weighted mean of mother knowledge on vitamin A were moderately knowledgeable on importance of vitamin A in diet ($x=4.32+ 0.72$) and vitamin A's importance on

disease resistance ($x=4.16 + 0.90$). Mothers were slightly knowledgeable on vitamin A deficiency can cause growth retardation ($x=3.77 + 1.13$) and that egg and animal product contains vitamin A ($x=3.74 + 1.07$). (Table 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, $F(4, 536)=19.17, p=000$.

Table 3 : Mother's knowledge on vitamin A in Mekelle, Northern Ethiopia, 2013

| | Mean | VI | Std. Deviation |
|--|------|--------------------------|----------------|
| Importance of vitamin A | 4.32 | Moderately knowledgeable | .718 |
| Vitamin A deficiency causes blindness | 3.94 | Slightly Knowledgeable | .947 |
| Vitamin A deficiency causes night blindness | 3.91 | Slightly Knowledgeable | .996 |
| Vitamin A deficiency causes bitot's spot | 3.51 | Slightly Knowledgeable | 1.001 |
| Vitamin As importance on disease resistance | 4.16 | Moderately knowledgeable | .906 |
| Vitamin A deficiency causes growth retardation | 3.77 | Slightly Knowledgeable | 1.134 |
| Vitamin A is found in dark green leafed vegetables yellow colored fruits and yellow colored vegetables | 3.79 | Slightly Knowledgeable | 1.070 |
| Vitamin A is found in egg and animal products | 3.74 | Slightly Knowledgeable | 1.073 |
| Average | 3.89 | Slightly Knowledgeable | 0.98 |

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)

Table 4 : Mother's knowledge on iodine in Mekelle, Northern Ethiopia, April 2013

| | Mean | VI | Std.Deviation |
|--|------|--------------------------|---------------|
| Goiter can be caused by iodine deficiency | 4.22 | Moderately knowledgeable | .904 |
| Iodine deficiency can cause mental retardation | 3.91 | Slightly Knowledgeable | 1.028 |
| Salt should be added in to a stew before | 3.87 | Slightly Knowledgeable | 1.360 |
| Storing salt in dark closed container | 3.87 | Slightly Knowledgeable | 1.087 |
| Average | 3.96 | Slightly knowledgeable | 1.09 |

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)

Table 5 : Mother's knowledge on Iron in Mekelle, Northern Ethiopia, April 2013

| | Mean | VI | Std.Deviation |
|----------------------------|------|------------------------|---------------|
| Iron deficiency and anemia | 3.76 | Slightly Knowledgeable | .97 |

| | | | |
|---|------|--------------------------|------|
| Whole cow's milk is low in iron | 3.02 | Slightly Knowledgeable | 1.15 |
| Importance of fruit for iron absorption | 3.84 | Slightly Knowledgeable | .94 |
| Importance of iron for child health | 4.06 | Moderately knowledgeable | .93 |
| Average | 3.67 | Slightly Knowledgeable | 0.99 |

- e) *Mothers knowledge on infant and young child feeding* moderately knowledgeable on immediate initiation of breast feeding ($x=4.65+ 0.75$). Mothers were moderately knowledgeable on exclusive breast feeding ($x=4.16+ 1.06$) as well. (Table 6)
- i. *Mother's knowledge on breast feeding*
 Immediate initiation of breast feeding is recommended after birth. In this study mothers were

Table 6 : Mothers knowledge on breast feeding in Mekelle, Northern Ethiopia, April 2013

| | Mean | VI | Std. Deviation |
|--|------|--------------------------|----------------|
| Immediate Initiation of breast feeding | 4.65 | Moderately knowledgeable | .752 |
| Colostrums should be fed to child | 4.65 | Moderately knowledgeable | .813 |
| Breast feeding at least 8 times a day | 4.42 | Moderately knowledgeable | .926 |
| Crying as a sign of hunger | 3.77 | Slightly Knowledgeable | 1.247 |
| Exclusive breast feeding | 4.16 | Moderately knowledgeable | 1.064 |
| Average | 4.25 | Moderately Knowledgeable | 1.01 |

- ii. *Mothers knowledge on food diversity and minimum food requirement* 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)
- 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

Table 7 : Mother's knowledge on complimentary feeding and diversity of food in Mekelle, Northern Ethiopia, April 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 |

Mother's knowledge on food frequency for children in this study tells us that they were slightly knowledgeable on feeding a child of 6-8 months at least 2 times a day ($x=3.66+ 1.32$) and having mean score of

4.03 and standard deviation of 1.17 the mother is moderately knowledgeable on feeding a child of 9-23 months at least 3 times a day

Table 8 : Mother's knowledge on food frequency of child 6-8 months and 9-23 months in Mekelle, Northern 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 |

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 Shapiro-wilk 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 $-0.593^*, 0.144, p=0.000$

Table 9 : Mother knowledge on infant and young child feeding and difference in the level of education in Mekelle, Northern Ethiopia June 2013

| ANOVA | | | | | | |
|---|----------------|----------------|-----|-------------|-------|------|
| | | Sum of Squares | df | Mean Square | F | Sig. |
| Frequency of breast feeding | Between Groups | 13.653 | 4 | 3.413 | 4.068 | .003 |
| | Within Groups | 449.770 | 536 | .839 | | |
| | Total | 463.423 | 540 | | | |
| Child should be feed grains, tubers and roots | Between Groups | 8.915 | 4 | 2.229 | 4.797 | .001 |
| | Within Groups | 249.037 | 536 | .465 | | |
| | Total | 257.952 | 540 | | | |
| Child should be feed vitamin-A rich fruits and vegetables | Between Groups | 12.491 | 4 | 3.123 | 3.929 | .004 |
| | Within Groups | 425.993 | 536 | .795 | | |
| | Total | 438.484 | 540 | | | |
| Child should be feed other fruits and vegetables as | Between Groups | 21.596 | 4 | 5.399 | 8.365 | .000 |
| | Within Groups | 345.938 | 536 | .645 | | |
| | Total | 367.534 | 540 | | | |
| Feed a child of 9-32 months at least 3 times a day | Between Groups | 18.991 | 4 | 4.748 | 3.517 | .008 |
| | Within Groups | 723.593 | 536 | 1.350 | | |
| | Total | 742.584 | 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 ($x=4.44$) are more knowledgeable that mothers that can read and write $x= 3.89$.

Mothers knowledge that a child should be feed grain roots and tubers there was a significant group difference $F(4,536)=4.80, p=0.001$ Tukey post hoc test shows that mothers that have secondary school educational status ($x=4.58$) are more knowledgeable than mothers with no education ($x=4.25$) or mothers that can read and write ($x=4.19$).

On mothers knowledge that a child should be feed vitamin A rich fruits mothers was a significant group difference $F(4,536)=4.80, p=0.004$. Mothers that have secondary school educational status ($x=4.53$) are more knowledgeable than mothers with no education ($x=4.14$) or mothers that can read and write ($x=4.08$).
 Mother knowledge on Infant and young child feeding and level of income

Table 10 : Mother knowledge on infant and young child feeding and difference in the level of income in Mekelle, 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 | Significant |
| | Within Groups | 442.21 | 535 | .827 | | | |
| | Total | 457.57 | 539 | | | | |
| Child should be feed grains, tubers and roots | Between Groups | 8.310 | 4 | 2.077 | 4.675 | .001 | Significant |
| | Within Groups | 237.71 | 535 | .444 | | | |
| | Total | 246.02 | 539 | | | | |
| Child should be feed legumes and nuts | Between Groups | 22.035 | 4 | 5.509 | 5.806 | .000 | Significant |
| | Within Groups | 503.846 | 531 | .949 | | | |
| | Total | 525.881 | 535 | | | | |
| Child should be feed dairy products | Between Groups | 18.608 | 4 | 4.652 | 4.642 | .001 | Significant |
| | Within Groups | 532.131 | 531 | 1.002 | | | |
| | Total | 550.739 | 535 | | | | |
| Child should be feed eggs | Between Groups | 7.281 | 4 | 1.820 | 3.407 | .009 | Significant |
| | Within Groups | 284.756 | 533 | .534 | | | |
| | Total | 292.037 | 537 | | | | |
| Child should be feed vitamin-A rich fruits and vegetables | Between Groups | 7.629 | 4 | 1.907 | 2.638 | .033 | Significant |
| | Within Groups | 384.594 | 532 | .723 | | | |
| | Total | 392.223 | 536 | | | | |
| Child should be feed other fruits and vegetables as | Between Groups | 6.745 | 4 | 1.686 | 2.619 | .034 | Significant |
| | Within Groups | 343.800 | 534 | .644 | | | |
| | Total | 350.545 | 538 | | | | |
| Feed a child of 6-8 months at least 2 times a day | Between Groups | 34.001 | 4 | 8.500 | 5.065 | .001 | Significant |
| | Within Groups | 896.217 | 534 | 1.678 | | | |
| | Total | 930.219 | 538 | | | | |

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 $F(4,531)=5.86, p=0.000$. 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 $F(4,531)=4.64, p=0.001$ 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. 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 test²⁰, 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 education¹⁹ comparing 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 Gölbashi 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 $X = 14.36 \pm 2.54$, primary school graduate = 15.64 ± 2.01 , secondary school graduate $X = 15.75 \pm 1.92$, high school graduate $X = 16.61 \pm 1.89$, university or master's degree holder $X = 17.00 \pm 1.75$.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 employed¹⁹

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/midwives 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% CI) 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. 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

b) *Limitation*

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

VI. 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.

VII. RECOMMENDATION

Mass communication and media, non-governmental 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.

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