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Nutritional Knowledge and Determinant Factors Among Lactating Mothers in Nekemte Referral Hospital and Health Centers, East Wollega, Ethiopia

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Abstract
Background: Lactating mothers from low-income countries including Ethiopia are considered as a nutritionally vulnerable group due to different socio demographic factors and lack of nutritional knowledge which impact on the health and well being of children. Adequate nutrition for the mothers during lactation is therefore important for their good health as well as for that of their offspring. However community based information regarding nutritional knowledge and associated factors among lactating mothers is lacking and scanty. Objective: To assess nutritional knowledge, and associated factors among lactating mothers in Nekemte Hospital and Health Centers, East Wollega, Ethiopia.

Methods: Institution based cross-sectional study was done from January 2014 to June 2014. The study was conducted using structured and pre-tested questionnaire**.** Data on socio-demographic characteristics, nutritional knowledge and associated factors was collected from all lactating mothers who visited both health institutions during postnatal care and EPI program. The association of nutritional knowledge with socio-economic and demographic factors was analyzed using descriptive statistics, binary and multiple logistic regression analysis.

Results: This study revealed that majority of the women 260(81.3%) was in the age range of 17-25 yrs and attending school 292 (91.3%). This research also showed that 185(57.8%) of lactating mothers had good nutritional knowledge while a significant proportion of the respondent, 135(42.2%) of mothers had poor nutritional knowledge. From multiple logistic regression analysis family size (AOR=4.604, 95%CI=1.903-11.140), family income (AOR=0.250, 95%CI=0.100-0.623) and knowledge of foods that were significantly associated with the nutritional status of the study participants.

Conclusions: Nutritional knowledge of the lactating mothers were short of the national and international recommendations. Therefore, sustained nutrition education is recommended to the lactating mothers and their families and communities to improve food intake, proper dietary knowledge during lactation in order to enhance health and nutrition outcomes of lactating mothers and their children.

Keywords: Lactating mothers, Nutritional knowledge, associated factors

1. INTRODUCTION

Nutrition is the sum total of the processes involved in the intake and utilization of food substances by living organisms, including ingestion, digestion, absorption, transport and metabolism of nutrients found in food. Nutrition is a fundamental pillar of human life, health and development throughout the entire life span. Lactating mothers from low-income countries including Ethiopia are considered as a nutritionally vulnerable group due to different socio demographic factors and lack of nutritional knowledge which impact on the health and well being of children. Nutrition knowledge is the understanding of different types of food and how food nourishes the body and influences health (Valeggia and Ellison, 2003).

Lactating mothers and children are the most vulnerable to malnutrition due to: low dietary intakes & low family income, inequitable distribution of food within the household, low educational level & low occupational status, frequent round delivery & culture and work over load in the house hold, lack of frequent meal delivery & low family encouragement, limited accessibility of nutritional information and nutritional knowledge, infectious

diseases, and health care Although breastfeeding is one of the most natural functions of a woman‘s body, knowledge about lactation can make breastfeeding a success for both the mother and infant. Parents should make decisions about feeding their infant(s) based on accurate information, thus providing information to the lactating mother should be an integral part of prenatal care (Insel *et al*., 2003)

Nutrition knowledge for lactating mothers is one key factor that determines the health and well being of mothers and infant. If mothers had good Nutritional knowledge she understands different types of food, how food nourishes the body and influences health. About 14 million adolescent girls worldwide become lactating mothers each year and more than 90% of these very young and reproductive mothers live in developing countries. The studies show that Ethiopia is one of the countries with the highest levels of lactating mothers' malnutrition in Sub-Saharan Africa. Among malnutrition under nutrition is a serious problem in Ethiopia & lactating mothers and children are the most affected segments of the population. One of every four lactate mothers in Ethiopia is undernourished (CSA, 2006).

If the mother is underweight during lactating the nutrients that are transferred to the baby will be of poor quality and quantity. On the other hand, if the mother is overweight, it will hamper the blood circulation to the uterus and restricts the quantity of nutrients transferred to the mammary gland of mothers for milk production and to the baby.

Lacks of nutrition in lactate mothers induce metabolic disturbances early in life of infancy, particularly those related to nutrition induce irreversible physiologic alterations in infant. Therefore, nutritional inadequacy of the lactating mothers not only affects milk composition and production but also the health of the mothers, infancy and adulthood of human life.Therefore, the findings of this study were aimed to show the extent of problem of nutritional knowledge and factors of lactating mothers in the study area. It is the position of the American Dietetic Association (ADA) and Dieticians of Canada (DC) that women have specific nutritional needs and vulnerabilities and, as such, are at unique risk for various nutrition-related diseases and conditions. Therefore, the ADA and DC strongly support research, health promotion activities, health services, and advocacy efforts that will enable women to adopt desirable nutrition practices for optimal health(American Dietetic Association,2004). Mothers are the major providers of food for their families and are also a substantial source of nutrition information for their children. It is thus important that mothers have good nutrition knowledge and are aware of the recommended intakes of core foods (Research Pty Ltd, 2002).

A study done among Hong Kong Chinese women by Chan et al in 2000 showed that there was a high rate of discontinuation of breastfeeding in a group of mothers who were selected on the basis that they intended to breastfeed exclusively for three months. Although the mothers were aware of the benefits and techniques of breastfeeding and were apparently encouraged by hospital staff to breastfeed, a feeling of an insufficient milk supply and difficulties in managing breastfeeding-related problems were given as the main reasons for the early discontinuation of breastfeeding (Nelson, 2000). More effort is needed to foster mothers ‘confidence, commitment and knowledge in breastfeeding. The study among 2619 postpartum Honduran women who had had a normal, in-hospital delivery in one of 16 public hospitals located throughout the country also revealed that standardized health education for Honduran women of reproductive age was needed if folic acid consumption through fortification and supplementation is to be successful and sustainable in order to prevent neural tube defects (Behrman J and Wolfe, 2006). Providing information about bodily functions, health risks and how to avoid them is not effective in bringing about specific behavioral changes to maintain optimal health. The key is to show that modification of the diet is desirable and will have positive outcomes (Gowdy and Kenna, 2008). Other than the benefit of mothers taking better care of themselves with better nutrition knowledge, the demand for child micronutrient status may depend largely on maternal nutrition knowledge. Indeed, Block (in 2002) found that maternal nutrition knowledge was a more central determinant of child micronutrient outcomes than maternal schooling. Maternal education has however also played a central role in empirical studies of the demand for child health (usually measured by height). Behrman and Wolfe (in2006), Alderman and Garcia (in 2004), and others consistently found a strong positive association between maternal education and child height (Alderman and Garcia, 2004). Far fewer studies have extended the analysis to consider the mechanisms through which maternal education contributes to child height.(Barrera, 2007).

Barrera (in 2005) drawing on Philippines data, considered the impact of maternal education on the height of children of different ages, found the greatest sensitivity in pre-schoolers particularly during the weaning period. Moreover, Barrera demonstrated that there may be an interaction effect between maternal education and public health programmers such that more educated mothers are able to use health inputs more efficiently and benefit more from the reduced cost of health information (Glewwe, 2011).

Glewwe (in 2011) addressed similar questions with Moroccan data, considering three possible mechanisms: The direct teaching of nutrition knowledge in school.

- The facilitation of gaining nutrition knowledge that comes from the literacy and numeracy learned in school.
- Exposure to modern society through school.

He found that maternal knowledge stood alone among these possible mechanisms in contributing to child height (his proxy for health), and that such knowledge was gained largely outside the classroom (Thomas D.etl,2008). Such findings have direct and important policy implications as formal schooling is often limited among the poor, the potential benefits of specific nutrition training may be substantial (Barrera A, 2007).

Information on nutritional knowledge and associated factors of the lactating women are urgently needed for prioritizing, designing and initiating intervention programs aimed at improving maternal nutrition. However, Research based information regarding lactating maternal nutrition from the study communities is lacking and scanty. Thus, special attention should be given to the diet of mother during lactation, in which it can vary from place to place. Therefore, this study was aimed to assess nutritional knowledge and associated factors of lactating mothers in the study area.

2. Material and Methods

Nektemte town was founded in 1865 as a small village under the auspices of King Moroda Bakare. The word Nekemte derived from the owner of the land whose name "Nekemte Gada Otaa'' who had lived for a long time at this specific place. Initially it serving as a center of trade root, by the name "sarara" trade exchanged their product like slave, ivory, gold, silver, and different types of grain from Maji and Kafa to Mitui,Gondor and Gojam.

The town has an altitudinal range of 1,960 to 2,170 meter above sea level and its temperature range is 14^0C-26^0C and its annual rain fall is between 1500 -2200mm. The population of Nekemte town is 76,817 out of which male constitutes 39,167 while the remaining 37,650 are female. Oromo People are the major ethnicity in the town There Are two public health centers and one referral hospitals in Nekemte town.

Study Design
A cross sectional institution based study design was employed to assess nutritional knowledge, and associated factors of lactating mothers in the study area.

Source Population
Lactating mothers living in Nekemte City who were visiting Nekemte Hospital and Health Centers for family planning and postnatal care during the study period care were considered as the source of population.

Study Population
Sampled lactating mothers were who visiting Nekemte Referral Hospitals and Health Centers for family planning and postnatal care during data collection period.

Inclusion Criteria
Those lactating mothers (age 15-49) living in Nekemte City and who were visiting at Nekemte Hospital and Health centers for post natal care during the study period.

Exclusion Criteria.
Lactating mothers who were critically ill, have hearing impairment and physical deformity.

Sample Size Determination
The sample size of the study was determined by considering the country prevalence rate of under nutrition of lactating mothers (25%) reported by CSA (2001).The expected prevalence rate the sample size was calculated with 5% marginal error and 95%CI and none response rate of 9%. Based on the above assumption, the sample size for the study was determined using the formula for single population proportion as follows.

$$n = \frac{(Z\alpha/2)^2 p\,(1-q)}{d^2}$$

Where:

n = Sample size

z = z value corresponding to a 95% level of significance = 1.96

p = expected prevalence rate of lactating = 25% = 0.25

q = (1 - p) = (1 - 0.25) = 0.75

d = absolute precession (5%)

Therefore, 288 lactating mothers of 15-49 years were examined for this particular study and in addition to none response rate of 9% (=32) lactating mothers.

Sample Procedure

The calculated sample size was proportionally allocated to the hospital and health centers based on their population size according to the average number of clients registered prior to the study period in the respective institutions.

Data Collection Procedure

A structured questionnaire first prepared in English and translated to Afan Oromo and then translated back to English to check its Consistency. The main points included in the questionnaire were used to assess the socio-demographic characteristics and the nutritional knowledge of the lactating mothers. Trained female research assistants who are fluent in the local language administered the pre-tested questionnaire to selected lactating mothers in the hospital, health centers and their own respective homes. For administering the structured questionnaire, four female nurses were recruited from the study area to conduct exit interview. Training was given for two days (including half day of pretest) on the objective, relevance of the study, confidentiality of information, respondent's right, informed consent and techniques of interview. Moreover, class room practical demonstration of the interview was carried out. Two Supervisors who has first degree in nursing have supervised the data collection. They closely followed up the data collection process throughout the data collection period along with the principal investigator. Data collected from the field were revised each night every day with data collectors and errors were corrected for the next day data collection.

3. Result

Nutritional Knowledge of Lactating Mothers

Out of the total study participants more than half of them, 187 (58.3%), have nutritional information (education) while 135 (42.5%) have no information on nutrition. Majority of the respondents, 212 (66.80%), were able to define what food is; while 108 (34.1%) were not define what food is or don't know. Regarding the meaning of food staffs 167 (52.6%) of lactating mothers have correctly described them.

Concerning the importance of food during lactation, 279 (88%), 290 (91.4%), 291 (91.7%) and 296 (93.3%) believe that food is important in providing energy and heat, proper body functions, growth and development of the fetus during lactation respectively. Most of the mothers, 200(63.1%), were able to positively responded the use of protein while, 120 (37.8 %,) couldn't. More than fifty percent of the respondents, 172 (54.2%), were able to list the sources of protein food. Concerning the source of carbohydrate, minerals and vitamins more than fifty percent of the respondents, 181 (57.1%), 177 (55.8%), 160 (50.4%) were able to listed the different food items respectively. Regarding the importance of extra food during breastfeeding, all of the respondents, 317 (100%) agreed positively the necessity of additional food during breastfeeding.

The majority of participants, 233 (73.5%), of the study group were reported that their family encourage them to take variety of foods the frequently during lactating, while about one-fifth, 67 (21.1%), reported that they do not have encouragement or support from their family. A large group of respondents, 258 (81.3%), were reported that porridge is a specific and cultural food for mothers during lactation for two to three months.

Out of the total study participants majority of them 302 (95.2%) didn't know the types of foods that culturally forbidden. Few of lactating mothers 18 (5.6%) told that eating raw beef is forbidden culturally. Further, they explained that extreme hot and cold fluid causes abdominal pain for mothers and they also told that fatty foods are not good for breast milk during lactation.

Regarding cultural foods all of the respondents, 317 (100%), mentioned that porridge, manye'ee, ancote, and vegetable soup are good for lactating mothers. They reason out that these foods help to replace blood lost during delivery and support in maintaining strength for mothers.

Table 3.1**Nutritional knowledge Assessment of Lactating Mothers, 2014.**

Key of the questioner for general knowledge assessment	Responses(Yes/No)	N(%)
Have nutritional information	Yes	185(58.3%)
	No	135(42.5%)
	Total	317(100%)
Know food definition	Yes	212(66.8%)
	No	108(34.1%)
	Total	317(100%)
Listed main food staff	Yes	167(52.6%)
	No	153(48.2%)
	Total	317(100%)
know use of protein foods	Yes	200(63.1%)
	No	120(37.8%)
	Total	317(100%)
Listed old the sources of protein	Yes	172(54.2%)
	No	148(46.6%)
	Total	317 (100%)
Know the use of carbohydrate foods	Yes	181(57.1%)
	No	139(43.8%)
	Total	317(100%)
Listed some sources of carbohydrate	Yes	177(55.8%)
	No	143(45.1%)
	Total	317(100%)
Listed some vitamin and mineral foods	Yes	160(50.4%)
	No	159(50.1%)
	Total	317(100%)
Do you think that lactating mothers need extra food during lactation?	Yes	317(100%)
	No	-
	Total	317(100%)
Do your family members encourage for frequent taking foods during lactation?	Yes	253(79.8%)
	No	67(21.1%)
	Total	317(100%)
Do you know foods that should be specifically eaten when breast feed?	Yes	278(87.6%)
	No	41(12.9%)

	Total	317(100%)
Do know how many meals should breastfeeding mothers take in a day?	Yes	264(83.2%)
	No	46(14.5%)
	Total	317(100%)
Are there foods that a breast feeding mothers should not eat you community?	Yes	40(12.6%)
	No	282(88.9%)
	Total	317(100%)

Factors associated with nutritional knowledge of lactating mothers.

To determine the association between nutritional knowledge and explanatory variables bivariate analysis was performed using logistic regression model and the result was included in Table 3.2. The result shows that there is association between nutritional knowledge and the following explanatory variables: occupational status of mothers, occupational status of husband, meaning of carbohydrate, meaning of protein foods, source of protein food, sources of carbohydrate, vitamin and mineral and main food staffs of the respondents ($p<0.05$).

As observed from Table 3.2 definition of food, meaning of carbohydrate, meaning of protein foods, source of protein food, sources of carbohydrate, and main food staff were weakly associate to the outcome variables ($p<0.01$). On the other hand, occupation of mothers, occupational status of husband, vitamin and mineral were strongly associated with nutritional knowledge ($p<0.001$).

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Table 3.2 Bivariate logistic regression analysis of knowledge of lactating mothers in 2014.

Variable	Categories	Nutritional information		p-value	COR (95%CI)
		Yes (%)	No (%)		
Mother Occupation	Governmental employed	26(38.3%)	40(61.7%)	0.002	8.842(2.703-4.828)**
	un employed	41(62%)	32(48%)	0.042	2.508(0.252-5.790)
	Business	29(65.9%)	15(34.1%)	0.015	4.256(2.427-5.694)**
	House wife	80(58.4%)	52(41.6%)	0.026	3.694(0.273-6.467)
	Others	16(88.9%)	2(11.1%)	0.051	1

Husband Occupation	Government Employed	68(45.3%)	82(54.7%)	0.005	2.929(1.147-7.475)**
	Business	58(56.9%)	44(43.1%)	0.006	1.842(0.703-4.828)
	Farmers	29(65.9%)	15(34.1%)	0.055	1.256(0.427-3.694)
	Others	17(70.8%)	7(29.2%)	0.900	1
Know main food staffs	Yes	74((45.1%)	90(54.9%)	0.007	0.487(0.311-0.761)*
	No	98(62.8%)	58(37.2%)	0.040	1
Know what protein food are?	Yes	93(48.7%)	98(51.3%)	0.001	0.601(0.382-0.946)*
	No	79(61.2%)	50(38.8%)	0.037	1
Know source of protein	Yes	74(44.0%)	94(56.0%)	0.034	0.434(0.276-0.681)*
	No	98(64.5%)	54(35.5%)	0.041	0.9
Knowledge of carbohydrates	Yes	75(43.4%)	98(56.6%)	0.055	0.394(0.250-0.622)*
	No	97(66.0%)	50(34.0%)	0.038	1
Listed source of carbohydrates	Yes	76(45.5%)	91(54.5%)	0.042	0.496(0.317-0.776)*
	No	96(62.7%)	57(37.3%)	0.058	1
Knowledge of Vitamins & mineral	Yes	106(63.2)	86(56.6%)	0.001	2.228(1.423-3.488)**
	No	66(43.4%	62(36.9%)	0.104	1

Note: * significant at 0.01, ** significant at 0.001 levels, unmarked = not significant

Concerning occupation of mothers, governmental employer and business owners lactate mothers were more likely exposed to nutritional information than other occupation (COR=8.842, 95%=2.703-4.828) and COR= 4.256,95%= 2.427-5.694). Other variable strongly associate was husband occupation in which Government employers was more likely have nutritional knowledge than other occupations (COR=2.929,95%=1.147-7.475).Those lactate mothers unable to define the meaning of food had less likely nutritional information than other lactate mothers (COR=0.37, 95%= 0.22-0.61). Lactating mothers who were able to list kinds main food staffs had less likely nutritional knowledge than those who knew the meaning (COR=0.49,95%= 0.31-0.76).

Whereas, lactating mothers those who couldn't know the meaning of protein foods, their uses and sources have less likely nutritional knowledge than those lactate mothers who define and explain food (COR=0.60,

95%=0.38-0.94).Those lactating mothers who didn't knew the meaning of carbohydrate had less likely nutritional knowledge than other respondents (COR=0.39, 95%=0.25-0.62). Again those mothers who differentiate the vitamin foods, their uses and sources had more likely nutritional knowledge than those who couldn't responded COR=2.23, 95%=1.42-3.489).

Multivariate analysis of logistic regression was performed on those factors identified in bivariate analysis to filter the net effect of each independent variable on the outcome variable of nutritional knowledge. As shown in Table 8, definition of food, protein foods, carbohydrate and occupation of mothers had found those factors which were significantly associate with nutritional knowledge (nutritional information) of lactate mothers. Whereas, family income, marital status, culture, ethnicity, age, and family size were identified not have association with knowledge of lactating mothers towards nutrition ($p>0.05$). As observed from Table 8, definition of food, knowledge of carbohydrate have weakly associate to the outcome variables ($p<0.01$)Whereas, occupation of mother and knowledge of protein foods of lactate mother were found to be significantly associate with nutritional knowledge ($p<0.001$).

Table 3.3 Multiple logistic regression of nutritional knowledge of lactate mother.

Variable	categories	Nutritional information		p-value	AOR (95%CI)
		Yes (%)	No (%)		
Mother Occupation	Governmental employed	26(38.3%)	40(61.7%)		11.508(2.25258.794)**
	Un employed	41(62%)	32(48%)		1.502(0.003-5.794)
	Business	29(65.9%)	15(34.1%)		6.931(1.458-32.957)**
	House wife	80(58.4%)	52(41.6%)		1.256(0.427-3.694)
	Others	16(88.9%)	2(11.1%)		1
Knowledge of protein	No	93(48.7%)	58(51.3%)		1
	Yes	99(61.2%)	70(38.8%)		2.827(1.171-6.827)**
Knowledge about carbohydrates	No	75(43.4%)	98(56.6%)		0.284(0.095-0.854)*
	Yes	97(66.0%)	50(34.0%)		1

In multiple logistic regression analysis government employed lactating and business owner mothers have 11.5 and6.9 times more nutritional information than other types of occupation (AOR=11.51,95%=2.25-58.794) and(AOR=6.9, 95%=1.46-32.96) respectively. As we observe from Table 3.3, those lactating mothers who didn't know the definition of foods and have less understanding about Knowledge of carbohydrates use and sources had less likely nutritional information than those who able to define foods (AOR=0.49, 95%=0.26-0.95)and AOR=0.284,95%=0.095-0.854) respectively. As illustrated on the table, lactating mothers those who respond the correct meaning of protein foods and their sources have 2.8 times more likely had nutritional information than those who couldn't respond (AOR= 2.83, 95%=1.17-6.83).

4. Discussion

Effect of Socio-demographic Factors on Nutritional knowledge of Lactate Mothers.

This study has also assessed the level of nutritional knowledge and associated factors of lactate mothers in Nekemte, East Wollega, and Ethiopia. Out of the total study participants more than half of them, 187(57.8%),

have nutritional information (education) while 135 (42.2%) have no information on nutrition. Majority of the respondents, 212(66.3.0%), were able to define what food is; while 108 (33.8%) were not define what food is or don't know. Regarding the meaning of food staffs 167 (52.2%) of lactating mothers have correctly described them.

From bivariate analysis occupational status of mothers, occupational status of husband, meaning of carbohydrate, protein foods, source of protein food, vitamin, mineral and main food staffs and their sources have association with nutritional knowledge of lactating mothers. From this study the most determinant factors that associated with nutritional information of lactating mothers were selected from multiple logistic regression models. From this model the most common determinant that significantly associated to nutritional information were occupations of lactating mothers, definition of foods, knowledge of protein foods, and knowledge of carbohydrate of lactate mothers.

Occupational status of lactating mothers is important socioeconomic variable explaining nutritional information. According to this study, Governmental employed and business owners were found to have significant nutritional information. Government Employed and business owner mothers were 11.5 and 6.9 times more likely exposed to nutritional information as compared to unemployed and house wife mothers. The probable reason for this may be employer mothers had a great chance of getting nutritional information from mass media, school, their partners, newspapers etc than others. Women's employment increases household income, with consequent benefit to household nutrition in general and the woman's nutritional knowledge in particular. Employment may increase women's status and power, and may bolster a woman's preference to spend her earnings on health and nutrition. Though employed, women without control over their income and decision-making authority within the household are deprived of economic and social power and the ability to take actions that would benefit their own well-being. Studies in Africa have indicated that, at similar levels of occupational status, households in which women have a greater control over their income is more likely to be food secure(Muller O, 2005).

Other determinant factors that affect nutritional information were general knowledge of food, knowledge about protein and carbohydrate foods. All of them significantly associated to nutritional information. As we observe from Table 8, those lactating mothers who don't knew the definition of foods and less understanding about Knowledge of carbohydrates use and sources have less likely nutritional knowledge than those who able to provide the meaning of foods. Health of the family especially the infants rotate around the mother, so it is essential to assess the knowledge and awareness of women regarding dietary usage during pregnancy, lactation and infancy. Adequate knowledge and appropriate nutritional practices play a pivotal role in determining optimal health of lactating mothers (Thompson J *et al*., 2008). Hence, the provision of health education for all lactate mothers is a prerequisite for reduction of morbidity and mortality amongst vulnerable groups of mothers and infants. The result found in this study is similar to a study conducted in Mekele, Ethiopia (Manuel F *et al.,* 2013) which indicates that half of mothers have enough knowledge regarding the main importance and function of food. Similar finding has also observed in the study (Gemeda D., 2013) performed on pregnant mothers in Guto Gida health center.

As illustrated in the multivariate logistic regression analysis, lactating mothers those who were able to provide meaning of protein foods and their sources have 2.8 times more likely nutritional knowledge than those who couldn't (AOR = 2.83,95%=1.171-6.827). Nutritional knowledge affects food choice and preparation. Knowledge particularly given to lactate mothers is a powerful weapon against malnutrition since increased knowledge and skills enable mothers to earn higher incomes and thus enhance household food security and improve the quality of day to day care women gives themselves and all members of their household, especially children. It empowers women to make optimal choices for nutritious and safe food. The result of this study is similar with the study conducted in America in which more than half of women in the study had the basic and the essential knowledge regarding the importance and sources of most of the types of carbohydrate and protein foods. (Latifa *et al.,* 2012).

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This research showed that the majority of the women had good basic knowledge on nutrition 185(57.8%). They needed further understanding of nutrition concepts which then would promote their understanding and practices. However, some women also needed the basic knowledge as they were not able to answer any of the questions of which 135(42.2%) mothers had poor nutritional knowledge.

This research also revealed that, the factors that significantly affect nutritional knowledge of lactating mothers were occupations, definition of foods, knowledge of protein foods, and knowledge of carbohydrate. Occupational status of lactating mothers is important socioeconomic variable explaining nutritional information. Government Employed and business owner mothers were 11.5 and 6.9 times more likely exposed to nutritional information as compared to unemployed and house wife mothers..

5.2 Recommendation

- Nutrition education programs and interventions should be designed to improve knowledge of food and nutrition as well as to enhance dietary diversification to encourage appropriate food.

- Nutrition intervention such as nutrition education in different villages, health centers, and health posts and women organizations should be given for the community particularly for the lactating mothers concerning nutrition during breastfeeding in the study area.

- Education opportunities to girls and women will also improve their nutrition knowledge which will consequently improve nutrient intake of all household members since food purchase and preparation are done chiefly by the women. It was affirmed by heads of state in 2000 during the signing of Millennium Declaration of Human Rights that educating girls is a powerful and necessary tool in reducing poverty and achieving human rights.

- Education has a profound effect on girls' and women's ability to claim other rights and achieve status in society, such as economic independence and political representation. Also, a need exists for establishing a nutrition education activity in maternal and child health centers in order to teach women better methods of feeding themselves during pregnancy and lactation, as well as and their infants before and throughout the weaning period.

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