ASSESSMENT OF DIETARY PRACTICE AND ASSOCIATED FACTORS AMONG PREGNANT MOTHER IN AMBO DISTRICT, WEST SHOA, OROMIA, ETHIOPIA, 2018

BekeleTolera, MPH[1], Samson Mideksa, PhD.[1], Nagasa Dida, MPH[1]

ABSTRACT

BACKGROUND: Poor maternal nutrition during pregnancy were associated with higher risk of having a preterm birth, low birth-weight, Intrauterine Growth Restrictions and facing with multiple threats to their own health and survival. There is no study conducted on assessment of dietary practices and associated factors during pregnancy in the study area.

OBJECTIVE: To assess the dietary practices and associated factors among pregnant mothers in Ambo district west Shoa Zone, Oromia region, Ethiopia.

METHODS: Community based cross sectional study supplemented with qualitative (FGD) was conducted from April, 9-19, 2018, by considering non-fasting season. Simple random sampling technique was utilized to select 10 kebeles out of 33 total kebeles. The study used SPSS windows of version 21.0. Multivariate logistic regression was used to determine factors associated with dietary practice and P-value of < 0.05 was used to declare statistical significance. Finally, 343 samples were allocated proportionally to each selected kebeles.

RESULTS: Out of 343 pregnant women 338 were interviewed yielding response rate of 98.5%. Only one fourth of pregnant women with 95% CI 22.5-32.0 had good dietary practices. Nutrition information, average monthly income, husband occupation and age of pregnant woman were independent factors for good dietary practice. Families with average monthly income greater than 4,000 birr (AOR= 15.50 at 95% CI 3.89-61.78), pregnant mothers whose age in the rage of 27-35 year (AOR: 0.425 with 95% CI of 0.193-0.938), pregnant mothers who had no nutrition information (AOR: 0.020 with 95% CI of 0.006, 0.069), and daily laborer husband of pregnant mothers (AOR: 0.058 with 95% CI, 0.005-0.718).

CONCLUSION: The prevalence of good dietary practice among respondents was very low. The factors associated with dietary practice were nutrition information, family monthly income, husband occupation and age of pregnant women. Thus, Ambo district health office should consider identified factors in their plan to reduce the prevalence of poor dietary practice. Particularly, health extension workers, and health workers have to give due attention by awareness creation of pregnant mothers. As well, it is recommended for further assessments on dietary practice to identify additional factors affecting dietary practices of pregnant mothers.

KEYWORDS: Dietary practice, pregnant women meal frequency, Ambo, Oromia, Ethiopia.

(Ethiopian Journal of Reproductive Health; 2018; 10; 4: 43-51)

1 *Department of Public Health, Medicine and Health Science College, Ambo University, Ambo Ethiopia*

INTRODUCTION

Healthy and balanced nutrition is fundamental for health and proper functioning of the body system throughout the life cycle of all human beings. Pregnancy is considered to be a stress test for life. This stressful condition primarily originates from the need for balanced nutrition during pregnancy to support growth and development of the fetus1.

Poor maternal nutrition during pregnancy were associated with higher risk of having a preterm birth, low birth-weight, Intrauterine Growth Restrictions and facing with multiple threats to their own health and survival2.

Balanced nutrition during pregnancy helps to improve birth outcomes and prevent the child from developing diseases such as heart disease and obesity later in life. Proper food and good nutrition are essential for survival, physical growth, mental development, performance and productivity, and health and wellbeing. However, the nutrition requirement varies with respect to age, gender, and pregnancy3.
Poor maternal nutrition and its complications is one of the direct causes of neonatal deaths resulted from preterm birth. It is responsible for 35% (3.1 million) of the world's death in a year and indirectly increases the chance of dying from infection worldwide4. Children of malnourished pregnant mothers are born with low birth weight, are disadvantaged from birth, fail to grow normally, and face a higher risk of having disease and premature death5, 6.

Seven percent of the global disease burden and at least a fifth of maternal deaths is the result of maternal malnutrition along with the increased probability of poor pregnancy outcomes 7. In South East Asia, South America and Africa countries, the region maternal under nutrition prevalence is as high as 35%8. Ethiopia prevalence of micro nutrient deficiency is severe public health concern. Particularly, anemia remained to be a challenge at national level and the Western Ethiopia is more than twenty nine percent9.

According to millennium development goal maternal nutrition during pregnancy is the target area to reduce maternal mortality and infant mortality. There had no study conducted in the study area about the assessment of pregnant mother's nutrition practices and associated factors. Hence the present study was conducted to determine prevalence of dietary practices and associated factors among pregnant mothers. These in turn provide relevant information about dietary practice for planning and intervention.

METHODS

The study was conducted in Ambo district west Shoa Zone, Oromia region, Ethiopia. It is found 114 km away from Addis Ababa. Ambo district have 33 kebeles and all kebeles are ruralwith total population of 137,806 in which 4,782 of them are pregnant women10.

Community based cross sectional study supplemented with qualitative (FGD) was conducted from April, 9-19, 2018, by considering non-fasting season. Simple random sampling technique was utilized to select 10 kebeles out of 33 total kebeles. Finally, 343 samples were allocated proportionally to each selected kebeles based on their total number of pregnant mothers.

Sample size required for this study was calculated by using OpenEpi version 2.3 with an assumption of 95% confidence interval, 0.05 margin of error and the proportion of good dietary practice in GutoGida District, East Wallaga of Oromia Region, Ethiopia with the outcome of 33.9%. Two FGD were conducted to explore associated factors with dietary practice. The FGD were conducted at health center with those mothers who came for ANC service by considering representation from all kebeles. The key informants who had been participated in FGD were pregnant mothers and the numbers of participant were 15.

Quality of data was assured through pre-testing the tool, training for data collectors and supervisors. From total expected sample size, 5% was pre-tested in A/ Doyyo kebeles to establish whether the tools could generate the information needed with precision and required time duration. After the pre-test conducted, adjustments were done accordingly to enhance reliability and validity of the tools.

Data were entered into Epidata and transported to SPSS windows of version 21.0 and analysis was done after data cleaning. Both descriptive and analytical statistics were used. Descriptive results have been presented using tables and graphs. Binary logistic regression analysis was used to identify associations between variables. Multivariate logistic regression analysis was done to control possible effects of confounders and to identify the predictor of the study variables. Association between the independent and dependent variables were assessed at p-value of 0.05.

Ethical permission was obtained from Ethical Review Committee of Public Health Department, Ambo University College of medical and health science. With supportive letter obtained from the department and communication was made with district health office. Verbal consent was obtained from the study participants after clarifying the aim of the study. The respondents had the right to respond fully or partially to the questionnaire. Confidentiality was maintained by omitting the name of the respondents and not discloses their personal information to others.

Inclusion and exclusion criteria

All pregnant women who had permanent resident of the study kebeles were participated in the study. Pregnant mothers who were too sick and did not cooperative to participate in the study were excluded.

Operational Definition

Practices: The observable actions of pregnant mothers that could affect her meal frequency per day.

Good dietary practices: Pregnant women who eat more than three meals per day.

Poor Dietary practices: Pregnant mothers who have not consumed additional meal per day than usual three meals during pregnancy.

RESULT

Out of 343 pregnant women 338 were interviewed for this study and yielding their response rate of 98.5%. The mean age of pregnant women was 27.31 years (+/- 5.622). From total study participants 183(54.1%) of the respondent were followers of orthodox, 123(36.4%) were protestant and 32(9.5%) were Waqefata. Among the study subjects 252(74.6%) of husband occupation were farmer, 26 (7.7%) were merchant, 23 (6.8%) were employed and 18(5.3%) were daily laborer. Regarding average monthly income of the family, more than half 184 (54.4%) got less than 2000 birr per month, 124(36.7%) of them got 2000-4000 birr per month and only 30(8.9%) had got monthly income greater than 4000 birr (Table 1).

Table 2: Socio-demographic characteristics of pregnant mothers in Ambo district west Shoa Zone, Oromia region, Ethiopia, April 2018

		Frequency	Percent (%)
Age (years)			
	18-26	162	47.9
	27-35	141	41.7
	>=36	35	10.4
Religion of respondents			
	Orthodox	183	54.1
	Protestant	123	36.4
	Waqeffata	32	9.5
Marital status			
	Married	319	94.4
	Other (single, widowed, divorced)	19	5.6
Husband Educational status			
	No formal education	78	23.1
	Can read and write	75	22.2
	Primary	84	24.9
	Secondary and above	82	25.7
Husband Occupation			
	Employed	23	6.8
	Merchant	26	7.7
	Daily laborer	18	5.3
	Farmer	252	74.6
Maternal Education			
	No formal education	126	37.3
	Can read and write	67	19.8
	Primary	97	28.7
	Secondary and above	48	14.2
Maternal Occupation			
	Attended to house chore	266	78.7
	Employed	13	3.8
	Merchant	26	7.7
	Daily laborer	33	9.8
Family size of Respondents			
	<= 2	75	22.2
	3-4	142	42.0
	>=5	121	35.8
Average monthly income (Ethiopian Birr)			
	<2000.00	124	36.7
	2000.00-4000.00	184	54.4
	>4000.00	30	8.9

Only 88(26%) of the respondents had habits of food aversion during this pregnancy. Forty-three participants (48.9%) were due to cultural belief/taboo and 45(51.1%) personal dislike. In addition, more than half 182(53.8%) of respondents had experienced food craving. Of which, 139 (76.4) had got the food they craved, but 43(23.6%) respondents had not get the food they craved. The factors that hinder pregnant mother from craved food were economic issue 18(41.9%) and availability issue 25(58.1%). Regarding meal skipping, only 57(16.9%) of respondents had habits of meal skipping. The factors which make them to skip their regular meal were poor economy 21(36.8%), personal dislike 16(28.1%), and fear of obesity 20(35.1%). Concerning meal frequency, 288 (85.2%) of respondents had history of three meals consumption and the rest 50(14.8%) consumed two meals within a day before the current pregnancy. However, 91 (26.9%) pregnant women had consumed additional meal per day than usual during this pregnancy (Table 2).

Table 3: Meal pattern of pregnant mothers, Ambo district west Shoa Zone, Oromia region, Ethiopia, April 2018

1Variable	Frequency	Percent (%)
1. Additional meal consumed		
No	247	73.1
Yes	91	26.9
2. Number of extra meals within a day		
Once	74	81.3
Twice	17	18.7
3 Reason of not having additional meal		
Lack of information	64	25.9
Poor economy	115	46.6
Considered as adequate	68	27.5
4. skipping meal		
No	281	83.1
Yes	57	16.9
5.Reason of meal skipping		
personal dislike	16	28.1
fear of obesity	20	35.1
poor economy	21	36.8
6.Fasting habits during pregnancy		
No	329	97.3
Yes	9	2.7
7. food avoided during pregnancy pregnant		
No	250	74.0
Yes	88	26.0
8.Reason of food avoidance		
Personal dislike/Aversion	45	51.1
Not allowed to pregnant/cultural taboo	43	48.9
9.Reason of cultural beliefs/taboo		
Will make baby big & labor difficulty	14	32.6
Will be plastered on fetal head	18	41.9
Evil eye	11	25.5
10. any food desire strongly(craving)		
No	156	46.2
Yes	182	53.8
11.reason to crave for these food items		
Color of food	19	10.4
Food odor	68	37.4
I do not know the reason	95	52.2
12.Did you get the food you crave		
No	43	23.6
Yes	139	76.4
13.The reason of not getting craved food		
Not affordable	18	41.9
Not available	25	58.1

To identify factors associated with dietary practices both binary and multivariate logistic regression models were used. Accordingly, factors that were associated with dietary practices of pregnant mothers under binary logistic regression were, age of pregnant women, educational status and occupation of husband, educational status of pregnant women, and average monthly income of the family, health and nutrition information, meal frequency before pregnancy and food cravings during pregnancy. The variables that showed significant association with dietary practice during pregnancy were adjusted for their confounders using multivariate logistic regression model.

Average monthly income of the family, age of pregnant

mothers, and occupation of husband and nutrition information became independent predictor for dietary practices. Categorization of monthly income and age was made based on the existing reference. Those who had an estimated family average monthly income of 2000.00 birr to 4000.00 were 2.5 times more likely good dietary practice than estimated family monthly income less than 2000.00 birr (AOR= 2.53 at 95% CI 1.16-5.50). Also, those who had an estimated average monthly income greater than 4000.00 birr were 15.5 times more likely good dietary practice than estimated family monthly income less than 2000.00 birr (AOR= 15.50 at 95% CI 3.89-61.78) which is summarized in the Table 3.

Table 4: Bivariate and Multivariate analysis of dietary practice and associated among pregnant mothers in Ambo district west Shoa Zone, Oromia region, Ethiopia, April 2018

Variable	Dietary Practice (having additional meal)		COR (95%CI)	AOR (95%CI)
	Yes	No		
Age				
18-26	109 (67.3%)	53(32.7%)	1	
27-35	111(78.7%)	30 (21.3)	0.556(.33, .94)	.43(.19, 0.94)**
>=36	26 (74.3%)	9 (25.7%)	.712(.312, 1.626	.27(.08, 0.89)**
Husband Educational status				
No formal education	53 (16.6%)	21(6.6%)	0.81 (.34, 1.95)	0.58(0.040, 8.40)
Can read and write	31(9.7%)	10 (3.1%)	.68 (.35, 1.33)	0.33(0.02, 5.4)
Primary	93 (29.2%)	25 (7.8%)	1.32(.65, 2.67)	0.37(0.026, 5.38)
Secondary	46 (14.4%)	24 (7.5%)	5.55(1.72, 17.92)	0.247(0.02, 3.31)
Collage and above	5 (1.6%)	11(3.4%)	1	
Husband Occupation				
Employed	5 (21.7%)	18 (78.3%)	1	
Merchant	10 (38.5%)	16 (61.5%)	.44(.13, 1.58)	1.00(.18, 5.48)
Daily laborer	17 (94.4%)	1 (5.6%)	.014(.001, .130)	.058(.01, .72) **
Farmer	196 (77.8%)	56 (22.2%)	081(.03, .23)	.32(.084, 1.179)
Maternal educational status				
No formal education	93 (73.8%)	33 (26.2%)	.36(0.11, 1.18)	13.97(.76, 26.33)
Can read and write	40 (80%)	10 (20%)	.250(.07, .94)	10.01(0.48, 209.35)
Primary	81(72.3%)	31(27.7%)	.383(.12, 1.28)	25.67(1.24, 528.925)
Secondary	26 (68.4%)	12 (31.6%)	.46(.123, 1.73)	5.36(0.31, 92.44)
Collage and above	6 (68.4%)	6 (31.6%)	1	
Family Size				
<=2	46 (61.3%)	29 (38.7%)	1	
3-4	105(73.9%)	37 (26.1%)	.559(.308, 1.015)	1.16(.39, 3.47)
>=5	95 (78.5%)	26 (21.5%)	.434(.230, .820)	.720(0.19, 2.81)
Average Monthly Income				
<2000.00	160 (87%)	24 (13%)	1	
2000.00-4000.00	79 (63.7%)	45 (36.3%)	3.797(2.161, 6.675	2.53(1.16, 5.50) **
>4000.00	7 (23.3%)	23 (76.7%)	21.91(8.48, 56.56	15.50(3.89,61.78) ***
Health information				
No	134 (59.8%)	90 (40.2%)	37.612(9.059, 156.152)	
Yes	112 (98.2%)	2 (1.8%)	1	
Nutrition information				
No	169(96.6%)	6 (3.4%)	.015(.004, 047)	.02(.006,.07) ***
Yes	78 (47.9%)	85 (52.1%)	1	
Meal frequency within a day before this pregnancy				
Two	45 (90%)	5 (10%)	1	
Three	201 (69.8%)	87(30.2%)	3.90(1.495,10.149)	1.57(0.73, 3.34)
Food craved				
Yes	122 (78.2%)	34 (21.8%)	1.678(1.027, 2.74)	1.52(0.72, 3.23)
No	124 (68.1%)	58 (31.9%)	1	

** indicate p-value <0.03 and *** indicate p-value <0.000

Accordingly, pregnant mothers whose age in the rage of 27-35 year were 57.5% less likely to had good dietary practices than those who were aged 18-26 years (AOR: 0.425 with 95%CI of 0.193-0.938). While those pregnant women whose age greater than or equals to 36 years during pregnancy had 27% less likely to had good dietary practice than those who were aged in the range of 18-26 years (AOR: 0.27 with 95% CI of 0.08-0.84).

Pregnant mothers who had no nutrition information had 0.020 less likely to had good dietary practices than those who had nutrition information (AOR: 0.020 with 95%CI of 0.006, 0.069). Finally, the study findings identified that employed husband of pregnant mothers had 94.2% less likely to have good dietary practices than daily laborer husband (AOR: 0.058 with 95%CI, 0.005-0.718).

There were different idea flows of FGD in qualitative study. To mention some, a woman of 33 years aged old said "... the amount and frequency of foods during pregnancy and before pregnancy in my house and nearby are not different which means I ate three times a day. Since I am engaged in agricultural activities, and the income what I had is low I am worried about foods sufficiency to my family members". In addition, discussants in the group noted that few pregnant women avoided some food groups from their regular meal.

DISCUSSION

Based on the general questions offered to the pregnant mothers to assess status of their dietary practice, only 26.9% with 95% CI of (22.5-32.0) had good dietary practice during pregnancy. This figure is almost similar (31.4%) or consistent with study conducted in Dale Woreda, Sidama zone, SNNPRS, Ethiopia. However, the current study is higher than the study conducted in Wando Gannet district, Southern Ethiopia 21.6% during pregnancy1, 11. Whereas, lower than the study conducted in Malaysia 74%, Pakistan 65.5%, Poland (47%), Ghana Accra (37.7%) and Guto Gida Ethiopia 33.9%. So this discrepancy may be due to socio demographic variation12-16. Accordingly, FGD report shows that, majority of pregnant women in the study area ate three meals and few of them ate two per day. This note describes majority of pregnant women did not eat additional meal than usual per day. So, the idea raised by discussant supports the quantitative result of the current study.

Average monthly income of the family, nutrition information, age of pregnant woman, and husband occupation were identified as important factors affecting dietary practice of pregnant mothers during pregnancy. The finding of this study identified that average monthly income of the family had strong statistical association ($p<0.000$) with dietary practice during pregnancy. Also, nutrition information had statistical association with dietary practice during pregnancy ($p<0.000$).

Similar findings had also been reported from a study done in Guto Gida Woreda, East Wollega Zone; Ethiopia identified that average monthly income and nutrition information had statistical association with dietary12, 17. Additionally, the current study indicated that age of pregnant mothers had statistical association with dietary practice. Similar study conducted in Nigeria revealed that age of pregnant mothers had statistical association. This implies that older women had better dietary practice during pregnancy compared with younger women. This may be due to older women are more experienced over time6.

The finding of this study also identified that pregnant woman husband's occupation had statistical association with dietary practice ($p<0.05$) during pregnancy. Even though husband occupation had statistically significant to dietary practices in the current study there was no reference which support or

contradict the results. So, it needs further assessment to identify husband occupation has association or not with dietary practice.

Strength

The strength of this study is mixed use of data collection to strengthen the quality of the study result.

CONCLUSION AND RECOMMENDATION

Based on the findings current study, it can be concluded that the prevalence of good dietary practice among pregnant women was very low. The pregnant mother found in the study area was suffered from poor dietary practice due to not having additional meal during pregnancy. According to the study result factors affecting dietary practice were nutrition information, average monthly income, women's husband occupation, and age of pregnant women.

Based on the identified gaps government body, specially Ambo district health office, health extension worker, and health workers due attention to maximize the prevalence of good dietary practice by awareness creation of pregnant mothers. Ambo University College of medicine and health science, department of public health also takes responsibility for further assessments on dietary practice to identify additional factors affecting dietary practices of pregnant mothers.

CORRESPONDING AUTHOR:

Bekele Tolera, MPH
Department of Public Health, Medicine and Health Science College, Ambo University, Ambo Ethiopia
E-mail: bekeletolera@gmail.com

REFERENCES

1. Kuche D PS, Debebe M. Ditary practice practice and associated factors among pregnant women in Wondo Genet district southern ethiopia. 2015;4(5).
2. Monchari RaR JB, Kisaka NA. Food beliefs and practices among the Kalenjin pregnant women in rural Uasin Gishu County, Kenya. Journal of Ethnobiology and Ethnomedicine. 2017.
3. Plećaš D PS, Vučinić OK. 2014;142(1-2). Nutrition in Pregnancy: Basic Principles and Recommendations. Srp Arh Celok Lek.142(1-2).
4. (WHO) WHO. Born Too SoonThe Global Action Report on Preterm Birth. WHO Library Cataloguing-in-Publication. 2012. 2012.
5. Zhang Y ZH, Perkins A, Wang Y, Sun aJ. Maternal Dietary Nutrient Intake and Its Association with Preterm Birth- Beijing, China. mdpi nutrients. 2017;9(221).
6. Mattew O OO, S. AO, L. AA. Dietary intake knowledge and reasons for food restriction during pregnancy among pregnant women attending primary health care centers in Ile-Ife, Nigeria. International Journal of Population Studie. 2016;2(1).
7. WHO. comprehensive implmentation plan on maternal, infent and young children nutrition. 2014.
8. Bhutta) WZA. Maternal Malnutrition Globally: Epidemiology and Links to Childhood Malnutrition. Global Child Health. 2008
9. Ejeta E, Alemnew B, Fikadu A, Fikadu M, Tesfaye L, Birhanu T. Prevalence of Anaemia in Pregnant Womens and Associated Risk Factors in Western Ethiopia
10. (Ambo) WH. Anual report of Ambo district Health office. 2018.
11. H. Y. prvalence of food aversion, crevings and pica diring pregnanacy and their association with nutritional status of pregnant women in Dale woreda, sidama zone, SNNPR, Ethiopia. International journal of nutrition and metabolism. 2014;7(1).
12. Gemeda D FB, W G, Habtamu F. Assessment of Nutritional Practices of Pregnant Mothers on Maternal Nutrition and Associated Factors in Guto Gida Woreda, East Wollega Zone, Ethiopia. STAR journal. 2013;2(3).
13. S M AM, M S, B N, M. H. Assessment of Nutritional Beliefs and Practices in Pregnant and Lactating Mothers in an Urban and Rural Area of Pakistan.
14. M.Sc KR, Martins SDR RM MS, FWACN LN, RM, BNSc, , Dathini HR R, BNSc, PGDE, Habu HR B, Fatima AAR R, BNSc, PGDE, et al. Knowledge and attitude of pregnant Women towardsdietary practices in Yerwa Clinic, MaiduguriMetropolitan Council; Borno State. Journal of Research in Nursing and Midwifery (JRNM) 2015;4(1). 2015;4(1)::12-9.
15. E. S. Nutritional behaviours of pregnant women in rural and urban environments, poland . Ann Agric Environ Med. 2015.
16. Manaf ZA JN, Mei LY, Yee NS, Yin CK, Teng LW. Nutritional Status and Nutritional Knowledge of Malay Pregnant Women in Selected Private Hospitals in Klang Valley. . Jurnal Sains Kesihatan Malaysia. 2014;12(2).
17. NB Z. . Food Taboos and Misconceptions Among Pregnant Women of Shashemene District, Ethiopia, Science Journal of Public Health 2012;3(3).