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GAVIN PUBLISHERS

Food & Nutrition Journal

Research Article

Keyata EO. Food Nutr J 3: 176.
DOI: 10.29011/2575-7091.100076

Assessment of Knowledge, Perception and Practice of Maternal Nutrition Among Pregnant Mother Attending Antenatal Care in Selected Health Centerof Horo Guduru Wollega Zone, Oromia Region, Ethiopia

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Citation: Keyata EO (2018) Assessment of Knowledge, Perception and Practice of Maternal Nutrition Among Pregnant Mother Attending Antenatal Care in Selected Health Center of Horo Guduru Wollega Zone, Oromia Region, Ethiopia. Food Nutr J 3: 176. DOI: 10.29011/2575-7091.100076.

Received Date: 17 April, 2018; **Accepted Date:** 25 May, 2018; **Published Date:** 4 June, 2018

Abstract

Nutrition during preconception as well as throughout pregnancy has a major impact on the outcome of pregnancy. Therefore, the aim of this study was designed to assess knowledge, perception and practices of maternal nutrition among pregnant women during antenatal care in selected health center of Horo Guduru Wollega zone. A facility-based cross-sectional study design was conducted on total 405 pregnant mothers from January to June, 2017. A semi structured interview and questionnaires was used to collect information in the areas of socio-demographic, knowledge, perception, and practices towards maternal nutrition among pregnant mothers. Statistical Package for Social Sciences (SPSS) version 20.0 was used to perform descriptive statistics. The result obtained during study indicates that 63.5%, 70.6% and74.6% of pregnant mother good knowledge, perception and practices respectively while 36.5%, 29.4% and 25.4% was poor knowledge, perception and practice respectively. This study clearly indicated that less than half of pregnant mother's attending antenatal care in the study area had poor knowledge, perception and practices. Therefore, nutrition education should be intensified to improve the overall knowledge, perception, and practices of pregnant mothers towards maternal nutrition in different villages, health centers, health posts and hospitals.

Keywords: Knowledge; Maternal Nutrition; Perception; Practices; Pregnant Mother

Introduction

Proper food and good nutrition are essential for survival, physical growth, mental development, performance and productivity, health and well being of all living things [1]. Nutrition throughout life has a major effect on health. This is true for vulnerable groups special for pregnant women as adequate maternal nutrition is one of the best ways to ensure maternal and fetal wellbeing in developed and developing countries and also adequate maternal nutrition knowledge attitude and dietary practice before and during pregnancy is necessary to ensure positive pregnancy outcomes [2].

Maternal under nutrition ranges from 10 to 19 percent in most countries across the world. A serious problem of maternal under nutrition is evident in most countries in sub-Saharan Africa, South-central and Southeastern Asia, and in Yemen, where more than 20 percent of women are malnourished [2]. Across Africa, it is estimated that 27-51 percent of women of reproductive age are underweight [3]. Nutritional and hormonal factors in pregnancy influence, not only immediate fetal outcome, but also morbidity and mortality in later life[4]. Based on EDHS 2011 report, in Ethiopia the maternal mortality rate has been estimated to be 676 per 100,000 live births. This is one of the highest rates in the World. In addition to these, women's reproductive health problems are a timely and serious matter of concern, for any health professionals, the government as well as the society [5].

Malnutrition is one of the most serious health problem affecting children and their mothers in Ethiopia. Undernourished mothers face greater risks during pregnancy and childbirth, and their children set off on a weaker developmental path, both physically and mentally. Undernourished children have lower resistance to infection and are more likely to die from common

childhood illnesses, such as diarrheal diseases and respiratory infections [6]. A mother's documented that inadequate maternal nutrition results in increased risks of short term consequences such as; Intra Uterine Growth Restriction (IUGR), low birth weight, preterm birth, prenatal and infant mortality and morbidity [7].

Nutrition during the periconceptional period is a key component of healthy pregnancy outcomes [8]. If there is maternal malnutrition on the pregnant mother, it will have consequences like: increased infection, anemia, decreased immune function, lethargy and weakness, low productivity, obstructed labor, high maternal mortality on the mother, and increased fetal and neonatal death, intrauterine growth retardation, low birth weight, preterm delivery, decreased immune function, birth defects, cretinism and decreased intelligent quotient on the fetal side. Maternal under-nutrition diminishes a woman's productivity, causing repercussions for herself, her family, her community, and the broader society [9]. Maternal malnutrition is influenced not only by lack of adequate nutrition but also influenced by factors like socio demographic factors, nutritional knowledge and perception of mothers during pregnancies [9].

Although, researches and projects focused on maternal health are common, projects and researches focused specifically on maternal nutrition are rare in the study area [10]. Research, program reports, and other materials specifically related to maternal nutrition principles, practices, and programs are not abundant in the study area. And also there is no study has been conducted to assess the knowledge, perception, and practices of maternal nutrition among pregnant mother attending antenatal care in selected health center of Horo Guduru Wollega Zone. Therefore, the present study was designed to fill this gap.Hence, the major objective of the study was to assess knowledge, perception and practice of maternal nutrition among pregnant mother attending antenatal care in selected health center of Horo Guduru Wollega Zone, Oromia Region, Ethiopia.

Materials and Methods

Study area

The study was carried out in Horo Guduru Wollega zone specifically Shambu, Fincha andWayu health center own located to the west from the capital city of Ethiopia (Addis Ababa).

Study design

A facility-based cross-sectional study design was conducted to investigate knowledge, attitude and practices among pregnant mothers regarding maternal nutrition during attending antenatal care in selected health center.

Source population

All pregnant women who had visited in selected health center of Horo Guduru Wollega Zone for antenatal care fellow up during January up to June 2017.

Study population

Pregnant women who had come to visited in selected health center of Horo Guduru Wollega Zone for antenatal care fellow up during January up to June 2017.

Eligibility criteria

Inclusion: All pregnant mothers those had come to selected health center of Horo Guduru Wollega Zone for antenatal care fellow up were included in the study.

Exclusion Criteria: seriously ill, laboring mothers and mothers with hearing abnormality couldn't listen and speak were excluded from the study.

Sample Size Determination

The base sample size was calculated for each objective by using the StatCALC application of Epi info™ 7.0.8.3(2011) as follows. The sample size was determined by using 64.4% of the pregnant mothers had nutritional knowledge during pregnancy in Eastern Wollega Zone Guto Gida District, Ethiopia [10] and 82% of the pregnant mothers had dietary practices during pregnancy in Nigeria [11] using the following assumption for both of them: with 5% marginal error and 95% CI and a nonresponsive rate of 10% and 1.5 design effect(in order to represent the left health center) used during sample size determination.

Table 1: Summary of Sample Size Determination.

Specific Objectives	P_1(%)	CI %	NRR (%)	DE	Sample size (n)
To assess knowledge of pregnant mothers with regard to maternal nutrition	64.4	95	10	1.5	405
To assess dietary practices among pregnant mothers in the study area	82	95	10	1.5	375

HHs=Households, DE=Design effects, NRR=Non-response rate, p_percentage of expected outcome of households, respectively n= Sample size, and CI= Confidence level. So, large amount of sample was used to reduce error during study. Therefore, 405 pregnant mothers were selected from study area.

Sampling Procedures

The calculated sample size was proportionally allocated to the randomly selected health center from Horo Guduru Wollega Zone based on the average number of client prior to the study period in the respective antenatal care fellow units. Then to select

study subjects from each antenatal care unit, systematic sampling was applied by referring client's registration book for a month prior to data collection. It was from these numbers that every kth person as they registered was included in the sample at each antenatal care unit until the desired sample size was obtained.

In short, the schematic procedure of sampling techniques of this study is shown in the following (Figure 1).

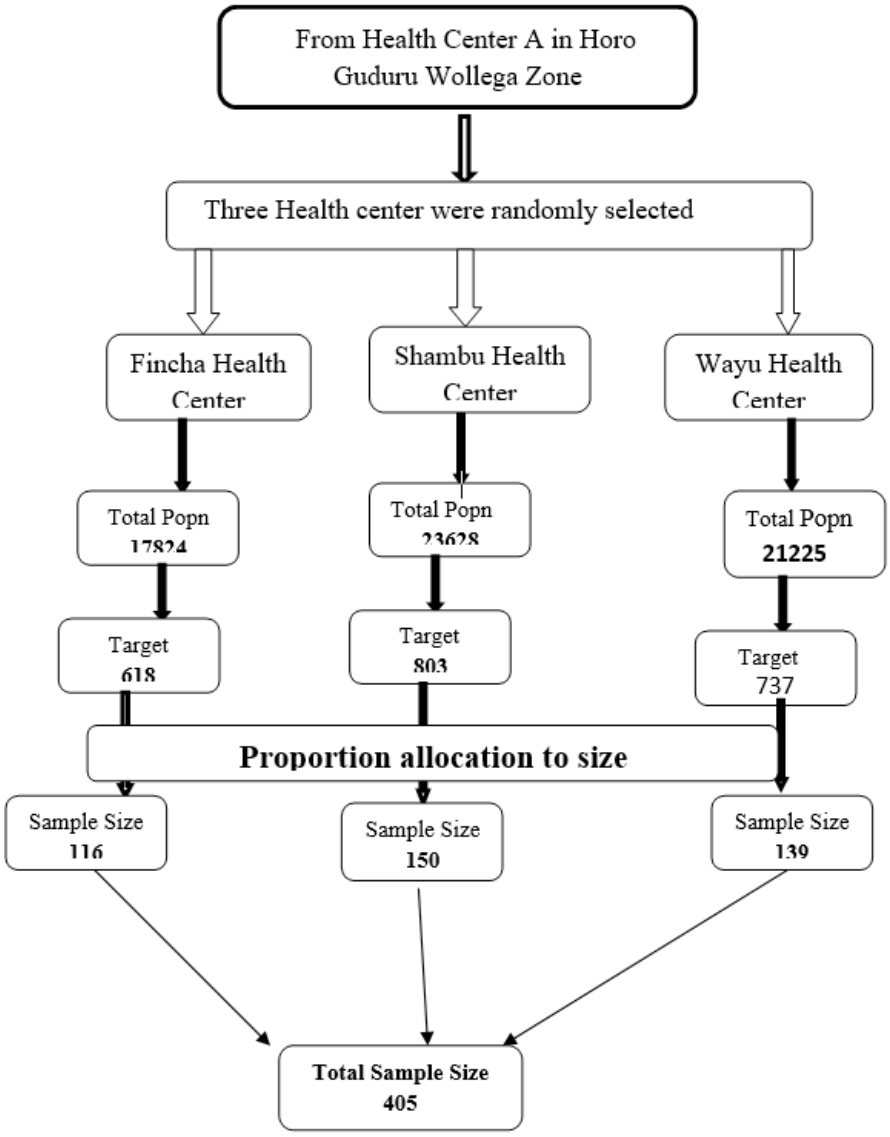

Figure 1. Schematic procedures of sampling techniques used for the selection of participants.

Data Collection Procedures

The quantitative data were collected using a structured questionnaire adapted from different relevant studies. The questionnaire was first developed in English and then translated in to local language called Afan Oromo with some modification from the relevant sources. Training had been given for three nurses and one supervisor in each health center to collect data during antenatal care. Totally, the data were collected by nine nurses and three supervisorsand the researcher. At the end of each day, the completeness of questionnaires was checked by the principal investigator.

Study Variable

Dependent variable

The dependent variables for the study were maternal nutritional knowledge, attitude towards nutrition and dietary practices during pregnancy

Independent variables

The independent variables for the study were socio-demographic characteristics, frequency of antenatal care, month of pregnancy and nutritional information during pregnancy

Data Analysis

Data were edited, cleaned, coded, entered and analyzed using SPSS for windows version 20.0. A descriptive statistical analysis was carried out for all quantitative variables to check for outliers, consistency of data and missing values. After that the data was cleaned and analyzed. The descriptive analysis such as frequency distribution, proportions, percentages, and measures of central tendency was used.

Ethical Consideration

Ethical clearance and permission were obtained from Wollega University Ethical Review Committeeand permission was secured from Horo Guduru Wollega zone health office. The nature of the study was fully explained to the study participants to obtain their oral informed consent prior to participation in the study and data was kept confidential.

Results

Socio-demographic Characteristics of the Study Participants

In this study, a total of 405 pregnant mothers/ caregivers participated in the individual questionnaire interview. Of the 405-mother interviewed, about 216 (53.30%) pregnant mother of the respondents was highest among mothers aged between 25 to 34 years. Majority of the respondents 353 (87.20%) were Oromo by ethnicity and more than half of them were protestant by religion 230 (56.8%). With respect to marital status, almost all of them (97.50%) of the mothers were married. Educational status of pregnant mother, 68 (16.8%) of the mothers had diploma and above education while 153 (37.8%) mothers did not have formal education. Occupational status of pregnant mother, 283 (69.9%) of the caregiver was house wife but 70 (17.3%) were employed in the government office. With regards to husband occupation level, 173 (42.7%) of them had a farmer while 90(22.2%) of husbands were employed in the government office. In addition to these 143(35.3%) were visited two times during their pregnancy while 48(11.9%) were visited four times at health facility. Also, most half the pregnant mother not gets nutritional education. More than half 230 (56.8%) pregnant mother monthly incomes get less 1000 per month and nearly half 197(48.6%) of pregnant mother attended antenatal care when the duration of pregnancy between 6-8months in selected health center of the study area (Table 2).

Table 2: Socio-demographic of the pregnant mother towards maternal nutrition.

Variables	Category	Frequency (n=405)	Percent
Age of pregnant mother (years):	20-25	143	35.3
	25-34	216	53.3
	35-44	46	11.4
Ethnicity	Oromo	353	87.2
	Amhara	52	12.8
Religion	Muslim	27	6.7
	Orthodox	134	33.1
	Protestant	230	56.8
	Wakefata	14	3.5
Marital status	Unmarried	2	.5
	Married	395	97.5
	Divorced	6	1.5
	Widowed	2	.5
Educational status of mother	Illiterate	153	37.8
	Primary School	131	32.3
	secondary School	53	13.1
	diploma and above	68	16.8
Occupational status mother	Employed	70	17.3
	house wife	283	69.9
	Self-business	25	6.2
	daily labors	27	6.7
Educational status of husband	Employed	90	22.2
	Self-business	95	23.5
	Farmer	173	42.7
	Other	43	10.6

Frequency of antenatal care	One	101	24.9
	Two	143	35.3
	Three	113	27.9
	Four	48	11.9
Nutritional information	Yes	224	55.3
	No	179	44.2
Monthly income	<1000	230	56.8
	1000-2000	67	16.5
	>2000	108	26.7
Month of pregnancy	3month-5month	157	38.8
	6month-8month	197	48.6
	>9month	51	12.6

Knowledge of mothers on maternal nutrition during pregnancy

As stated in Table 3, 319(78.8%), 294(72.6%), 269(66.4%), 270(66.7%), and 218(53.8%) of the respondents had the knowledge about food during pregnancy, meaning of food, important for bodies energy and heat, proper functioning of the body, growth and development of the fetus and infection fighting respectively. However, 86(21.2%), 111(27.4%), 136(33.6%), 135(33.3%) and 187(46.2%) of the respondent did not know the meaning of food, importance of food during pregnancy for bodies energy and heat, proper functioning of the body, growth and development of the fetus and infection fighting respectively. Regarding to the main food group or balance diet question offered to respondents to assess their nutritional knowledge indicates that, nearly half 169(41.7%) of the respondents did not knew the main food groups or the balance diet while 236(58.3%) of the respondent knew about the main food groups or the balance diet. Concerning the nutritional knowledge of the respondents about some common food sources of nutrients, more than half of the respondents 225(55.6%), 223(55.1%), 238(58.8%), 219(54.1%) and (88.1%) had knowledge about common food sources of protein, carbohydrate, iron, vitamin A and iodine respectively. As described in Table 3 below, regarding to the inadequate nutrition during pregnancy, only 182(44.9%) respondents responded that inadequate nutrition during pregnancy can be the cause of miscarriage or preterm birth whereas 223(55.1%) respondents did not know whether or not inadequate nutrition during pregnancy can be the cause of miscarriage or preterm birth (Table 3).In general, the overall responses given by the respondents regarding their knowledge of nutrition during pregnancy revealed that 257(63.5%) of the respondents were found to be good knowledge about nutrition while 148(36.5%) had poor knowledge during pregnancy.

Table 3: Knowledge characteristic of pregnant mother towards maternal nutrition.

Variables	Category	Frequency (n=405)	Percent
Knowledge about the meaning of food	No	86	21.2
	Yes	319	78.8
Importance of food for growth and development of fetus	No	111	27.4
	Yes	294	72.6
Importance of food for bodies heat and energy	No	136	33.6
	Yes	269	66.4
Importance of food for proper functioning of the body	No	135	33.3
	Yes	270	66.7
Importance of food for infection fighting	No	187	46.2
	Yes	218	53.8
Knowledge about the main food groups or balance diet	No	169	41.7
	Yes	236	58.3
Knowledge about food sources of protein	No	180	44.4
	Yes	225	55.6
Knowledge about food sources of carbohydrates	No	182	44.9
	Yes	223	55.1
Knowledge about food sources of iron	No	167	41.2
	Yes	238	58.8
Knowledge about food sources vitamin A	No	186	45.9
	Yes	219	54.1
Knowledge about inadequate nutrition can be the cause of miscarriage and/or preterm birth	No	223	55.1
	Yes	182	44.9
Over all Knowledge of Pregnant mother	Poor Knowledge	148	36.5
	Good Knowledge	257	63.5

Perception of mothers on maternal nutrition during pregnancy

This study investigated that the majority of pregnant women,

266(75.6%), 280(73.6%), 280(69.6%) and 287(67.7%) had a positive perception towards to eat more food, proteins, milk & milk products and the taste of meat & other iron-rich food item or meals during their pregnancy respectively. However, there is a little negative perception gap special concerning to think to prepare meals with iodized salt 48.10 % (Table 4). The overall perception in study area showed that majority 286(70.6%) of respondents had positive perception and 119(29.4%) had unfavorable perception towards their nutrition during pregnancy.

Table 4: Perception of pregnant mothers towards maternal nutrition.

Variables	Category	Frequency (n=405)	Percent
How good do you think it is to eat more food during pregnancy?	Not good	99	24.4
	Good	306	75.6
How good do you think it is to eat more carbohydrate than non-pregnancy?	Not good	120	29.6
	Good	285	70.4
How good do you think it is to eat more proteins or beans during pregnancy?	Not good	107	26.4
	Good	298	73.6
How good do you think it is to have more milk & its products during pregnancy?	Not good	122	30.1
	Good	283	69.9
How good do you think it is to prepare meals with iron-rich foods such as beef, chicken or liver?	Not good	138	34.1
	Good	267	65.9
How much do you like the taste of meat and other iron-rich food item orMeals?	Not good	131	32.3
	Good	274	67.7
How much do you like the taste of omega 3 rich foods like: olive oils, fish…?	Not good	189	46.7
	Good	216	53.3
How much do you like the taste of milk and milk products?	Not good	124	30.6
	Good	281	69.4
How good do you think it is to prepare meals with iodized salt?	Not good	195	48.1
	Good	210	51.9
Over all Perception	Poor Perception	119	29.4
	Good Perception	286	70.6

Dietary Practices of mothers on maternal nutrition during pregnancy

As showed in Table 5**,** the dietary practice of pregnant mother in study area investigated that, only 179(44.2%) of women follow specific dietary regimen, more than half, 270 (66.7%) of women used iodized salt to prepare their daily main meals, less than half of women, 170(42.0%) had the habit of eating fresh citrus fruits/juice, most of women, 379(93.6%) of women had the habit of drinking coffee and tea. Concerning micronutrient supply, 333(82.2%) of women had iron tablets while 312(77%) had folic acid supplement. As mention inTable 5, more than half 217 (53.6%) of pregnant women had the habit of taking protein daily. But, 235 (58%), 146 (36.0%), 188(46.4%), 149(36.8%), 95(23.5%), and 111(27.4%) of women had poor practices of daily servings of fresh fruits, vegetables, protein, milk, milk products and meat respectively. In summary, 74.6% of pregnant mother showed good dietary practice while 25.4% showed poor dietary practices.

Table 5: Dietary Practices of pregnant mothers towards maternal nutrition.

Variables	Response	Frequency (n=405)	Percent
Do you follow specific dietary regimen during pregnancy?	No	226	55.8
	Yes	179	44.2
Did you use Iodized salt to cook the main meal eaten by members of your family last night?	No	135	33.3
	Yes	270	66.7
Do you eat fresh citrus fruits, such as: Orange, Lemon, mango, or drink juice made from them?	No	235	58.0
	Yes	170	42.0
Do you drink coffee or tea?	No	26	6.4
	Yes	379	93.6
Do you have iron supplement?	No	72	17.8
	Yes	333	82.2
Do you have the habits of eating snacks between meals?	No	198	48.9
	Yes	207	51.1
Do you the habits of eating more carbohydrates between meals?	No	221	54.6
	Yes	184	45.4
Do you eat protein (plant source) daily?	No	188	46.4
	Yes	217	53.6
Do you eat fresh vegetables?	No	146	36.0
	Yes	259	64.0
Do you drink milk?	No	149	36.8
	Yes	256	63.2
Do you eat milk products?	No	95	23.5
	Yes	310	76.5
Do you eat meat?	No	111	27.4
	Yes	294	72.6
Do you have folic acid supplement?	No	93	23.0
	Yes	312	77.0
Over all Dietary Practice	Poor Dietary Practice	103	25.4
	Good Dietary practice	302	74.6

Discussion

This study investigated knowledge,perception and practices of maternal nutrition among pregnant mother attending antenatal care in selected health center of HoroGuduru Wollega Zone, Oromia region, Ethiopia.

Concerning on Knowledge of maternal nutrition among pregnant mother in study area revealed thatless than quarter (21.2%) of the respondents did not know the meaning of food. This study result was in incomparable with the study reported from America at El-Menshawy and Guto Gida district [10,12]. This might be due to the difference in educational status of respondents. This study also pointed out that more than half of the respondents had a nutritional knowledge of pregnant women about the importance of food during pregnancy, important for bodies energy and heat, proper functioning of the body, growth and development of the fetus and fighting infection, food source of protein, Carbohydrate, Vitamin and Iron in which the figure is slightly greater than the study conducted in Eastern Wollega Guto Gida district [10]. However, the result of this study was lower than the study conducted in America that indicates more than half of women in the study lacked the basic and the essential knowledge regarding the importance and sources of most of the types of vitamins and minerals [12]. This can be attributed to the fact that women lack better access to information about nutrition during pregnancy because majority of the study participants were housewives in occupational status. In general, according to the responses given by the respondents concerning on knowledge, only 257(63.5%) of respondents were knowledgeable about nutrition during pregnancy.This figure is almost the same as the study conducted in East Wollega (64.4%)[10]. However, lower as compared to the study done in Malawi (70%)ofpregnant women had knowledge on nutrition [13]. This low nutritional knowledge might bedue to low information aboutnutrition during pregnancy.

Regarding on perception, majority of the respondents, 283(69.9%) like the taste of milk and milk products during pregnancy which was in slightly lower than the study conducted in America that 88.7% of respondents like the taste of milk and its products during pregnancy [12].Most of the respondents 298(73.6%) thought that eating more proteins or beans during pregnancy was good which was lower than the study conducted in America result that 82.3% respondents thought that eating more proteins during pregnancy was good[12]. This might be due to lack better access to information about nutrition during pregnancy as compared to American pregnant mother.

Concerning dietary practices, current study showed that half, 207 (51.1%) of the respondents had practiced the habit of eating snacks between meals and 184(45.4%) of respondents had the Habit of eating more carbohydrates between meals during their pregnancy which was higher than the study conducted in Eastern Wollega, the frequency of snack consumption per day was 40.1% and 29.1% of respondents had the habit of eating more carbohydrates between meals[10].This might due to the difference in residence and economy. This study also investigated that more than half 217(53.6%) of the respondents had the habit of eating daily plant protein which was greater (42.7%) than the study conducted by Latifa and their colleagues [12]. This might be due to Enjera with shiro is the staple diet for the majority of Ethiopians, which means shiro constitutes bean, pea and lentils.The findings also showed that majority, 333(82.2%) of respondents had good iron supply during pregnancy which was slightly greater than the study conductedinIndia showed that iron folate tablet was adequately consumed by 62% of pregnant mothers during antenatal care [14]. Majority 312(77%) of pregnant mother in study areahad taken folic acid supplement during antenatal care. This result almost comparable with the study done in Australia (81.6%) [15]. The overall dietary practice of pregnant mother indicates, 302(74.6%) of the respondents had good dietary practice. This figure was much greater than the study conducted in Wollega that 33.9% of the pregnant women had good practices on nutrition during pregnancy [10]. But, almost agreement with the study done in Nigeriawhich indicates 82% of the pregnant mothers had good dietary practices during pregnancy [11].

Conclusion and Recommendation

Based on the findings of the present study, it can be concluded that majority of pregnant women attending antenatal care in study area had medium level of nutritional knowledge. However, there is still knowledge gap especially concerning on Food sources of protein, carbohydrate, vitamin, Iron and knowledge about inadequate nutrition can be the cause of miscarriage. Besides,greater than two third of pregnant women in study area were good perception and dietary practices. But, almost half of mother negative perception during preparing meals with iodized salt and more than half pregnant mother do not follow specific dietary regimen during pregnancy and do not eat fresh citrus fruits, such as: Orange, Lemon, mango, or drink juice made from them. Therefore, nutrition education should be intensified to improve the knowledge, perception, and practices of pregnant mothers on maternal nutrition in different villages, health centers, health posts and hospital

Acknowledgments

The authors are grateful to Wollega University for the support and funding of the research work. The author also thanksall the respondents, data collectors, supervisor of the study area.

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