ASSESSMENT OF KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING MATERNAL NUTRITION AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT GUNCHIRE PRIMARY HOSPITAL,GURAGE ZONE, SOUTHERN ETHIOPIA, 2020.

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A RESEARCH PAPER TO BE SUBMITTED TO THE DEPARTMENT OF MIDWIFERY, COLLEGE OF MEDICINE AND HEALTH SCIENCES, WOLKITE UNIVERSITY FOR PARTIAL FULFILLMENTS FOR THE BACHELOR OF SCIENCE DEGREE IN MIDWIFERY.

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Wolkite, Ethiopia

WOLKITE UNIVERSITY

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Abbreviations

ANC	Antenatal Care
BMI	Body Mass Index
DNA	Deoxyribonucleic Acid
EDHS	Ethiopian Demographic Health Survey
EFMoH	Ethiopian Federal Ministry of Health
FMOH	Federal Ministry of Health
IQ	Intelligent Quotient
IRB	Institutional Review Board
IYCN	Infant & Young Child Nutrition
KAP	Knowledge, Attitude and Practices
LBW	Low Birth Weight
NCDs	Non- Communicable Diseases
NTDs	Neural Tube Defects

Abstract

Background: Nutrition is a fundamental pillar of human life, health and development throughout the entire life span. Especially Pregnancy is a time of increased energy and nutrient needs for a woman in order to meet the needs of the growing fetus and of maternal tissues associated with pregnancy. However, little has been explored about nutritional knowledge, attitudes and practices among pregnant women attending antenatal care at Gunchire primary Hospital, southern Ethiopia. Therefore; The study was conducted to describe the nutritional knowledge, attitudes and practices among pregnant women that will attend ANC at Gunchire primary Hospital, southern Ethiopia.

Objective: The objective of this research is to assess Knowledge, Attitudes and Practices regarding maternal nutrition among pregnant women attending ANC at Gunchire primary Hospital southern Ethiopia, 2020.

Methods and Materials: An Institutional based cross sectional study design was employed from December 1 to December 30 2020. Relevant data was collected from 201 pregnant women who are attending ANC at Gunchire primary Hospital, Gurage zone, Southern Ethiopia. The data were collected by using a pretested interviewer administered structured questionnaire. Data were collected and analyzed manually using manual calculator and the result was presented by tables and figures.

Result: The data were analyzed manually using scientific calculator. This study revealed that among 201 pregnant women only 54(27%), 137(68%) and 64(32%) of pregnant women was knowledgeable, favorable attitude and good practices of nutrition during pregnancy respectively.

Conclusion and Recommendation: The knowledge, attitude and practices of nutrition during pregnancy were relatively low in the study area. The government and the concerned bodies should focus on education and to eradicate poverty.

Keywords: Knowledge; Attitude; Practise

CHAPTER ONE: INTRODUCTION

1.1 Background

Nutrition is a fundamental pillar of human life, health and development throughout the entire life span. Maternal nutrition refers to the nutritional needs of women during the antenatal and postnatal period (i.e., when they are pregnant and breastfeeding) and also may refer to the pre-conceptual period (i.e., adolescence)(1). During pregnancy, maternal nutrition requires considerable attention; however, pregnant women's nutritional knowledge, attitudes, and practices are less understood(2). There are about 40 different nutrients that are essential for health. If any one of these is deficient in the diet the person will not be fully healthy and able to resist the agents of disease(3).

The importance of maternal nutrition during pregnancy has long been recognized. The National Academy of Science issued a report that reviewed studies of reproductive experience concluded that: adequate prenatal nutrition was one of the most important environmental factors affecting the health of pregnant women and their babies(4).

Malnutrition is now a problem in both poor and rich countries. In developed countries, obesity is rapidly becoming more widespread, bringing with it an epidemic of diet-related non communicable diseases (NCDs) such as diabetes and heart disease, which increase health care costs and reduce productivity. In developing countries, while widespread under nutrition and micronutrient deficiencies persist, obesity is also fast emerging as a problem (5).

In Ethiopia, nutritional disorders are among the main causes of morbidity and mortality. The major problems are protein-energy malnutrition and micronutrient deficiencies such as vitamin A, iron, and iodine (6). Twenty-seven percent of women in Ethiopia are undernourished with a body mass index (BMI) of less than the 18.5 cutoff point and only are obese with a BMI of more than 25.0. These figures put Ethiopia among sub-Saharan countries with the highest proportion of malnourished women (7).

Pregnancy is a time of increased energy and nutrient needs for a woman in order to meet the needs of the growing fetus and of maternal tissues associated with pregnancy. Proper dietary

balance is necessary to ensure sufficient energy intake for adequate growth of fetus without drawing on mothers own tissues to maintain her pregnancy(8).

The poor health and nutrition of women and the lack of care that contributes to their death in pregnancy and child birth also compromise the health and survival of the infants and children they leave behind(9). Under nutrition most damaging effect on the fetus occurs during pregnancy and in the first two years of life, and the effects of this early damage on health, brain development, intelligence, educability, and productivity are largely irreversible(5).

The pregnant and lactating woman diet should include a substantial increase in calories, protein, calcium, folic acid, iodine and iron. Pregnant women at particular risk for nutritional deficiencies are adolescents, underweight women, obese women, women with chronic nutritional problems, women who smoke or ingest alcohol or drugs, low income women, and women with chronic illnesses such as diabetes or anemia(10).

1.2 statement of the problem

More than 200 million women who become pregnant each year, in developing countries, suffer from ongoing nutritional deficiencies repeated infections (11) and the long term cumulative consequences of under nutrition during their own childhood (12).

A serious problem of maternal under nutrition is evident in most countries in sub-Sahara Africa, south-central and southern Asia and Yemen where more than 20 percent of women are malnourished due to lack of knowledge, attitude and practise on nutrition(10).

Twenty percent of maternal deaths in Africa have been attributed to anemia related to iron and folate deficiencies(12). In Sub-Sahara in Africa, iron and folate deficiencies are the most common causes of anemia in pregnant women. Anemia has a variety of converging contributing factors but iron deficiency is the cause of 75% of anemia cases.

Many women in Africa suffer from a combination of chronic energy deficiency, poor weight gain in pregnancy, anemia, and other micronutrient deficiencies, as well as infections like HIV and malaria. These along with inadequate obstetric care, contribute to high rates of maternal mortality and poor birth outcomes (13).Maternal under-nutrition diminishes a woman's productivity, causing repercussions for herself, her family, her community, and the broader society(1) . KAP of women's towards nutrition influenced by many factors likes; no get adequate education on nutrition, socioeconomic factors, sociodemographic factors, educational level of the women, and early married of the women's(1) .

Nutrition during the periconceptional period is a key component of healthy pregnancy outcomes(13). If there is lack of knowledge attitude and practices on the pregnant mother towards nutrition it will have consequences like: maternal malnutrition, anemia during pregnancy, decreased immune function, obstructed labor, high maternal mortality on the mother, and increased fetal and neonatal death, intrauterine growth restriction of fetus, low birth weight, preterm delivery, decreased immune function, birth defects and decreased intelligent quotient (IQ) on the fetal side. It further affects the family and community socioeconomic conditions (10).

Maternal malnutrition is influenced not only by lack of adequate nutrition but also influenced by factors like social and psychological factors, nutritional knowledge of

mothers and biological changes that influence perceptions of eating patterns during pregnancies(14).

Now-a-days, the Ethiopian governments commitment is above all times to improve the maternal and perinatal health in particular by focused on ANC, advising women nutrition during pregnancy, health education on nutrition(15). Many researches and projects focused on maternal health are common, but little attention is given to maternal nutrition in the study area(11). It is clear that maternal nutrition is crucial in reducing maternal and infant morbidity and mortality but no study has been conducted to assess nutritional knowledge, attitude and practices of pregnant mothers in the study area. So this study is aimed to assess the nutritional Knowledge, Attitude and practices of pregnant women attending ANC at Gunchire primary Hospital southern Ethiopia, regarding the meaning, the importance and constituents of a well balance diet and practices of taking the necessary nutrients during pregnancy.

1.3 significance of the study

Malnutrition is one of the most serious health problems affecting children and their mothers in Ethiopia. Undernourished mothers face greater risks during pregnancy and childbirth(1). Although, researches and projects focused on maternal health are common, projects and researches focused specifically on maternal nutrition are rare in the study area (13).

Therefore the finding of this descriptive cross sectional study will contribute in filling the gap in understanding the knowledge, attitude and practices regarding maternal nutrition among pregnant women attending ANC clinics in the study area.

The results of the study will inform design of the nutrition education intervention strategies targeting pregnant women due to their importance in reproductive and productive roles in the society.

Besides the health providers and Ethiopian Ministry of Health, others who are interested in the field of maternal health in general will benefit from this research.

2. LITERATURE REVIEW

2.1. Knowledge of pregnant women towards maternal nutrition

A research results from Wollega, Ethiopia in 2013 revealed that 64.4% of women had nutrition knowledge during pregnancy. This research showed a positive significant relation between information about nutrition, educational status of mothers and family income and nutritional knowledge of mothers during pregnancy(1).

A low consumption of iodized salt and poor iodine status during pregnancy may result from a lack of knowledge about the importance of iodine intake during pregnancy. In Ethiopia, where iodine deficiency disorders are a major public health problem, according to WHO/UNICEF, more than 90% of women did not know the importance of iodized salt and the causes of iodine deficiency(16).

A study which was conducted at Military Hospital and Combined Hospital Rawalpindi, Pakistan, among 400 married reproductive age women in 2013 revealed that 53.25% of them knew folic acid intake is important, 40.25% thought that folic acid deficiency among pregnant women results in abnormality in new born. Regarding the rich source of folic acid 60.25% of women had idea and from the total 23.25% were regularly having green vegetables and fruits. 51.25% of respondents had received folic acid supplementation during pregnancy (17).

Research from New South Wales, Australia in 2013 had explained 81.6% (N=152) used supplements during their pregnancy; 67.7% took supplement brands which contained both folic acid and iodine in varying dosages. 36% of them started taking supplements before their pregnancy. The supplement use was significantly higher among pregnant women who were in the highest household income category. 75.6% of pregnant women understood that neural tube defects (NTDs) is the health problem associated with inadequate intake of folic acid and 39.5% of them knew the health problems associated with inadequate iodine intake. Half of the pregnant women had limited awareness about good sources of folic acid and iodine. Educated women from higher socioeconomic backgrounds had better knowledge about the importance of folic acid and iodine in pregnancy (18).

Iron: A study on 400 pregnant women admitted to the Cuza-Voda Obstetrics and Gynecology Clinical Hospital in Iasi, Romania, 2010 showed that 45.3% of participants had used iron supplements during pregnancy. This study had put Age, level of education, being married and low gestational age at the first prenatal check-up and total number of prenatal medical visits as a factor for folic acid, iron and multivitamin supplements. Similar study at rural area of India on 50 antenatal mothers showed that iron folate tablet was adequately consumed by 62% mothers among the study population(19).

Calcium and vitamin D: In 2014, a cross-sectional study on 116 pregnant women of Asian, Irish, north African, Sub- Saharan and middle eastern African origin at Ireland showed that 23% did not know any source of vitamin D and regarding their attitude 5% admitted that they did not like all foods that were rich in vitamin D. 34% of women reported taking a supplement that contained vitamin D; whereas 78% reported consuming oily fish over the past month and 31% reported consuming vitamin D fortified milk(20).

Omega 3 fatty acids: A study in USA on 124 pregnant mothers, attending the outpatient clinics of obstetrics and gynecology, revealed that 78.2% of women had a good knowledge about the importance of milk and milk products for pregnant women and also they knew that maternal malnutrition can endanger the newborn health. 45.9% and 49.2% knew correctly neither the meaning nor the constituents of the balanced diet for the pregnant women. 61.3% had good knowledge about the sources of iron and 71.8% knew the sources of calcium. It also revealed that women aged 25-35 years had higher mean of nutritional knowledge among respondents(21).

2.2 Attitude of pregnant women towards maternal nutrition

In western Kenya perumal Metal(2011) reported that 59.6% of the pregnant women's attitude score was (greater 7 out of 10) (22).Another study in USA by Latifa M. Fouda and her colleagues in 2012 reported that 40.3% of women thought negatively that pregnant women should eat more and, also 44.4% thought that most of their diet (>3/4) must be of starchy food. The majority of women 88.7% had a positive attitude towards milk and milk products (4). Regarding nutritional attitude a study in Japan suggested that pregnant women are aware of the need to adopt healthy behaviors. However, these findings were different to a study that reported pregnant mothers have a poor attitude during pregnancy(22).

2.3 Practice of pregnant women towards maternal nutrition

A quantitative cross sectional study in Ethiopia at Mekelle town, among 632 pregnant women in 2014 revealed that enjera and wet was the staple diet for 67.5% of pregnant women. Around half of the pregnant women ate three times per day. 57.8%, 33.4%, 45.7% pregnant women took meat once, milk twice and egg twice per week respectively. Similarly around half of pregnant women ate fruits once a week. 73% of pregnant women took vegetables twice per week (23). A study which was conducted at Guto Gida woreda, East Wollega Zone, Ethiopia, showed that from 419 pregnant women, 59.9% did not practiced the habit of eating snacks during their pregnancy. The study had indicated previous number of pregnancy and mothers occupation has associated with practices of mothers on nutrition during their pregnancy. This study had concluded that 33.9% of pregnant women were found to have good practice according to the questions offered to them to assess practices of mothers maternal nutrition during their pregnancy. This study has also uncovered the practice of diet frequency of meal per day among pregnant women; 66.1% had diet frequency of meal 1-2 per day during their pregnancy. 20.3% and 13.6% had diet frequency of meals 3 - 4 and >5 per day respectively during their pregnancy(11).

CHAPTER THREE: OBJECTIVES

3.1. General objective:

- To assess Knowledge, Attitude and Practices regarding maternal nutrition among pregnant women attending ANC at Gunchire primary Hospital, southern Ethiopia, 2020.

3.2. Specific objectives:

- To assess knowledge of pregnant women towards maternal nutrition among pregnant women attending ANC at GPH.

- To assess attitude of pregnant women towards maternal nutrition among pregnant women attending ANC at GPH.

- To assess dietary practices among pregnant women attending ANC at GPH.

CHAPTER FOUR: MATERIALS AND METHODS

4.1 The study area:

The study was conducted at Gunchire primary Hospital, in Gunchire town, Gurage zone, South west Ethiopia 2020. Gunchire town is a one of the urban kebeles found in the Enamore & Enar woreda. It is around 197 km from the capital city of Ethiopia, Addis Ababa toward south-western and 301 km from Hawassa, capital of the SNNP region and 42 km from Wolkite, the town of Gurage zone. Gunchire town has 1 Primary hospital which was established in 2008E.C. and 2 health post with 8 health workers (4 in each Health Extension). According to Gunchire town municipality data, Gunchire town has total populations of 21,342 with 10,784(51%) males & 10,558(49%) females.

According to information provided from Gunchire primary Hospital, mothers attending ANC follow up will estimated to 435 women per month.

4.2 Study Design and period:

Institutional based cross-sectional study was conducted from December 1 to December 30 2020.

4.3 Population:

4.3.1 Source population:

The source population was all pregnant women who visited ANC clinic of Gunchire primary hospital.

4.3.2 Study population:

The study population was selected pregnant women by convenience sampling technique.

4.4 Sample Size Determination:

The sample size was determined by using 64.4% of the pregnant mothers had nutritional knowledge during pregnancy as study done in east Wollega, Ethiopia. And using the following assumption: 64.4% of mothers had good attitude and practices as research study done in east wollega(1) with 5% marginal error and 95%CI and a nonresponse rate of 10%. Based on this assumption, the actual sample size for the study was determined using the formula for single population proportion.

$$n = \frac{(za/2)2p\ (1-p)}{d2.}$$

Where: ni = Initial sample size

Z=standard normal distribution corresponding to significance level at a = 0.05 or confidence interval (CI), 95% = 1.96

P = expected proportion (0.644) of pregnant mothers nutritionally knowledgeable, have good attitude and practices during pregnancy.

d = margin of error (5%) around P

Therefore: - $ni = \frac{(1.96)2(0.644)\ (0.356)}{(0.05)2} = 352$

Since the average total study population in the study area is about 435 pregnant mothers who have attended ANC in the Hospital which is below 10,000. So reduction formula was employed as follows;

nf=ni*N/(ni+N) Where nf=final sample size

=352*435/ (352+435) N=total study population

=194 Non response rate=10%=194*10%=19.4

The minimum sample size is 194*10%+194=213

4.5 Inclusion and exclusion criteria:

4.5.1 Inclusion: All pregnant mothers who came to Gunchire primary Hospital for ANC follow up were included in the study.

4.5.2 Exclusion: seriously ill, laboring mothers and mothers with hearing abnormality were excluded from the study.

4.6 Sampling technique:

To apply the sampling procedure, non-probability sampling technique. i.e. Convenience sampling methods in which the study units that happen to be available at the time of data collection are selected., with prepared interview based questionnaires, to assess knowledge, attitude and practice of pregnant women attending ANC at Gunchire primary Hospital.

4.7 Study Variables:

Maternal nutritional knowledge, Attitude towards nutrition and Dietary practices during pregnancy

Socio-demographic characteristics, Family Size, Nutritional information, Number of pregnancies and health condition smoothly.

4.8 Data collection Instruments/tools

A structured questionnaire was prepared in English language. It was translate in to Amharic and after data collection it was translated back to English to check for consistency. The questionnaires was pre-tested in GPH ANC unit. The pre-test was done on 5% of the total sample size. Then questionnaire was assessed for its clarity, length and completeness. The data was collected by three midwifery students.

4.9 Data collection procedures:

The data were collected by taking these women in private room after their ANC follow up.

4.10 Data processing and analysis:

Options were provided to make a preliminary analysis of the responses to knowledge questions. If the question had a single correct answer, the options were Complete, Incomplete or does not know. If the question had several correct answers, the options were compete (if the respondent gave more than one or all possible correct answers), Incomplete (if the respondent knew only one correct answer) and Does not know (if the respondent gave no correct answers) and Number of correct responses (to indicate the number of correct answers provided).

Data processing was done by tallying manually and analyzed by using scientific calculator.
And the result was presented by tables, figures.

4.11 Data quality control:

To maintain the quality of information first the objective or purpose of the study was explained to the respondent and oral consent was taken before starting of the interview from the respondent. Data collectors was neutral to agree, and disagree to the response provided by the respondent and free from influencing them.

4.11 Operational Definitions

Knowledge: This refers to an individual's knowledge of nutrition, including the ability to remember and recall food and nutrition related terminology(2).

Knowledgeable: if respondents score for knowledge questions ≥70%from from the knowledge question.

Not knowledgeable: if respondents score for knowledge questions <70% from the knowledge question.

Attitudes Pregnant women's feeding or eating behavior which is influenced by her emotions, motivations, perceptions and thoughts(2).

Favorable attitude: the respondent's attitude score >the median(2).

Unfavorable Attitude: the respondent's attitude score ≤ the median(2).

Practices: the observable actions of an individual that could affect his/her or others' nutrition, such as eating, feeding, cooking and selecting foods(2).

Good practices: the respondents had practiced according to food recommendations for pregnant mother and for frequency of food, at least once per day regarding fruits, vegetables, milk and milk products. Concerning meal frequency, 4 and above meals per day(2).

Poor practices: the respondents had no practices parallel with food recommendation for pregnant women and for frequencies, less than once per day regarding fruits, vegetables, milk and milk products. Regarding meal frequency, 3 and below per day(2).

4.12 Ethical clearance:

Ethical clearance was obtained from WKU then given to the Gunchire primary hospital administration before starting interviewing of the study subject. Confidentiality will be keep throughout data collection and the woman has a right to refuse or discontinue any time during the interview.

4.13 Dissemination of Findings

The result of the study is on the way to be submitted to Wolkite University department of Midwifery and Ethics Publication Committee office, in Wolkite University health science library to be used as reference for future researcher and be accessible for utilization by hard and soft copies to concerned bodies.

CHAPTER FIVE: RESULT

5.1. Socio-demographic characteristics

Out of the 213 sampled pregnant women, 201 responded to the questionnaires appropriately, making a response rate of 94.4%. Different questions were asked to assess knowledge, Attitudes and practices of pregnant women on nutrition and socio-demographic determinant factors in the study area.

The age range was 18-42. About third quarter of the respondents, 139(69.0%) were in the age range of 25-34 years. Most study respondents, 188(93.7%) were married. Table 1 shows that all most above half 105(52.2%) of respondents were Muslim religion followers followed by Orthodox religion followers (76(37.8%)) and Protestants (14(6.9%)).

Regarding the Ethnicity majority of respondents were Gurage (187(93%)) followed by Amhara (8(4%)). Concerning family size, 64(31.8%), 41(20.3%) 44(22%) of women had three, five & above and four family members respectively. With regard to educational status about half 96(47.7%) of respondents were at the level of primary and no formal learning and 53(26.3&) of the women had Diploma and above education.

Regarding to estimated income of women, greater than one third of respondents 81(40.3%) earned less than 1000 birr per month, about one third 64(34.3%) of respondents earned 1000-2500 birr and the rest about two third 51(25.4%) of respondents earned greater than 2500 birr per month.

Concerning the obstetric score, about one quarter of the respondents, 52(26.1%) were primigravida. From those who had history of delivery, 74(36.8%) had experience of abnormal previous delivery. In medical status, 23(11.2%) of women had associated diseases with pregnancy. About two third of women (115(57%)) had two antenatal visit on the current pregnancy

Table 1 Distribution of Socio-Demographic characteristics of pregnant mothers attending ANC at Gunchire primary hospital in 2020.(N=201)

SN	Variables		Number (%)
1	Age	<24 25-34 35-42	32(16.0) 139(69.0) 30(14.9)
2	Marital status	Married Single Widowed Divorced Separated	188(93.7) 2(1.1) 4(1.9) 4(1.9) 3(1.5)
3	Ethnicity	Gurage Amhara Oromo Tigre Others	187(93) 8(3.98) 4(2) 2(1)
4	Religion	Muslim Orthodox Protestant Others	105(52.2) 76(37.8) 14(6.9) 6(2.9)
5	Family size	One Two Three Four Five and above	16(8) 36(18) 64(31.8) 44(22) 41(20.3)
6	Educational level	No formal schooling and primary schooling Secondary school Diploma and above	96(47.7) 52(26) 53(26.3)
7	Occupation	House wife Private business Employee	135(67.1) 34(16.9) 32(16.0)
8	Monthly income	<1000 1000-2500 >2500	81(40.3) 64(34.3) 51(25.4)
9	Obstetrical score	Primi Multi	52(26.1) 149(73.9)
10	Previous delivery	Normal Abnormal	127(63.2) 74(36.8)
11	Associated diseases	Yes No	23(11.2) 178(88.8)
12	Number of antenatal visits on current pregnancy	One Two Three Four and above	29(14.4) 115(57) 31(15.5) 26(13)

5.2. Knowledge of mothers on maternal nutrition during pregnancy

The findings showed that 39(19.4%), 126(62.6%) and 73(36.3%), of the respondents had a complete correct answer to component of balanced diet,, pregnant mothers' diet differ than others and danger of malnutrition for pregnant mother and the fetus respectively. Regarding sources of nutrients, 73(36.3%), 80(39.8%), 32(15.9%) and 85(42.2%) of women had complete correct answers to the sources of protein, vitamins, calcium, and iron respectively. Only 49(24.5%) of women mentioned Supplements (tablets) for pregnant women

Generally only 54(27%) of respondents were knowledgeable (who score 70% and above for Knowledge questions). The rest, 147(73%) of women were not knowledgeable (score less than 70%) about maternal nutrition during pregnancy.

Table 2 Nutrition knowledge of pregnant mothers attending ANC of Gunchire primary hospital, 2020 (N=201)

SN	Variables	Knows		Doesn't know
		Complete	Incomplete	
13	Components of balanced diet	39(19.4)	120(59.7)	42(20.9)
14	Pregnant diet differ than other diet	126(62.6)	53(26.4)	22(11)
15	Source of protein(Animal and plants)	73(36.3)	62(30.8)	66(32.3)
16	Source of vitamin	80(39.8)	18(8.9)	103(51.2)
17	Supplements(tablets) for pregnant women	49(24.5)	101(50.0)	51(25.5)
18	Danger of malnutrition for pregnant women and fetus	73(36.3)	67(33.3)	61(30.2)
19	Food sources of iron	85(42.2)	16(7.9)	100(49.8)
20	Source of calcium	32(15.9)	11(5.5)	158(78.6)

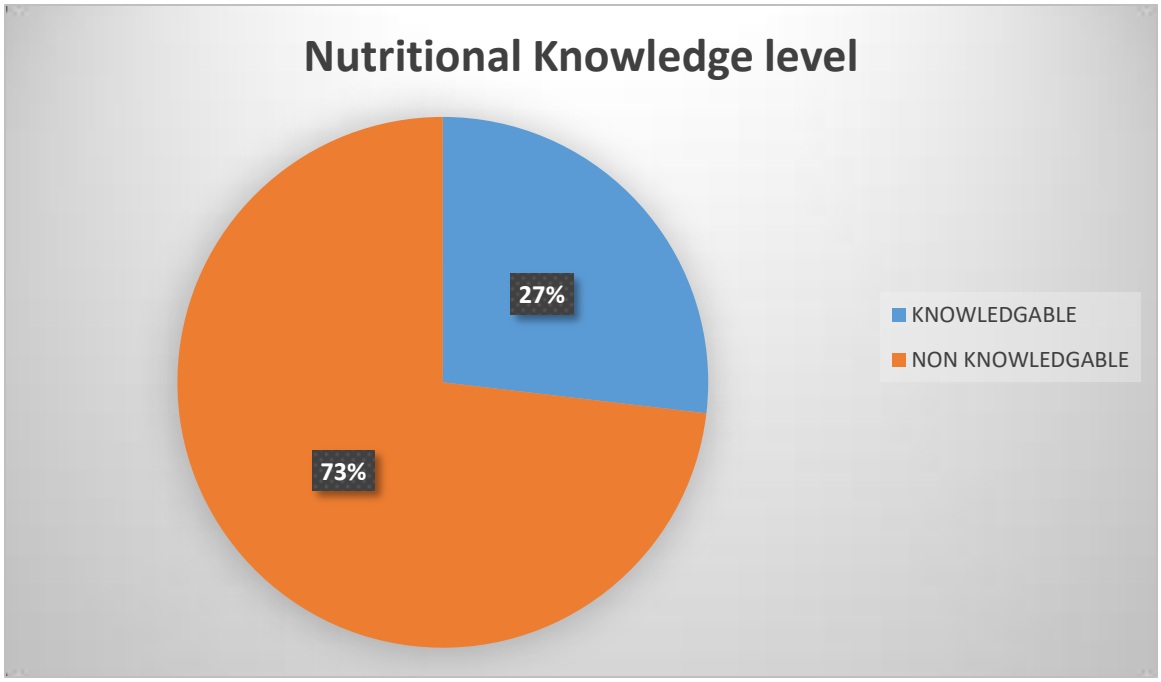

Figure 1 Nutrition knowledge level of pregnant mothers attending ANC at Gunchire primary Hospital, 2019 (N=201)

5.3. Attitudes of mothers on maternal nutrition during pregnancy

In general, 137(68%) of respondents had favorable attitude and 64(32%) had unfavorable attitude towards nutrition during pregnancy.

As regards the attitude, almost around one third of women, 36(18%) thought negatively about eating more food during pregnancy and about 76(37.8%) of the respondents thought negatively about eating more varieties of food during pregnancy.

Regarding preparing meals with iron-rich foods and with iodized salt 120(59.7%) & 115(57.2%) of pregnant mothers have positive attitudes. The majority of women, 160(75%) & 183(91%) had a positive attitude towards taste of omega 3 rich foods and to have milk and milk products respectively.

Table 3 Level of nutritional Attitude among pregnant mothers attending ANC at Gunchire primary hospital, 2020. (N=201)

SN	Variables	Good	Not sure	Not good
21	Eating more food	153(76)	12(6)	36(18)
22	Eating more varieties of food	121(60.2)	4(2)	76(37.8)
23	To prepare meals with iodized salt	120(59.7)	15(7.5)	66(32.8)
24	To prepare meals from iron rich foods	115(57.2)	14(7)	72(35.8)
25	To have more milk & it's products during pregnancy	183(91)	7(3.5)	11(5.5)
26	Taste of omega 3 foods; olive oils, fish....	11(75)	24(12)	26(13)

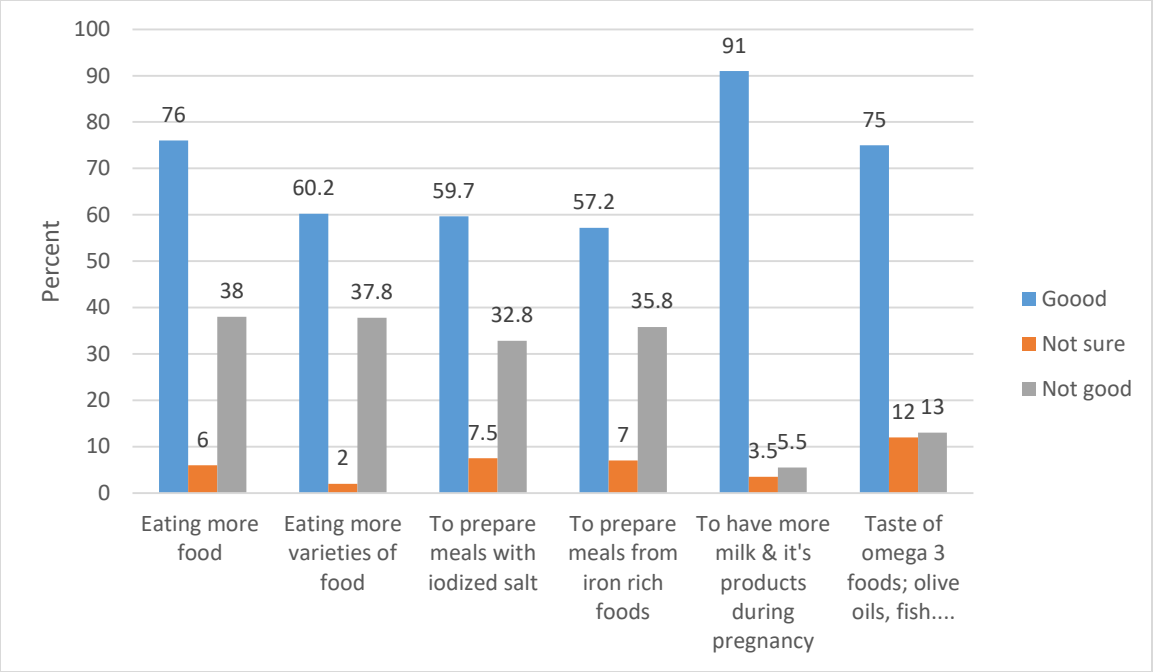

Figure 1: Level of nutritional attitude among pregnant mothers attending ANC at Gunchire primary Hospital, 2021 (N=201)

5.4. Practices of mothers on maternal nutrition during pregnancy

In general, 64(32%) of the respondents were found to have good practice depending up on questions offered to them to assess practices of mothers' maternal nutrition during their pregnancy.

Concerning the practice, only 13(6.5%) of women follow specific dietary regimen, about 163(81.0%) of women used iodized salt to prepare their daily main meals and less than one third of women, 62(30.8%) had the habit of eating fresh citrus fruits and/their juices.

Regarding the diet frequency of meal per day, the majority of respondents, 124(61.7%) had diet frequency of four and above per day. The rest 77(38.3%) of the respondents had 1-3 servings per day. Concerning micronutrient supply, 118(58.7%) of women responded that had iron folate tablets and took them correctly.

In case of following weight, 188(93.5%) of the respondents had followed their weight.

Table 5 Nutritional practices of pregnant mothers attending ANC at Gunchire primary hospital, 2021 (N=201)

SN	Characters	Good (number/%)	Poor (number/%)
27	Following specific dietary regimen	13(6.5)	188(93.5)
28	Using salt to cook the main meal	163(81.0)	37(19.0)
29	Habit of eating fresh citrus fruits/juice	62(30.8)	139(69.2)
30	Frequency of meal per day	124(61.7)	77(38.3)
31	Iron folate supply	118(58.7)	83(41.3)
32	Following weight	188(93.5)	13(6.5)
33	Habit of taking coffee or tea	154(75.0)	47(25.0)
34	Habit of taking snacks between meals	124(61.7)	77(38.3)
35	Drinking milk/Eating milk products	70(34.8)	131(65.2)

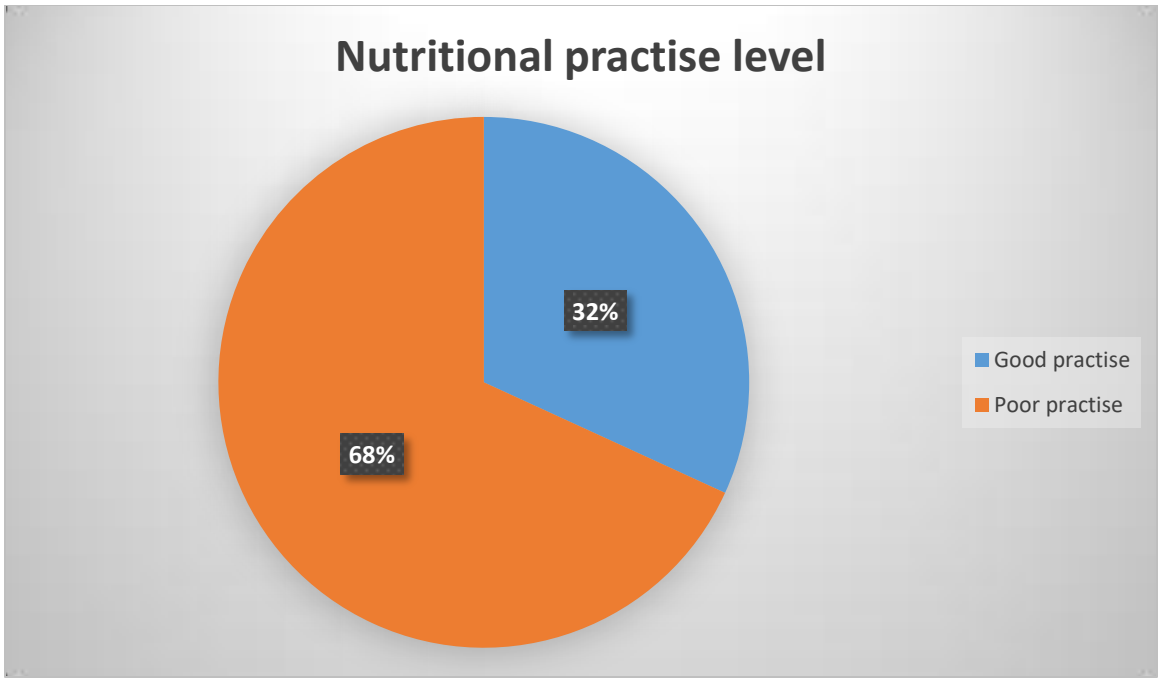

Figure 2 Nutrition practice level of pregnant mothers attending ANC at Gunchire primary Hospital 2020 (N=201)

CHAPTER SIX: DISCUSSION

This study was conducted to investigate the level of nutritional knowledge, attitudes and dietary practices of pregnant women during pregnancy in Gunchire primary hospital, southern Ethiopia, 2020.

This study revealed that 42(20.9%) of the respondents did not know the component of balanced diet. This study result was not agreed with the study reported from Guto Gida woreda, East Wollega Zone, Ethiopia that more than half (74.0%) of women did not know the main food groups (1). This might be due to the difference in educational status of respondents.

The findings of this study illustrated that the knowledge about food sources of protein, iron, vitamins & calcium was 73(36.3%), 85(42.2%), 80(39.8%) and 32(15.9%) respectively which was much lower (69.4%, 61.3%, 62.9% and 71.8% respectively) than reported by Latifa et al(4). It might be due to the low nutrition information and low socio-economy of the study participants.

This study result also showed that 73(36.3%) of respondents had the knowledge (complete score) of the danger of malnutrition on the mother and baby. This result was in agreed with the result from east Wollega that 34.8 % respondents had the knowledge that inadequate nutrition during pregnancy can be the cause of miscarriage or preterm birth and agreed with a study conducted in America at EL-Hospital in which the women in the study area lacked the awareness of consequences of inadequate nutrition during pregnancy on the mother and fetus (1), (4).

In general, according to the answers given by the respondents to the knowledge assessing questions, only 54(27%) of respondents were knowledgeable about nutrition during pregnancy. This is lower than the study conducted in east Wollega (64.4%)(1), This low nutritional knowledge might be due to avoiding of guessed answers by asking open ended questions and low information about nutrition during pregnancy.

Regarding Attitude, majority of the respondents, 182(91%) and 151(75) like the taste of milk and milk products and taste of omega 3 rich foods during pregnancy which was in agreed with a study conducted in America that 88.7% and 86.4% of respondents like the taste of milk and its products and taste of omega 3 rich foods during pregnancy (4).

Concerning practices, findings of this study showed that 13(6.5%), 62(30.8%) and 70(34.8%) of respondents had practices of following specific dietary regimen, habit of eating fresh fruits & their juices and daily drinking of milk and eating its products respectively which was lower (25.8%, 58.9% and 42.7% respectively) than the result of the study from America. It might be due to the culture and socio economic difference.

Further this study showed that the majority, 124(61.7%) of respondents had 4 and above meal frequency per day and more than half, 124(61.7%) of the respondents had practiced the habit of eating snacks between meals during pregnancy which was higher than the study conducted in East Wollega, that revealed only 33.9% of respondents had 3 and above meal frequency per day and the frequency of snack consumption per day was 40.1% (11). This might be due to the difference in residence and economy.

The findings also showed that majority, 118(58.7%) of respondents had iron folate supply during pregnancy which was almost similar with the result (63.7%) from America (34) and Similar study from India on antenatal mothers showed that iron folate tablet was adequately consumed by 62% of mothers among the study population (19).

In general, 64(31.7%) of the respondents were found to have good practice depending up on questions offered to them to assess practice of mothers' nutrition during their pregnancy. This was similar with the study conducted in east Wollega that 33.9% of the pregnant women had good practices on nutrition during pregnancy (11).

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

7.1. Conclusions

Based on the findings of the present study, It can be concluded greater than two third (of pregnant women aged 18 - 35 years) which is advisable to being pregnant. 67.1% of them were housewives and more than one third of respondents were earned less than 1000 birr per month. Where more than half of women in the present study lacked the basic and the essential knowledge regarding the constituents and sources of most of vitamins and minerals. This study also showed that most of women had a poor level of knowledge and practices about nutrition during pregnancy. Furthermore, the most significant value in this study was high favorable attitudes of women. So, it is obvious that good knowledge about maternal nutrition usually resulting in good dietary practices which are important for health of the mother and the fetus.

7.2. Recommendations:

Health and Health related staffs:

It is recommended providing adequate health education about proper and balanced maternal nutrition at pre-conception care for future mothers and during early pregnancy. In addition, it is better to prepare leaflets on maternal nutrition and give them for mothers.

Health and Health related managers:

√ Supplying the antenatal units and MCH centers with enough vitamins and minerals necessary for pregnant women and supplying them with adequate audiovisual materials that help midwives in health teaching

√Enforce good prenatal care nutritional counseling of supplementation of iron and folic acid.

The Community at large:

Should focus on education and to eradicate poverty.

CHAPTER EIGHT: Strength and Limitation

Strength:

- The strength of the study was all data collectors (the students of group member) were discussed before data collection in order to prevent the gap between group members.

Limitations:

- The study period were limited and very short.
- Due to social desirability, respondents might respond what they didn't believe and experience(bias)

Reference

1. Daba G, Beyene F, Fikadu H ,Garoma W. Assessment of Knowledge of Pregnant Mothers on Maternal Nutrition and Associated Factors in Guto Gida Woreda, East Wollega Zone, Ethiopia Journal of Nutrition & Food Sciences. 2013;3(6).
2. Tenaw Z, Arega M, Tackbele E. Nutritional knowledge, attitude and practices among pregnant women who attend antenatal care at public hospitals of Addis Ababa, Ethiopia International Journal of Nursing and Midwifery 2018;10(7).
3. EFMoh. ethiopia-sam-guideline-march. 2007:122.
4. Shehab Latifa M Fouda Manal H Ahmed Nihan S. Nutritional Awareness of Women during Pregnancy Journal of American Science 2012; 8(7).
5. Shekar M, Heaver R, Lee Y-K. Repositioning Nutrition as Central to Development A Strategy for Large-Scale Action. 2006:30.
6. FDRoEMoh. Health Sector Development Program IV 2010/11 – 2014/15 2010:137.
7. IYCN. Infant & Young Child Nutrition Project; Literature Review Prepared for the Message and Materials Development Workshop produced through support provided by the United States Agency for International Development (USAID), Addis Ababa, Ethiopia. 2011:42.
8. Panda SSaB. A Study of Nutritional Status of Pregnant Women of Some Villages in Balasore District, Orissa. J Hum Ecol. 2006;20(3).
9. Abdella A. Maternal Mortality Trend in Ethiopia Ethiop J Health Dev. 2010:8.
10. Melkie Edris HT, Yohannis Fitaw, Baye Gelaw, Dagnew Engedaw, Tigest Alemu. Maternal Nutrition. 2005.
11. Gemeda Daba* FB, Wondu Garoma and Habtamu Fekadu, . Assessment of Nutritional Practices of Pregnant Mothers on Maternal Nutrition and Associated Factors in Guto Gida. 2013.
12. Idowu O MC, Dopu S. Anaemia in pregnancy: a survey of pregnant women in Abeokuta, Nigeria. African health sciences. 2006;5(4):6.
13. Widen E S-RA. Prenatal Nutrition: A Practical Guide for Assessmentand Counseling. Midwifery & Women's Health. 2010;55(6):10.
14. Berg CK TL, Holle AV, Hamer RM, Bulik CM, Reichborn-Kjennerud T. Factors Associated with Binge Eating Disorder in Pregnancy. Int J Eat Disord 2011;44(2).
15. Berhan Y BA. COMMENTARY: ACTIONS IN THE PIPELINE AND THE WAY FORWARD TO REDUCE MATERNAL AND PERINATAL MORTALITY IN ETHIOPIA Berhan Y, Berhan A. 2014:20.
16. Abuye C BY. The goitre rate, its association with reproductive failure, and the knowledge of iodine deficiency disorders (IDD) among women in Ethiopia: Cross-section community based study. BMC Public Health. 2007.
17. Aliya Hisam1 MUR, Syed Fawad Mashhadi3. Knowledge, attitude and practice regarding folic acid deficiency; A hidden hunger Pak J Med Sci 2014;30(3).
18. el Mani SF . Knowledge, behaviour and practices of pregnant women in Wollongong regarding folic acid and iodine nutrition after the introduction of a mandatory fortification program. El-mani SF. 2013.
19. Partha Pratim Pal SS, Tarun Kumar Sarkar, Pevel Mitra2. Iron and Folic Acid consumption by the ante-natal mothers in a rural area of India in 2010. Int J Prev Med 2013;4(10).
20. C. Toher KL, † M. McKenna,‡ M. Kilbane,‡ S. Curran,§ L. Harrington,¶ O. Uduma* & F. M. McAuliff. Relationship between vitamin D knowledge and 25-hydroxyvitamin D levels amongst pregnant women. Journal of Human Nutrition and Dietetics. 2014;27(3).
21. Shehab3 LMFMHAaNS. Nutritional Awareness of Women during Pregnancy Journal of American Science 2012;8(7).

22. Nandita Perumal1* DCC, 2, Hermann Z Ouédraogo2, Kirimi Sindi2, Cornelia Loechl3, Jan Low2, Carol Levin4,5, Christine Kiria2, Jaameeta Kurji1 and Mary Oyunga6. Health and nutrition knowledge, attitudes and practices of pregnant women attending and not-attending ANC clinics in Western Kenya: a cross-sectional analysis BMC Pregnancy and Childbirth. 2013.
23. Abriha A Yesuf ME. Prevalence and associated factors of anemia among pregnant women of Mekelle town: a cross sectional study. BMC Research Notes 2014;7(1).

ANNEX 1: Data collection tools

Information sheet and Consent form for pregnant women (English Version) Wolkite University, College of medicine and health science, Department of midwifery.

Name of the study area (Hospital) _____ Questionnaire identification no. _____

INTRODUCTION: Good morning/afternoon? My name is _____. In this Study which is undertaken by Wolkite University, College of medicine and health sciences, department of Midwifery, you and me would have a short discussion of about 20-30 minutes only and I am asking you to help us. Before we go to our discussion, I will request you to listen carefully to what I am going to read to you about the purpose and general condition of the study and you will tell me whether you agree or disagree to participate in this study at the end. The purpose of this study is to assess nutritional Knowledge, Attitude and Dietary practice of pregnant women attending ANC at Gunchire primary Hospital, 2020. The study will be conducted through interviews. The results of the study will inform design of the nutrition education intervention strategies targeting pregnant women‟ due to their importance in reproductive and productive roles in the society. I would like to assure you that privacy will be maintained strictly throughout. A code number will identify every participant and no name will be used. Your responses to any of the questions will not be given to anyone else and no reports of the study will ever identify you. If a report of results is published, only information about the total group will appear. The interview is voluntary and your participation / non-participation, or refusal to respond or stop responding to the questions will have no effect now or in the future on services that you or any member of your family may receive from the service providers.

Are you willing to participate in this study?

1. [ ] Yes. 2. [ ] No

Thank you!

NB: 1. If the study subjects agree to participate in the study, go to consent form

2. No need of enforcing the clients to be included in the study

Annex 2: Consent

Section II. Consent form for pregnant women (English Version)

I undersigned have been informed about the purpose of this particular research project. I have been informed that I am going to respond to this question by answering what I know concerning the issue. I have been informed that the information I give will be used only for the purpose of this study and my identity as well as the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study or not to respond to questions if I am not interested. Furthermore, I have been informed that I can stop responding to the questions at any time in the process. Based on the above information I agree to participate in this research voluntarily.

NB: 1. If the study subject is voluntary to participate in the study, start the interview.

1. Interviewer signature certifying that informed consent has been given verbally by the respondent.

Name _____

Signature _____

Date _____ Tele. _____

3. If there are things that require clarification please don't hesitate to ask the Interviewer or the principal investigator for clarification.

Address of the principal investigator

Annex 3: Questionnaires

Socio-demographic characteristics

SN	Questions	Responses	skip
1	Age	……years	
2	Marital status	1.single 2.married 3.widowed 4.divorced5.separated	
3	Religion	1.muslim 2.orthodox.3.protestant 4.others(specify)	
4	Ethnicity	1.Gurage 2.Amhara 3. Oromo 4.Tigrie 5. Others(specify)	
5	Family size	1. One 2. Two 3. Three 4. Four and above	
6	Educational level	1. No formal learning 2. Primary school 3. Secondary school 4. College and above 5. Others(specify)	
7	Occupation	1. Housewife 2. Private business 3. Employee 4. Others(specify)	
8	Monthly income	<1000 1000-2500 >2500	
9	Obstetrical score	1. Gravida_____ 2. Para_____	
10	Previous delivery	1. Normal 2. Abnormal	

11	Associated diseases	1. Hypertension 2. Diabetes 3. Renal disease 4. Other (specific) 5. no	
12	How many antenatal visits do you have on the current pregnancy	1. One 2. Two 3. Three 4. Four 5. other(specify)	

Knowledge questions

1. Can you list components of balanced diet?(more than one answer is possible)

A. carbohydrate B. fat C. protein D. mineral E. fibers

F. vitamins G. water H. doesn't know

2. How should a pregnant woman eat in comparison with a non-pregnant woman to provide good nutrition to her and her baby to help him grow?

A. eat more frequently. C. eat many varieties

B. eat more amount at once. D. others (specific). E. doesn't know

3. Can you list Sources of protein (animal& plants?

A. beans B. Rice C. meat D. wheat E. others (specific) F. doesn't know

4. Can you list source of vitamins?

A. meat B. fruits C. vegetables D. grains E. others (specific)

F. doesn't know

5. Which supplements (tablets) most benefit women during pregnancy?

A. iron B. folic acid C. others specific D. doesn't know

6. Dangers of malnutrition for the pregnant mother and fetus? More than one answer is possible

A. Increased fetal and neonatal death B. Intrauterine growth retardation

C. Low birth weight, preterm delivery D. Decreased immune function,

E. Birth defects F. Cretinism and decreased IQ G. Others (specific)

H. don't know

7. Iron uses to prevent physiologic anemia, can you list food sources of Iron?

A. organ meat B. flesh meat C. teff D. others(specific) E. doesn't know

8, what are sources of calcium?

1 .milk 2.cheese 3.yogurt 4.spinach 5.other (specify) 6 doesn't know

Attitude questions

1. How good do you think it is to eat more food during pregnancy?

A. not good B. you are not sure C. good

2. How good do you think eating more varieties of food during pregnancy?

A. not good B. you are not sure C. good

3. How good do you think it is to prepare meals with iodized salt?

A. not good B. you are not sure C. good

4. How good do you think it is to prepare meals with iron-rich foods such as beef, chicken or liver?

A. not good B. you are not sure C. good

5. How good do you think it is to have milk and its products during pregnancy?

1. Not good

2. You are not sure

3. Good

6. How do you like the taste of omega 3 rich foods like olive oils, fish.....?

1. Dislike

2. You are not sure

3. Like

Practice questions

1. Do you follow specific dietary regimen during pregnancy?

A. yes. B. no C. don't know

2. Do you use salt to cook daily?

A. yes B. no C. don't know

If yes, what kind of salt do you use?

A. iodized B. not iodized C. don't know

3. Do you eat fresh fruits and drink juices made from them?

A. Yes. B. No. C. I don't know

If yes, how many times per day?

A. Once. B. Twice. C. Three times D. other (specific) E. Don't know

4. How many times do you have meals in a day?

A. once. B. Twice. C. Three times. D. Four times and above

5. Do you have iron folate supplements (tablets) during pregnancy?

A. Yes. B. No

If yes, when did you start taking it?

1. before pregnancy 2.during first trimester 3. Later 4 don't know

6. Do you follow your weight during pregnancy?

A. Yes. B. No. C. Doesn't know

7. Do you drink coffee or tea

1. Yes. B. No. C. Don't know

* If yes, when do you usually drink coffee or tea?

A. 2hrs or more before or after meal. D. Right after the meal

B. Right before meal. E. Other, specify

C. During the meal. F. Don't know/ no answer

8. Do you have the habits of eating snacks between meals?

A. yes, i have. B. no i haven't. C. don't know

9. Do you drink milk/ eat milk products?

A. Yes. B. No. C. Don't know

* If your answer is yes to question no.8, how many times?

A. Once a day D. Other, specify

B. Twice a week E. don’t know

C. Three times a week