

Assessment of Knowledge, Attitude and Practice of Maternal Nutrition Among Pregnant Mother Attending Antenatal Care in Selected Health Centers of Robe Town, Oromia Region, Ethiopia

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Abstract

Background: Maternal nutrition is critical to both the mother's overall health and the development of the fetus. Inadequate or incorrect diets during pregnancy can be harmful to both the mother and the child. **Objectives:** The goal of this look at became to research expectant mothers' knowledge, attitudes, and practices (KAP) regarding maternal nutrition in Robe Town Health Centers in Ethiopia's Oromia Region. **Methods:** Institutional-based cross-sectional study design was conducted on a total of 561 pregnant mothers from January 15 to February 25, 2023. A semi-structured interview and questionnaires were used to collect information in socio-demographic domains, knowledge, attitudes, and practices related to maternal nutrition in pregnant women. The Statistical Package for Social Sciences (SPSS) model 26 became used to carry out descriptive statistics. **Results:** The results obtained during the study indicate that 59.5%, 67.4%, and 61.1% of pregnant mothers had good knowledge, positive attitudes, and good practices, respectively, while 40.5%, 32.6%, and 38.9% had poor knowledge, negative attitudes, and poor practices, respectively. **Conclusion and recommendation:** According this study clearly indicated that less than half of pregnant mother's attending antenatal care in the study area had poor knowledge, attitude and practices. Therefore, nutrition education should be intensified to improve the overall knowledge, attitude, and practices of pregnant moms closer to maternal vitamins in exclusive villages, fitness centers, fitness posts, mass media and hospitals.

Keywords: Pregnancy, Nutrition, Attitude, Knowledge, Practice, Antenatal care

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1. Introduction

1.1 Background

All mortal beings need a balanced quantity of nutrients for the proper functioning of their body systems. Proper food and good nutrition are essential for survival, physical growth, internal development, performance and productivity, health, and good health. Still, the nutrition demand varies with respect to age, gender, and physiological changes similar to gestation (Daba, Beyene, Fekadu, & Garoma, 2013).

At the time of gestation, women's bodies undergo changes anatomically, physiologically, and biochemically. The natural changes will increase women's nutrient conditions. Therefore, pregnant women should eat diversified foods that contain an acceptable quantity of energy, protein, vitamins, minerals, and water (Diddana, 2019). Gestation is the most nutritionally demanding period of every woman's life. The high demand for nutrients to deposit energy in the form of new towels, the growth of motherly napkins similar to the bone, and increased energy conditions for towel conflation make pregnant women more vulnerable to malnutrition (Nana & Zema, 2018).

According to the World Health Organization (WHO), encyclopedically, several pregnant girls do not get enough micronutrients in their diets during their gestation and reproductive-age period, which influences unborn generations (Desyibelew HD, 2019). Lack of knowledge, station, and unhappy practice of nutrition, similar to consuming nutrient-deficient food and a lack of proper eating patterns, are understood to be the cause of colorful health problems and nutritional scarcity scarcities (Weerasekara, Withanachchi, Ginigaddara, & Ploeger, 2020). Nutrition throughout the life cycle has a major effect on health. Pregnant women need the most nutritional variety in their lives (Yalewdeg Mahlet, 2020). Lack of knowledge, station, and exercise about applicable nutrition and failure to admit essential nutrients in both quality and volume during this physiologically demanding period would affect adverse gravidity issues (Aliwo, Fentie, Awoke, & Gizaw, 2019). In Ethiopia, nutritional KAP conditions are among the main causes of morbidity and mortality in pregnant women. The major problems are protein-energy malnutrition and micronutrient deficiencies analogous to vitamin A, iron, and iodine (Tenaw, Arega, & Tachbele, 2018).

Socio-demographic factors, hearthstone, and nutrition information are the factors that impact the knowledge, status, and practice of pregnant mama's nutrition (Tenaw, et al., 2018). Nutritional knowledge and station are important factors of salutary practices and are, therefore, implicit targets for applicable planning of nutrition interventions for vulnerable population groups like those lactating and women who are pregnant (Popa et al., 2013). Ethiopia's Ministry of Health (MoH) has used different strategies, such as nutrition education via social media.

Likewise, health extension workers (HEWs) have also been seeking to alleviate the insufficiency in nutrition knowledge, status, and practice among pregnant women, especially in the pastoral community. Still, about 47 women demanded knowledge of balanced and diversified diets during the prenatal period (Zerfu & Biadgilign, 2018).

2. Materials and Method

2.1 Description of the study area

The study was conducted in Robe, also known as Bale Robe, a town in the Oromia region of southern Ethiopia. The city is located in the Bale area, has a latitude and longitude of 7°7' N and 40°0' E, and an elevation of 2,492 meters (8,176 ft.) above sea level. It is about 430 kilometers by road from the capital, Addis Ababa. The 2007 census gave a total population of 68,294 in Robe, of which 22,543 were males and 21,839 were females. Many residents reported being Muslim, with 48.08% of the population professing this belief, while 45.02% of the population is Ethiopian Orthodox Christians and 6.13% are Protestants. Data was collected between January 15 and February 25, 2023.

2.2. Study design

We conducted an institutional cross-sectional study to examine pregnant women's knowledge, attitudes, and practices regarding maternal nutrition during prenatal care at a selected health facility.

2.3 Population

2.3.1 Source population

All pregnant women who had visited a selected health center in Robe town for antenatal care between January 15 and February 25, 2023.

2.3.2 Study Population

Pregnant women who had come to visit a selected health center in Robe town for antenatal care between January 15 and February 25, 2023.

2.4 Inclusion Criteria and Exclusion Criteria

2.4.1 Inclusion criteria

All pregnant mothers who had come to the selected health center for antenatal care were included in the study.

2.4.2 Exclusion criteria

Seriously ill, laboring mothers and mothers with hearing abnormalities who couldn't listen or speak were excluded from the study.

2.5 Sample size determination

The sample size was calculated using a single population proportion formula. The KAP of pregnant mothers on maternal nutrition at Horo Gudrun Wollega zone was 63.5%, 70.6% and 74.6% respectively (Diddana, 2019; Keyata, 2018). Calculating by all prevalence and large sample size used to reduce error during study.

$$n = \frac{z^2 a/2 p(1-p)}{d^2}$$

When

n= sample size

z= level of significance (1.96)

d= margin of error 0.05 with 95% confidence level

p= The KAP of pregnant mothers on maternal nutrition.

$$\begin{aligned} S1 &= n = \frac{(1.96)^2 \times 0.635(1-0.635)}{(0.05)^2} \\ &= (3.8416 \times 0.635 \times 0.365) / 0.0025 \\ &= 356 \end{aligned}$$

$$\begin{aligned} S2 &= n = \frac{(1.96)^2 \times 0.706(1-0.706)}{(0.05)^2} \\ &= (3.8416 \times 0.706 \times 0.294) / 0.0025 \\ &= 319 \end{aligned}$$

$$\begin{aligned} S3 &= n = \frac{(1.96)^2 \times 0.746(1-0.746)}{(0.05)^2} \\ &= (3.8416 \times 0.746 \times 0.254) / 0.0025 \\ &= 291 \end{aligned}$$

Among the three p, p=63.5% is large sample size which is 356 and using design effect 1.5 get

534.

Finally, 5% non-response rate is considered, and the total sample size based on proportion (P) becomes 561 pregnant mothers.

2.6 Sampling procedure

The calculated sample size was proportionally allocated to a randomly selected health center in the town of Bale Robe based on the average number of clients in each antenatal ward prior to the study period. Subjects were then selected from each antenatal ward using a systematic random sample, using patient records one month prior to data collection. Based on these numbers, every recorded kth person in Maternity clinics was interviewed until the desired sample size was reached. In short, the schematic procedure of sampling techniques of this study is shown in the following (Figure 1).

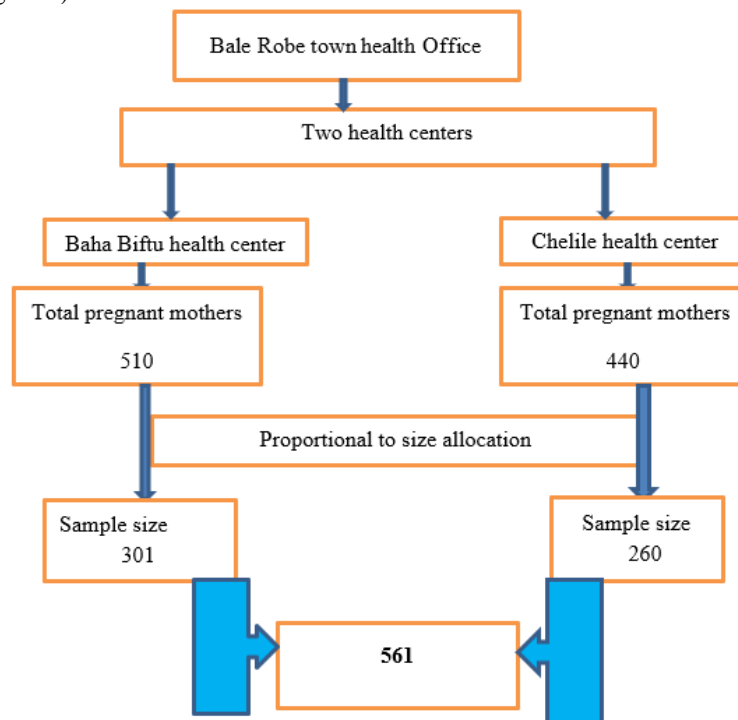


Figure 1: Schematic procedure of sampling techniques of this study

2.7 Data collection tools and procedures

A standardized questionnaire was used to assess the knowledge, attitude, and practices of pregnant mothers regarding maternal nutrition. Four diploma holders and experienced health professionals conducted interviews, receiving training on objectives, relevance, confidentiality, and sampling methods. A supervisor was assigned to supervise data collection. A pretest was conducted on a 5% sample size, and the questionnaire was assessed for clarity, length, and completeness.

2.8 Variables

2.8.1 Dependent variables

The dependent variables of the study were maternal dietary knowledge, dietary attitudes, and dietary practices during pregnancy.

2.8.2 Independent variables

The unbiased variables for the examination have been socio demographic characteristics, frequency of antenatal care, month of pregnancy, and dietary facts in the course of pregnancy.

2.9 Operational Definition

Knowledge is the information that one has gained approximately vitamins in the course of being pregnant through study and practice. Pregnant women are considered to have good knowledge if they correctly answered and scored greater than or equal to 70% (9 from 13) on the total knowledge assessment question (Tenaw, et al., 2018).

Attitude: A pregnant woman's feeding or ingesting behavior is motivated by her emotions, motivation, and thoughts. The respondent's attitude score > median among eight attitude questions is considered favorable, and the respondent's attitude score median among eight attitude questions is considered favorable, and the respondent's

attitude score \leq median is considered favorable (Tenaw, et al., 2018).

Practice: The actions of the mothers that could affect her nutrition, such as eating, feeding, cooking, and selecting foods Pregnant women were considered to have good dietary practices if they scored above and equal to the median and poor dietary practices if they scored below the median among 11 dietary practice assessment questions (Yalewdeg Mahlet, 2020).

Dietary diversity score: Dietary diversity scores were calculated by summing up the number of food groups consumed in a 24-hour period by pregnant mothers. Based on FAO, scores greater than or equal to 5 food items were coded as good dietary diversity scores, and scores less than 5 food items were considered poor dietary diversity (Aman Shenka, 2018; Chakona & Shackleton, 2017).

2.10 Data Quality Control

The questionnaire was pre-tested on a 5% sample size of pregnant mothers in Dinsho Health Center and translated into Afan Oromo and English by different people.

2.11 Data processing and Analysis

Data were edited, cleaned, coded, entered, and analyzed using SPSS for Windows version 26 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. A descriptive analysis, such as frequency distribution, proportions, and percentages, was used.

2.12 Ethical Consideration

Ethical clearance and permission have been received from the Madda Walabu University Goba campus Ethical Review Committee, and permission was secured from the Bale Robe Town 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 the data was kept confidential.

3. Result

3.1 Socio-demographic characteristics of the study participant

A total of 561 participants were enrolled in the study, with a response rate of 100% and a mean age of 27 years old (Range = 15–44). The majority of 239 (42.6%) participants were orthodox, and 52.1%, 96.5%, and 60.6% of respondents were found in the age categories of 26–34, married, and housewife, respectively. The majority of the study participants had a diploma or above; 188 (33.5%) and 321 (57.2%) of their husbands occupations were merchants. The majority of 518 (92.3%) study participants were urban in their residence, and their monthly income 519 (92.5%) was greater than 3500 ET.

Table 1: Distribution of socio-demographic characteristics of study participant

Variable	Categories	Frequency	Percent
Age	20-25	139	25.2
	26-34	287	52.1
	35-50	125	22.7
Religion	Muslims	313	55.8
	Orthodox	239	42.6
	Protestant	9	1.6
Educational status of the mother	Unable to read & write	23	4.1
	Primary school	135	24
	Secondary school	335	59.8
	Diploma and above	68	12.1
Occupation of the mother	House wife	340	60.6
	Civil servant	89	15.9
	Student	12	2.1
	Merchant	120	21.4
Marital status	married	541	96.5
	Single	12	2.2
	Divorced	7	1.3
Educational status husband	Unable to read & write	79	14.1
	Primary school	114	20.3
	Secondary school	180	32.1
	Diploma and above	188	33.5

Variable	Categories	Frequency	Percent
Occupation of the of husband	Civil servant	165	29.4
	Farmer	48	8.6
	Merchant	321	57.2
	Others	27	4.8
Residence	Urban	518	92.3
	Rural	43	7.7
Average monthly income	< 2000	15	2.7
	2001-3500	27	4.8
	>3500	519	92.5

3.2 Knowledge of pregnant mothers on maternal nutrition

To assess the knowledge of pregnant mothers on maternal nutrition, 13 knowledge assessment questions were used. Among 561 respondents, the majority (389) (69.3%) had information about maternal nutrition, and the majority (329) (84.6%) that had information about maternal nutrition said their source of information was health centers. Most of the respondents (395 (70.4%)) knew about a balanced diet; 371 (66.1%) didn't know about the source of iron; and only 215 (38.3%) knew about the source of iodine. Above half of respondents (294 (52.4%)) knew about sources of protein, and only 368 (65.6%) and 211 (37.6%) of respondents knew about foods that are sources of carbohydrate and vitamin A, respectively.

Among the respondents, 74.3%, 92.5%, 62.9%, 25.3%, and 91.4% knew about the importance of food for fetus growth and development, the proper function of the body, body heat and energy, inadequate nutrition causing miscarriage, and the importance of food for infection protection, respectively.

The respondents were asked to choose yes or no answers by indicating whether a given statement was dietary knowledge or not by allowing them to list or state about it, and for those who correctly answered open-ended questions, they scored 1, and for incorrect answers, they scored zero. By computing those scores, knowledge level was categorized as good (> 70%), 9 questions and above were answered from 13 knowledge assessment questions, and knowledge level was poor if only 70% of the questions were answered.

According to the study, 334 (59.5%) participants had good knowledge about maternal nutrition, and 227 (40.5%) participants had poor knowledge about maternal nutrition.

Table 2: Knowledge towards maternal nutrition among pregnant mothers

Variables	Responses	Frequency	Percent
Did you have information about maternal nutrition	Yes	389	69.3
	No	172	30.7
What are your source of information	H/C	329	84.6
	Television	36	9.2
	Radio	24	6.2
Did you about balanced diet/food group	Yes	395	70.4
	No	166	29.6
Did you know about source of Iron	Yes	190	33.9
	No	371	66.1
Did you know about source of Iodine	Yes	215	38.3
	No	346	61.7
Did you know about source of protein	Yes	294	52.4
	No	267	47.6
Did you know about source of carbohydrate	Yes	368	65.6
	No	193	34.4
Did you know about source of Vit A	Yes	211	37.6
	No	350	62.4
Did you know about importance of food for fetus growth and development	Yes	417	74.3
	No	144	25.7
Did you know about importance of food for proper function of body	Yes	519	92.5
	No	42	7.5
Did you know about food for body heat and energy	Yes	353	62.9
	No	208	37.1

Variables	Responses	Frequency	Percent
Did you know inadequate nutrition causes miscarriage	Yes	142	25.3
	No	419	74.7
Did you know food for protection of infection	Yes	513	91.4
	No	48	8.6
Over all knowledge of maternal nutrition	Good knowledge	334	59.5
	Poor knowledge	227	40.5

3.3 Attitude of pregnant mothers towards maternal nutrition

The attitudes of respondents were measured using eight attitude-assessing questions on maternal nutrition among pregnant women using a 3-point Likert scale (1 = good, 2 = good, and 3 = sure). Each variable's findings are presented in Table 3. Nutritional attitude level was categorized as positive if the participant's attitude score was greater than the median and negative if the participant's attitude score was less than the median.

The level of attitude was calculated in consideration with a median equal to 3.00, and the result indicated that 378 (67.4%) of respondents had a positive attitude while the rest of respondents, 183 (32.6%), had a negative attitude. The majority of study participants (371 (66.1%)) eat more food during pregnancy, 416 (74.2%) eat more carbohydrate, and 432 (77%) eat more protein. 437 (77.9%) prepare foods rich in iron, and 424 (75.6%) prepare foods with iodized salt.

Table 3: Attitude towards maternal nutrition among pregnant mothers at Bale Robe

Variables	Responses	Frequency	Percent
How good you think eat more food during pregnancy	Good	371	66.1
	Not good	108	19.3
	Not sure	82	14.6
How good you think eat more carbohydrate than none pregnant mothers	Good	416	74.2
	Not good	85	15.1
	Not sure	60	10.7
How good you think eat more protein than none pregnant mothers	Good	432	77
	Not good	83	14.8
	Not sure	46	8.2
How good you think drink more milk and its product during pregnancy	Good	394	70.2
	Not good	143	25.5
	Not sure	24	4.3
How good do think to Prepare meals with iron rich foods, such as beef, chicken, or liver	Good	437	77.9
	Not good	78	13.9
	Not sure	46	8.2
How much do you like the test of meat and other iron rich meals	Good	463	82.5
	Not good	68	12.1
	Not sure	30	5.4
How much do you like the test of omega-3 rich foods like, olive oils, fish	Good	467	83.1
	Not good	81	14.4
	Not sure	13	2.5
How good do you like prepare meals with iodized salt	Good	424	75.6
	Not good	83	14.8
	Not sure	54	9.6
Over all attitude of maternal nutrition	Postive attitude	378	67.4
	Negative attitude	183	32.6

3.4 Dietary Practices of pregnant mothers on maternal nutrition

Practice was measured using 11 dietary assessment questions on maternal nutrition among pregnant mothers. Each variable's finding is presented in Table 4. The majority of respondents 479 (85.4%) had a specific dietary regimen during pregnancy, and 45, or 8%, avoided some foods during pregnancy. Among 45 people who avoided meals throughout pregnancy, 23 (51.1%) said it was because it made the fetus grow too large, making delivery harder. Above half of respondents 491 (87.5%) have the habit of eating snacks between meals during pregnancy, and 473 (84.3%) of respondents had poor dietary diversity scores (they ate <5 food items) in 24 hours of recall bias.

The respondent's nutrition practice levels were categorized as good practice if the participants' practice scores were \geq median and as poor practice if the participants' practice scores were below the median. The level of nutrition practice was calculated in consideration with a median equal to 2.00, and the results indicate that 343 (61.1%)

pregnant women had good nutrition practice and 218 (38.9%) pregnant women had poor nutritional practice on maternal nutrition.

Table 4: Dietary Practices of pregnant mothers towards maternal nutrition

Variables	Response	Frequency	Percent
Do you follow specific dietary regimen during pregnancy	Yes	479	85.4
	No	82	14.6
Did you avoid any food during pregnancy	Yes	45	8
	No	516	92
Reason of avoidance	Religion	6	13.3
	Difficult to delivery	23	51.1
	Other(dislikes)	16	35.6
Did you use iodized salt during cooking	Yes	544	97
	No	17	3
Did you eat fresh fruits orange, lemon, mango daily	Yes	257	45.8
	No	304	54.2
Did you eat plant source protein daily	Yes	318	56.7
	No	243	43.3
Did you eat fresh vegetables daily	Yes	293	52.2
	No	268	47.8
Did you drink milk daily	Yes	216	38.5
	No	345	61.5
Did you eat meat	Yes	518	92.3
	No	43	7.7
Do you have folic acid supplement	Yes	486	86.6
	No	75	13.4
Do you have habit of eating snacks between meals during pregnancy	Yes	491	87.5
	No	70	12.5
How many times your current diet frequency of meals per day	1-2	167	29.8
	3-4	375	66.8
	>5	19	3.4
Dietary diversity score	<5variety	473	84.3
	≥ 5 variety	88	15.7
Over all nutritional practice level	Good practice	343	61.1
	Poor practice	218	38.9

4. Discussion

In this study, the level of good knowledge, positive attitude and good practice of pregnant women was 59.5 %, 67.4 % and 61.1% respectively.

In this study level of good knowledge of pregnant women on maternal nutrition 59.5% which is higher than with previous research conducted in Addis Ababa 27% (Tenaw, et al., 2018) and Syrian Refugees 44% (Harb, Haidar, & Yazbeck, 2018). However, the finding of this study was lower than research conducted in Horo Guduru Wollega zone (Keyata, 2018), Somalia local government Logo state (Fasola, Abosedo, & Fasola, 2018) with 63.5% and 61.9% respectively. This discrepancy may be due to the difference of method of study those conducted on community based while this study was intuitional based.

According to this study the level of attitude of pregnant women on maternal nutrition was found to be 67.4% higher than with study that conduct in Kigeme refugee camp Rwanda (Diane Iradukunda, 2020) with good attitude of 67.2% and public hospital of south Ethiopia (Gezimu, Bekele, & Habte, 2022) with good attitude of 59.5% but lower than research conducted in Horo Guduru Wollega zone (Keyata, 2018), Somali local government Logo-state (Fasola, et al., 2018) and Syrian refugees camps (Harb, et al., 2018) with 70.6%, 86.9% and 75% respectively. This difference it may be due to occupation and educational level of respondents.

In this study the level of practice of maternal nutrition among pregnant women was found 61.1% which is higher than in the study in Bahir Dar, North western Ethiopia (Nana & Zema, 2018) with level of 60.7% good maternal nutrition practice, study conducted in Jille Tumuga, North east Ethiopia (Aliwo, et al., 2019) with 31.4%, study conducted in Addis Ababa (Tenaw, et al., 2018) with 34.5% and study that conducted in Gedio zone, southern Ethiopia (Yalewdeg Mahlet, 2020) with 32.2% good dietary practice.

The study that conduct in Mizan Aman town, South West Ethiopia (Girma Tilahun, Molla Kebede, & Ejigu) with 25.1% and study in Farta district, South Gonder (Wagaye Shumete Belay, 2021) with 27.2% good

nutritional practice which were lower level than in this study. This discrepancy it may be due to sample size difference and study design techniques. However, the study that conducts in Horo Guduru Wollega Zone (Keyata, 2018) with 74.6%, and in Somalia local government logos state (Fasola, et al., 2018) with 86.9% good dietary practice which was greater than in this study. It may be due to socio demographic factors and study design method.

5. Conclusion and Recommendations

Based on the study results, it can be concluded that the majority of pregnant women who attended prenatal care in the study area had an average knowledge of nutrition. However, there is still a lack of knowledge, particularly about dietary sources of iron, iodine, vitamins, iron and protein, and how poor diet can lead to miscarriage.

The majority of pregnant ladies within the study area had fine attitudes and nutritional practices. But less than half of mothers have negative attitudes toward preparing meals with iodized salt; less than half of pregnant mothers do not follow a specific dietary regimen during pregnancy; and more than half do not eat fresh citrus fruits, such as Orange, Lemon, or mango, or drink juice made from them. Therefore, nutrition education should be intensified to improve the knowledge, attitudes, and practices of pregnant mothers on maternal nutrition in different villages, health centers, health posts, mass media and hospital.

Conflicts of Interest

The authors of this study declare that they have no conflict of interests.

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