Food taboos practice and associated factors among pregnant women attending antenatal care at Doctor Bogalech Gebre memorial general hospital, Durame town, Southern Ethiopia, 2022

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ABSTRACT

Background: Food taboos are customs that prevent certain foods and beverages from being consumed within a society for religious and cultural reasons. Due to the restriction of essential foods and beverages, it has a significant negative health impact on pregnant women and offspring. However, there is a lack of data regarding Ethiopian food taboos practices in general and in this study area particularly. Objective: To assess the magnitude of food taboos practice and associated factors among pregnant women in Dr. Bogalech Gebre memorial general Hospital, Durame Town, Southern Ethiopia. Materials and Methods: An institution-based cross-sectional study was conducted among 422 pregnant women from August 1 to 30, 2022 by using systematic sampling techniques. Data were entered into epi-data version 3.1 and exported to SPSS version 26 for further analysis. Statistical significance was declared at a P-value < 0.05 with a 95% Confidence level. Results: From the total 422 pregnant mothers, 54.5% (95% CI 49.90–59.20) of them encounter food taboos practice at least for one food item. The age group of pregnant mothers was 25–34 years [AOR = 0.48, 95% CI (0.28–0.84)]; the number of family size was 4–6 were [AOR = 0.42, 95% CI (0.19–0.88)]. Previous antenatal care [AOR = 1.64, 95% CI (1.02–2.66)], change feeding habit [AOR = 1.52, 95% CI (1.02–2.33)], and nausea and vomiting during pregnancy [AOR = 1.83, 95% CI (1.16–2.91)] were significantly associated with food taboos practice. Conclusion: The magnitude of food taboos practice among pregnant women was public health problems. Age, family size, previous antenatal care follow-up, changing feeding habits, and nausea and vomiting during pregnancy were found to be factors affecting food taboos practice.

Keywords: Durame Town, food taboos practice, pregnant women

Introduction

Any food substance that society views as inappropriate is known as a "food taboo," and it is mostly based on social, cultural,

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Received: 09-08-2023 **Revised:** 10-12-2023 **Accepted:** 17-01-2024 **Published:** 28-06-2024

Access this article online

Quick Response Code:

Website:

http://journals.lww.com/JFMPC

DOI:

10.4103/jfmpc.jfmpc_1308_23

religious, and historical norms.^[1] Religious and cultural taboos around certain foods are often accompanied by a variety of beliefs and customs aimed at protecting the physical and mental well-being of the mother and child.^[2]

While pregnant women actually need extra calories and nutrients, the community sees certain foods negatively during pregnancy.^[3] Food taboos placed pregnant women at risk for a lower body weight and sicker babies.^[4]

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How to cite this article: Akiso DE, Mosisa M, Abame DE. Food taboos practice and associated factors among pregnant women attending antenatal care at Doctor Bogalech Gebre memorial general Hospital, Durame Town, Southern Ethiopia, 2022. J Family Med Prim Care 2024;13:2632-8.

Food taboos that have been documented worldwide only differ in terms of nature and attributes. The more common taboo practice involved drinking milk and fruits at the same time. They also believed that combining meat and fish was unhealthy, as was eating eggs and fruits together. [5]

Food restriction during pregnancy was extremely detrimental to the fetus and the mother since it left the body deficient in vital nutrients like vitamins and protein.^[6]

According to a United Nations report, the majority of the 8.41 million individuals who experience chronic hunger in developing nations are women and children, which violates their fundamental human rights. According to a survey done in Malaysia, 70.2% of pregnant women followed some food taboos during their pregnancy, with 18.3% of them not eating at least one food item. Half of the mothers preferred to eat heavy meals and snacks, according a Nigerian study on the feeding habits of expectant mothers in Delta State. Some people enjoy light fare. During their pregnancy, 28.8% of the women used alcoholic beverages. Excessive alcohol use is harmful to the developing fetus and may lead to fetal alcoholic syndrome. [9]

A few studies conducted in Ethiopia have focused on dietary behavior of pregnant women and the intake of specific nutrients, especially micro-nutrients and the effect on pregnancy outcome and complication. Evidence about Ethiopian women's dietary composition and habits during pregnancy nutrient intake was however lacking. Some available evidence showed that the magnitude of food taboos practice in Shashamane Town was 49.8%, and the pooled prevalence in Ethiopia was 34.22%. [10,11]

According to systematic review and meta-analysis conducted in Ethiopia on food taboos practice and associated factors among pregnant women, the educational level, antenatal follow-up, and place of residence were significantly associated factors.^[11]

In Ethiopia, pregnant mothers are at risk of many food restrictions due to different factors including religious, cultural, and existing social and economic factors. The other problem is that due to food taboos practice, food craving, and other unhealthy eating practices, pregnant mothers and their fetuses face health problems. [6] Understanding the prevalence and factors influencing food taboos practices among pregnant mothers is crucial for promoting optimal maternal and fetal nutrition.

Therefore, this study aimed to assess the magnitude and its associated factors of food taboos practice among pregnant women.

Materials and Methods

Study area and period

The study was conducted in Dr. Bobalech Gebre memorial general Hospital, Durame Town, Kambata Tembaro Zone, Southern Ethiopia, which is located 362 KM far from Addis Ababa.

The Zone is bounded by East and West, Hadiya Zone; North, Halaba Zone; and South, Wolaita and Dawuro Zones. According to the 2007 census report, the total population was 1,080,837, of whom 536,676 are male and the rest 544,161 are female.

The study was conducted from August 1 to 30, 2022.

Study Design: Institutional-based cross-sectional study was conducted.

Source Population: All pregnant women attending antenatal care follow-up in the Hospital.

Study population: Selected pregnant women attending antenatal care follow-up.

Inclusion and exclusion criteria

Inclusion criteria: Pregnant women who were attending antenatal care at the time of data collection were included in the study.

Exclusion criteria: Pregnant women who are unable to provide appropriate information/mentally ill mothers. Severely sick mothers attending antenatal care follow-up during the data collection period.

Sample size determination

For the first objectives

The sample was determined by using a single population proportion formula used to study of the food taboos practice according to a previous study in Ethiopia, which is 49.8% in Shashemene town. [10] Assuming 95% confidence level and 5% degree of precision, the sample size was calculated as

$$n = \frac{Z_{\alpha_2}^2 p(1 - P)}{d^2}$$

where

n = Minimum sample size required,

P = Estimate of the proportion of food taboos practice in pregnant mothers, prevalence 49.8%.

d = Margin of error (0.05).

 $Z_{a/2}$ = The standard normal variable at 95% confidence level (1.96).

$$n = \frac{(1.96)^2 \cdot 0.498(1 - 0.498)}{(0.05)^2} = 384$$

For the second objectives

 A previous study indicated nutritional practices and food taboos practice among pregnant women in Gedeo Zone, Southern Ethiopia.^[12]

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 Another study conducted determined the socio-demographic status and food taboos practice among pregnant women in Sendafa Beke Town.^[13]

P1 = Magnitude of nutritional taboos practices

p2 = Magnitude of non-nutritional taboos practices [Table 1].

Finally, the largest sample size (384) from the first objective was selected for the study. After adding a non-response rate of 10%, the finally sample size was 384 + 38 = 422.

Sampling procedures

The study participants were selected by the systematic sampling method. The sampling interval K-value was calculated by dividing the monthly attendance for antenatal care follow-up at Dr. Bogalech Gebre memorial general Hospital to the calculated sample size.

Accordingly, the calculated sample interval K^{the} was 2. The first study participant was selected by the lottery method during antenatal care follow-up and continued at every two intervals until the required number of samples was met.

- The monthly attendance for antenatal care follow-up at the hospital was 870 from HMIS report.
- K = N/n
- K = 870/422 = 2

Study Variables

Dependent variable: Food taboos practices

Independent variables

Socio-demographic factors of mothers attending antenatal care services:

Age of mother, residence, religion, ethnicity, occupation of mother, household income, house ownership, mother's education, number of children, family size, marital status, and community gardening.

Reproductive history of women attending antenatal care services:

Gestational age, number of births, ever had abortion, ever had stillbirth, previous antenatal care, health problems during pregnancy, decision making on delivery place, and experience of nausea vomiting during pregnancy.

Dietary practice of women attending antenatal care services:

Information about variety diet, change in feeding practices, fasting during pregnancy, food avoided during pregnancy, frequency of meal per day, food items avoided, feeding well during pregnancy, food aversion, and food craves during pregnancy.

Operational definitions

Taboos practice: A ban or restriction made by social custom

Food taboos practice: A common practice of prohibiting certain food for pregnant women. [2]

The practice of avoidance of at least one of food items like milk and milk products, cheese, fatty meat, egg, honey, cheese vegetables, fruits, and other food varieties due to cultural food beliefs was indicated asking participants who avoided during pregnancy.

WHO recommendation of serving size of food item for pregnant women:

Vegetable and fruit serving: Two and less servings per day less than recommended vegetable consumption. Three—four servings of vegetables per day, slightly good; five and more servings of vegetables per day, very good; feeding: in this case, it is used similarly as eating

regular meal servings per day of pregnant women. Once, very low eating habit; twice, low eating habit; three, good eating habit; four and more, very good eating habit.

Coffee consumption per coffee ceremony: one-cup, low; two cups, medium; three cups, high

Antenatal care: A special care that is provided for pregnant women with the aim of improving the health of the unborn baby and the mother.

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Table 1: Sample size determination of the second objective, the magnitude of food taboos practice and associated factors among pregnant women attending antenatal care at Dr. Bogalech Gebre memorial general Hospital, 2023

Associated factors	Assumption	Proportion	AOR	Non-response rate/withdrawal	Sample size	Reference
1. Age of the mother	Power=80% CI=95%	P1=75.6% P2=39.8%	4.9	10%	346	[12]
2. Monthly income	1:1 Ratio Power=80% CI=95% 1:1 Ratio	P1=34.4% P2=36.4%	3.3	10%	178	[13]
3. Antenatal care Visit	Power=80% CI=95% 1:1 Ratio	P1=20.2% P2=36.6%	4.6	10%	318	[12]

CI: Confidence Interval, AOR: Adjusted Odd Ratio, P1: Proportion of yes, P2: Proportion no

Data collection tool and procedures

The structured questionnaire was prepared from different previous literature reviews, and the English language questionnaire was translated into the Amharic language. It was implemented to collect data related to the socio-economic variable, reproductive variable, and diet-related variable of the study population. Data were collected by four mid-wife health workers and two supervisors. One-day training was given to data collectors and supervisors on the objectives of the study at Dr. Bogalech Gebre memorial general hospital on the contents of the questionnaire and particularly on the issues related to the confidentiality of the responses and the rights of respondents.

Data quality and assurance

The questionnaire was pre-tested at Shinshcho primary hospitals with 5% of the total sample size 1 week before the actual data collection. Data collectors and supervisors were also trained for 1 day to have a common understanding of the overall purpose and methodology of the study. Data collectors at least at the diploma level training in four midwives' were selected, and training was given.

Data processing and analysis

Data were checked for completeness and consistency and entered into Epi-Data version 3.1 and then exported to SPSS version 26 for analysis. Descriptive analysis was carried out to determine the magnitude of food taboos practice. Variables have a significant association through bivariate analysis at P value < 0.25 and were included in the multivariable logistic regression analysis. Multivariable logistic regression analysis, which was performed for independent variables with the outcome of interest at P value < 0.05 and AOR with CI 95%, was considered statistically significant.

Ethical consideration

Ethical approval and clearance were taken from Wachemo University research ethics review board of the College of Medicine and Health Sciences School of public health. Then an official letter was submitted to the zonal health bureau and hospital administration.

Consent

Both verbal and written informed consents were obtained from each study participant after informing about the objective of the study and the confidentiality of the information.

The participants were informed that they had the full right not to participate in the study or withdraw from participation at any time during the interview.

Results

Socio-demographic characteristics

A total of 422 antenatal care attending pregnant women at

Dr Boglech Gebre memorial general hospital were interviewed with the response rate of 100%. The mean age of the mothers was 30.5 years with a standard deviation of \pm 5.5 years. More than half (53.8%) of the study participants were rural residents. Less than half (46.7%) of the pregnant women belong to the age group of 25–34 years. Regarding the educational status of the respondents, more than one-third [152 (36.0%)] of them were college and above [Table 2].

Diet-related factors of pregnant women

Regarding variety diet, more than half (58.5%) of the respondents know about the importance of variety diet. Less than half (47.2%) of the study respondents had changed feeding habit during pregnancy [Table 3].

Magnitude of food taboos practice in antenatal care follow-up pregnant mothers

About half (54.5%) of the respondents avoid one or more food items during pregnancy. The majority of the foods enlisted as taboos practice for pregnant women were rich in protein; food items averted during pregnancy include egg, fatty meat, and milk, honey, fruits, and vegetables [Figure 1].

Factors associated with food taboos practice in antenatal care pregnant mothers

On multivariable analysis, food taboos practice during pregnancy was found to have significant association with age of pregnant mothers, number of family size, previous antenatal care, change feeding habit during pregnancy, and experience of nuasea and vomiting during pregnancy [Table 4].

Pregnant mothers in the age group of 15–24 years and 25–34 years were having significantly lower odds of food taboos practice compared with pregnant mothers in the age group greater than or equal to 35 years [AOR = 0.49, 95% CI (0.26–0.93)] and [AOR = 0.48, 95% CI (0.28–0.84)], respectively. That means

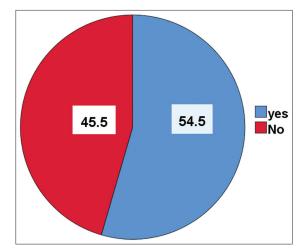


Figure 1: Status of practicing taboo food during pregnant women at Dr Bogalech Gebre memorial general Hospital, Kembata Tembaro zone, Southern Ethiopia, 2023

Table 2: Socio-demographic characteristics of pregnant women in Dr Bogalech Gebre memorial general Hospital, Durame Town, Southern Ethiopia, 2022 (n=422)

Variables	Categories	Frequency	Percentage
Age of the	15-24	123	29.1
pregnant mothers	25-34	197	46.7
in years	>=35	102	24.2
Place of residence	Urban	195	46.2
	Rural	227	53.8
How long you stay	<10 year	132	31.3
here	>=10 year	290	68.7
Marital status of	Married	417	98.8
mothers	Divorced	3	0.7
	Widowed	2	0.5
Religion	Prostestant	251	59.5
	Catholic	68	16.1
	Orthodox	63	14.9
	Muslim	35	8.3
	Others	5	1.2
Ethnic group	Kambata	203	48.1
0 1	Halaba	69	16.4
	Hadiya	68	16.1
	Tambaro	64	115.2
	Others	18	4.3
Educational	Unable to read and write	52	12.3
status of pregnant	Able to read and write	109	25.8
mothers	Primary	50	11.8
	Secondary	59	14.0
	College and above	152	36.0
Educational status	Unable to read and write	25	5.9
of your husbands	Able to read and write	43	10.2
,	Primary (1-8)	37	8.8
	Secondary (-12)	95	22.5
	College and above	222	52.6
Occupational of	House wife	192	45.5
pregnant mothers	Government employed	158	37.4
1 0	Merchants	59	14.0
	Others	13	3.1
Occupational of	Government employed	220	52.1
your husbands	Merchants	97	23.0
,	Farmers	92	21.8
	Others	13	3.1
Average monthly	<500 birr	164	38.9
income	500-1500 birr	133	31.5
	1501-5000 birr	80	19.0
	>5000 birr	45	10.7
Number of family	1-3	199	47.2
size	4-6	177	40.8
01110	>7	51	12.0
Number of	0	76	18.0
children	1	84	19.9
	2	109	25.8
	3-6	109	30.6
	>7	24	5.7
Land or house	Own		
owner		302	71.6
	Rental	120	28.4
Do you have community garden	Yes	292	69.2
Community garden	No	130	30.8

Table 3: Diet-related factors of antenatal care attending on nutrition at Dr Bogalech Gebre memorial general Hospital, Kembata Tembaro zone, Southern Ethiopia, 2023, (n=422)

Variables	Categories	Frequency	Percentage
Importance of	Yes	247	58.5
variety diet	No	175	41.5
Change feeding habit	Yes	199	47.2
during pregnancy	No	223	52.8
Fasting during	Yes	150	35.5
pregnancy	No	272	64.5
Frequency of meal	Two times	239	56.6
per day	Three or more	180	43.4
Feeding well during	During pregnancy	182	43.1
pregnancy	During non-pregnancy	240	56.9

pregnant mothers with age group 15–24 about 51% and with age group 25–34 are about 52% times less likely to have practice of food taboo as compared to mothers in the age group of greater than or equal to 35 years.

Pregnant mothers with number of family size 1–3 and 4–6 family size have food taboos practice as compared to those pregnant mothers with a family size of more than or equal to 7 [AOR = 0.46, 95% CI (0.21,0.99)] and [AOR = 0.41, 95% CI (0.19,0.88)], respectively. That means the number of family size was 1–3 and 4–6, respectively. About 54% and 59% times less likely to have food taboo practice as compared to those pregnant women in the family size of more than or equal to 7.

Regarding previous follow-up antenatal care, it is found that pregnant women who had no previous history of antenatal care follow-up were about 1.64 times more likely to have practice of food taboo as compared to those mothers who have previous antenatal care follow-up [AOR = 1.64, 95% CI (1.02–2.66)].

Regarding history of pregnant mothers who have changed feeding habits, they were about 1.54 times more likely to have food taboo practice as compared to those mothers who did not change their feeding habits during pregnancy [AOR = 1.54, 95% CI (1.02–2.33)].

Concerning experience of nausea and vomiting, the factors that affect practice of food taboo practice, according to this study, mothers who experienced nausea and vomiting have 1.83 higher odds of food taboo practice than their counterparts [AOR = 1.83, 95% CI (1.16–2.91)].

Discussion

The study assessed food taboos practice and associated factors among pregnant women antenatal care follow-up during pregnancy. More than half (54.5%) of study participants type during their pregnancy, which is almost two times higher than that of the study conducted in Awabel district (27%)^[14] and also higher than that of the study done in Shashamane District,

Table 4: Multiple variable logistic regression analyses showed food taboos practice and factors associated with pregnant women antenatal care at Dr. Bogalech Gebre memorial general Hospital, 2023

Variables	Categories	Food taboo		COR (95%CI)	AOR (95%CI)	P-value
		Yes	No			
Age pregnant mothers	15-24	51	72	0.51 (0.30,0.88)	0.49 (0.26,0.93)	0.028
	25-34	82	115	0.52 (0.32,0.84)	0.48 (0.28, 0.84)	0.010
	>35	59	43	1	1	
Family size	1-3	91	108	0.46 (0.24,0.87)	0.46 (0.21,0,99)	0.047
	4-6	68	104	0.36 (0.19,0.68)	0.41 (0.19,0.88)	0.023
	>7	33	18	1	1	
Previous antenatal care	Yes	155	38	1.67 (1.06,2.63)	1.64 (1.02,2.66)	0.043
	No	163	67	1	1	
Change of feeding habit during pregnancy	Yes	132	91	1.49 (1.02,2.21)	1.54 (1.02,2.33)	0.042
	No	98	101	1	1	
Experience of nausea and vomiting	Yes	145	47	1.58 (1.03,2.43)	1.83 (1.16,2.91)	0.010
	No	152	78	1	1	

COR=Crude odds ratio AOR=Adjusted odds Ratio. Note: At P-value < 0.05 significant

49.8%.^[10] But the current finding is more than that in the study conducted in Hadiya Zone 27%^[11] and lower than that in the study conducted in Tanzania, 70.1%.^[15]

At least one type of food was avoided due to food taboos practice. The reasons for avoiding food include fear of difficulty, delivery, disclosures of the fetuses, and fear of abortion, and these findings were consistent with similar outcomes of studies in other parts of the world, traditional societies, such as India, 69%, [16] and Ghana, 27.5%. [17] Protein and fat foods for pregnant and lactating women were restricted. This difference may be due to the difference in socio-economic and cultural aspects of the community. There is also a difference in sample size and sampling procedure.

Concerning the age of pregnant mothers in the year, the ages between 15 and 24 and between 25 and 34 years were 51% and 52% times less likely to have food taboos practice than those greater than or equal to 35 years of women. With the same study done on food taboos practice in different countries in the world and in our country of pregnant mothers, ages between 15 and 24 and between 25 and 34 years were more at risk than those greater than or equal to 35 years old pregnant mothers. There are different results that reported that ages between 20 and 24 years and between 25 and 29 years, Awabel District, East Gojjam Zone, are more likely to develop food taboos practice compared with the age greater than or equal to 35 years of women.^[14]

Regarding the family size, those mothers who had family members between one and three family members were 56% less likely to have food taboo practices than those who had greater than or equal to seven family members [AOR = 0.46, 95% CI (0.21, 0.99)]. Also, according to number of family size, those pregnant mothers who had family members between four and six family members were 58% less likely to have food taboo practices than those who had greater than or equal to seven family members [AOR = 0.42, 95% CI (0.19, 0.88)]. This result was in line with the same study done in Papua New Guinea, [18]

which reported that the more the family size, the more the risk to food taboos practice due to lack of income to buy what they need. This may also indicate despite the cultural impact of the society, when a family becomes overwhelmed, instead of feeding itself, the mother loses the amount of nutrients she needs to feed by giving her family a priority over the day. Pregnant women who have never had antenatal care attendance in Dr. Bogalech Gebre Memorial general hospital were 1.64 times more likely to develop food taboos practice as compared with pregnant women who have had antenatal care attendance with [AOR = 1.64, 95% CI (1.02–2.66)]. This is similar with the study done at Benishangul Gumuz regional state, which states that pregnant mothers who had no previous history of antenatal care utilization had increased odds of food taboo practices compared to those mothers who have previous.^[19]

Concerning diet change habit during pregnancy, pregnant women who have changed their feeding habits were about 1.54 more likely to have food taboo practice as compared to those mothers who did not change their feeding habits during pregnancy, but the study done at Shashemene shows that only 33.2% of all respondents have made changes of their normal eating habit during the pregnancy period. The reason given to avoid eating different diet items was food items make the pregnant women fat so that their birth canal will be narrowed making difficult labor; this reason is not scientifically justifiable as there is no association between the foods eaten and direct attachment to the fetus or narrowing of the birth canal.^[10]

Regarding experience of nuasea and vomiting, the factors that affect practice of food taboo, according to this study, mothers who experienced nausea and vomiting have 1.84 higher odds of food taboo practice than their counterparts [AOR = 1.84, 95% CI (1.16–2.91)]. This finding is in agreement with other study conducted at Sendafa Beke town, Oromia regional state, Ethiopia. Up to 85% of women experience nausea in early pregnancy with approximately half of women vomiting as well. The causes of nausea and vomiting in pregnancy are unknown;

however, it is thought to be associated with rising levels of human chorionic gonadotropin. In our case, different nutritious foods were restricted due to religion, culture, and other reasons. This study has shown that most pregnant women have a very poor understanding of the function of each type of food.^[20]

Conclusion

The magnitude of food taboos practice was public health in the study area as compared to studies in Ethiopia. Age of pregnant women, family size, change feeding habit, previous antenatal care follow-up, and experience of nausea and vomiting during pregnancy were found to be factors affecting food taboos practice in pregnant mothers attending antenatal care at Dr. Bogalech Gebre memorial general Hospital.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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