

Dietary practice of pregnant women attending primary health care centers in Basrah

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ABSTRACT

Introduction: A healthy diet and lifestyle during pregnancy is essential to optimise fetal growth and development. Despite this, most pregnant women in developing countries have inadequate nutrient intake compared to the standard recommended by the World Health Organization (WHO).

Objective: The study aimed to assess dietary practices and associated factors among pregnant women attending primary health care centres in Basrah.

Methods: A cross-sectional study was conducted among 232 pregnant attending six primary healthcare centres in Basrah. Data were collected through face-to-face interviews with the participants by the investigators using a questionnaire form prepared for the study.

Results: The study revealed that only 37.9% of pregnant women had added at least one meal from a non-pregnant state. When study participants were interviewed on the type of food recommended at servings of a day's meal, 125 (53.9%) were in line with meat and legume servings (protein foods), 178 (76.7%) in line with dairy products, and 205 (88.4%) in line with green vegetable servings. The adherence of pregnant women to iron supplement tablets in one week before the survey was 90.9%. Factors significantly associated with appropriate dietary practices are the husband's occupation, gravida, and history of abortion.

Conclusion: The present study revealed that the dietary practices during pregnancy are generally appropriate. However, the practices are inappropriate in specific domains, like adding extra meals during pregnancy, consuming a diet rich in protein, consuming whole grains, and using iodised salts.

Key words: Pregnant women, Dietary practice, Primary health care.

INTRODUCTION

A healthy diet and lifestyle during pregnancy are essential to ensure optimised fetal growth and development. They are of particular importance for young mothers who have poor nutrition,^[1] and adverse outcomes such as stillbirth, preterm birth, and low birth weight.^[2] Due to a minor increase in energy intake in the last months of pregnancy, the demand for some vitamins and minerals, including trace elements, increases significantly,^[3] usually from the fourth month of pregnancy. For folate and iodine, a distinctly increased intake is

recommended from the beginning of pregnancy or, ideally, before conception.^[4] Despite this, most pregnant women in developing countries have inadequate nutrient intake compared to the standard recommended by the World Health Organization (WHO).^[5] The diets of Asian and African pregnant women are mainly cereal-based, with irregular consumption of animal products, vegetables, and fruits.^[6]

Worldwide, maternal and child undernutrition is the leading developmental challenge affecting nearly half of the world's population and responsible for the death of



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3.5 million mothers and children annually.^[7] Inappropriate nutrition practices due to inadequate awareness, environmental and socioeconomic factors and infections are common causes of maternal undernutrition and mortality, low birth weight and intrauterine growth retardation.^[8]

Previous studies have shown that 58.7% of pregnant women eat fresh vegetables, and 42.7% consume mild daily.^[9] In Ethiopia, about 34.5% of pregnant women who attend antenatal care at public hospitals in Addis Ababa reported good dietary practices.^[10] In Iraq, a cross-sectional study among 400 pregnant women in Baghdad stated that 135 were found to have anaemia.^[11]

Data about dietary practices among pregnant women were scarce in Basrah. The study aimed to assess the dietary practices and associated factors among pregnant women attending PHC centres in Basrah.

METHODS

Study design and setting: This descriptive cross-sectional study was conducted at six primary healthcare centres in Basrah from the 1st of May 2021 to the 1st of August 2021.

Ethical consideration: The research protocol of this study has been approved by the Research Ethics Committee at the Basrah Health Directorate under the code of ethics in research adopted by the Ministry of Health in Iraq. The selected healthcare centres' administrations agreed to conduct this study at their institution. Verbal consent was obtained from all participants after the study's aims had been explained. All data were kept confidential.

Inclusion and exclusion criteria: All pregnant women who attended antenatal care follow-up during the study period at any of the selected PHCCs were enrolled in this study. We excluded women who were unwilling to participate.

Sampling technique and procedure: Basra's total number of primary healthcare centres was 130, according to a list obtained from the Department of Public Health in the Basra Health Directorate. We conveniently selected

three primary healthcare centres from urban areas, Hai Al-Imam Al-Hassen, Al-Ta'ameem, and 14 Tamooz, and three from rural regions, Al-Haritha, Al-Haj Khudair, Al-Aqeel. We enrolled 232 pregnant women in our study, about 30-40 from each centre. These centres deliver antenatal care services five days weekly from Sunday to Thursday, 8:30 AM to 2:30 PM. Pregnant women were also conveniently selected each day.

The questionnaire and outcome variables: We selected a validated questionnaire based on a published study,^[12] which many experts in the field of antenatal care reviewed. An expert committee translated the questionnaire into Arabic and back to English to maintain consistency.

The questionnaire included three parts. The first part covered the socioeconomic characteristics of the pregnant woman: her age, education, and occupation; her husband's age, education, and occupation; and the family income. The second covered the obstetric history of the pregnant woman: gravida, stage of pregnancy, history of abortion, and history of stillbirth. The third included the dietary practices of the pregnant woman. The questions about dietary practices included whether the pregnant woman adding additional meals compared to a non-pregnant diet; eating 2-3 servings of meat, fish, nuts, or legumes daily; 2 to 3 servings of dairy products daily; 2 to 3 servings of vegetables daily; 2 to 3 servings of fruits daily; 3 servings of whole grains daily; using iodised salt; Taking iron supplement daily in the past week; avoids smoking in the current pregnancy; and decreasing coffee. The answers were either yes or no. We considered a pregnant woman to have appropriate dietary practices if she was doing 7 out of the ten practices. The authors filled out the questionnaires through direct face-to-face interviews with the women.

Data analysis: The data were analysed using the Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics like socio-demographic characteristics and dietary practices were presented as frequencies and percentages. The relationship between dietary practices and socio-demographic

Table 1 Socioeconomic characteristics of pregnant women.		
Variable	No.	%
Mother's age (years)		
< 20	41	17.7
20-29	132	56.9
30-39	52	22.4
>40	7	3.0
Mother's education (years)		
< 6	94	40.5
7-12	95	40.9
>13	43	18.5
Husband's education (years)		
< 6	79	34.1
7-12	88	37.9
>13	65	28.0
Mother's occupation		
Housewife	193	83.2
Governmental employee	20	8.6
Self-employed	7	3.0
Others	12	5.2
Husband's occupation		
Governmental employee	80	34.5
Unemployed	55	23.7
Self-employed	55	23.7
Others	42	18.1
Family income (IQD)		
Less than 500.000	130	56
Between 500.000-1 million	85	36.6
Between 1-2 million	12	5.2
More than 2 million	5	2.2

characteristics was analysed using the Chi-square test. A P-value of < 0.05 was the criterion of statistical significance.

RESULTS

Table 1 presents the socioeconomic characteristics of pregnant women. The study included 232 pregnant women; 132 (56.9 %) were between 20-29 years old, and 94 (40.5%) have < 6 years of schooling. Husbands of < 6 years of schooling were 79 (34.1%). Most participating mothers, 193 (83.2%), were housewives, and 20 (8.6%) were governmental employees. Of husbands, 80 (34.5%) were government employees and 55 (23.7%) were self-employed. About half of the families, 130

Table 2 Obstetric history of pregnant women.		
Variable	No.	%
Gravida		
1	62	26.7
2-4	131	56.5
> 5	39	16.8
Stage of pregnancy		
1st trimester	30	12.9
2nd trimester	125	53.9
3rd trimester	77	33.2
History of abortion		
Yes	51	22
No	181	78
History of stillbirth		
Yes	17	7.3
No	215	92.7

(56%), had a family income of less than 500.000 IQD, and about one-third, 85 (36.6%) families, had an income between 0.5 and 1 million IQD.

Out of all participants, 131 (56.5%) were gravida 2-4, 51 (22%) had a history of abortion, 17 (7.3%) had a history of stillbirth, 125 (53.9%) were in the second trimester. See **Table 2**.

As an overall practice, 142 (61.2%) participants had appropriate dietary practices during their current pregnancy. Only 88 (37.9%) participants have added at least one additional meal during their current pregnancy. 125 (53.9%) used a diet with enough protein food, 178 (76.7%) used dairy products, and 205 (88.4%) used green vegetables. Only 107 (46.1%) pregnant women ate whole grains thrice daily, and 95(40.9%) used iodised salt for cooking in their current pregnancy. Pregnant women who adhered to iron supplements the week before the survey were 211 (90.9%). Only three (1.3%) women reported a smoking history, and 140 (60.3%) reported decreased tea and coffee consumption during their current pregnancy. See **Table 3**.

The result of factors associated with the dietary practice of pregnant revealed that the husband's occupation, gravida, and history of abortion showed significant association (p <0.05). No significant association was found between dietary practice and the mother's age,

education, occupation, husband’s education, family income, or stage of pregnancy ($p>0.05$). For details see [Table 4](#).

DISCUSSION

We conducted this study to assess the pregnancy dietary practices of pregnant women attending six PHC centres in Basrah, Iraq. We found that 61.2% of pregnant women in our study have appropriate dietary practices. This result is similar to that reported in a study in Pakistan, where 65.5 % of women had good practices regarding nutrition during pregnancy,^[13] higher than that reported from Addis Ababa, which was 46.8% ^[12] and lower than that reported from Malaysia which stated that 74% of pregnant women have good nutritional practices.^[14] The possible reasons for these differences might be related to the differences in socioeconomic status, cultural beliefs, and access to nutrition and health services in different countries where the studies were conducted.

In Basrah, about 37.9% of pregnant women reported adding at least one meal to their non-pregnant daily meals. The result was consistent with the study conducted in Ethiopia, where 75.2% of pregnant women did not take any additional meals during pregnancy.^[15]

Our study found that 178 (76.7 %) of the surveyed women adhered to the recommended servings of dairy products, and 205 (88.4 %) followed the recommended servings of green vegetables. The result of a study conducted in Addis Ababa reported that 42.4% and 46.1% of the participants had daily habits of drinking milk and eating fresh green vegetables, respectively.^[12] Differences in the diet habits of the two communities may create these disparities.

We found that 125 (53.9%) pregnant women in our study reported using the recommended servings of meat and legumes, similar to the result of the Ethiopian study.^[15] Work should be done to improve the utilisation of meat and protein foods in pregnant women’s diets.

The adherence to iron supplements one week before the survey of this study was

Table 3 Dietary practices of pregnant women.		
Dietary practices	No.	%
Overall practice		
Appropriate dietary practices (did 7 out of 10 practices)	142	61.2
Inappropriate (did below 7 out of 10 practices)	90	38.8
Did you add meals compared to a non-pregnant diet?		
Yes	88	37.9
No	144	62.1
Did you eat 2 to 3 servings of meat, fish, nuts, or legumes per day		
Yes	125	53.9
No	107	46.1
Did you eat 2 to 3 servings of dairy (milk, egg, yoghurt, and cheese) per day		
Yes	178	76.7
No	54	23.3
Did you eat 2 to 3 servings of vegetables per day?		
Yes	205	88.4
No	27	11.6
Did you eat 2 to 3 servings of fruits per day?		
Yes	191	82.3
No	41	17.7
Did you eat 3 servings of whole grains per day?		
Yes	107	46.1
No	125	53.9
Did you use iodised salt?		
Yes	95	40.9
No	137	59.1
Have you eaten/taken iron supplement tablets daily in the past week?		
Yes	211	90.9
No	21	9.1
Did you have a history of smoking during the current pregnancy?		
Yes	3	1.3
No	229	98.7
Did you decrease coffee use?		
Yes	140	60.3
No	92	39.7

90.9%, which is higher than the results from Ethiopia and India, where 69% and 62%, respectively, are using iron-folate tablets during the antenatal period.^[15,16] This may indicate the effectiveness of intervention strategies used in our PHC centres. Among the study participants, 140 (60.3%) decreased coffee and tea use during pregnancy. This result is nearly similar to the results obtained from Ethiopia.^[15]

The dietary practices of pregnant women

Table 4 Factors associated with the dietary practice of pregnant women attending PHC centres in Basrah								
Features	Dietary Practices						X ²	P-value
	Appropriate		Inappropriate		Total			
	No.	%	No.	%	No.	%		
Mother's age (years)							0.331	0.954
< 20	25	61	16	39	41	100		
> 20-29	80	60.6	52	39.4	132	100		
30-39	32	61.5	20	38.5	52	100		
> 40	5	71.4	2	28.6	7	100		
Mother's education (years)							3.551	0.169
< 6	52	55.3	42	44.7	117	100		
7-12	59	62.1	36	37.9	68	100		
> 13	31	72.1	12	27.9	40	100		
Husband's education (years)							4.656	0.097
< 6	42	53.2	37	46.8	79	100		
7-12	54	61.4	34	38.6	88	100		
> 13	46	70.8	19	29.2	65	100		
Mother's occupation							7.097*	0.06
Housewife	123	63.7	70	36.3	193	100		
Governmental Employee	11	55	9	45	14	100		
Self-employed	1	14.	6	85.7	7	100		
Others	7	58.3	5	41.7	12	100		
Husband's occupation							23.742	0.00
Governmental employee	48	60	32	40	80	100		
Unemployed	39	70.9	16	29.1	55	100		
Self-employed	42	76.4	13	23.6	55	100		
Others	13	31	29	69	42	100		
Family income (IQD)							1.839*	0.617
Less than 500.000	75	57.7	55	42.3	130	100		
Between 500.000- 1000.000	55	64.7	30	35.3	85	100		
Between 1000.000 –2000.000	8	66.7	4	33.3	12	100		
More than 2000.000	4	80.0	1	20.0	5	100		
Gravida							6.13	0.047
1	40	64.5	22	35.5	62	100		
2-4	85	64.9	46	35.1	131	100		
> 5	17	43.6	22	56.4	39	100		
Stage of pregnancy							2.336	0.311
1st trimester	15	50	15	50	30	100		
2nd trimester	81	64.8	44	35.2	125	100		
3rd trimester	46	59.7	31	40.3	77	100		
History of abortion							5.511	0.019
Yes	24	47.1	27	52.9	51	100		
No	118	65.2	63	34.8	181	100		

* We used Fisher's Exact

had no significant association with maternal age, educational level, occupation, family income, and the stage of pregnancy. In contrast, the association is statistically significant with the husband's occupation, gravida, and history of abortion. These findings are consistent with the studies conducted in Southwest Ethiopia and Madagascar, in which maternal age was not associated with their dietary practice. In contrast, maternal education was significantly associated with dietary practice. In Ethiopia and Madagascar, similar to Basrah, many pregnancies are associated with larger household sizes. This suggests increased household food needs and a greater risk of inadequate diet quality and quantity, making larger households more susceptible to food insecurity.^[17,18] Family income was insignificantly associated with dietary practice in our study. This finding is inconsistent with the results from a systematic review stating that adverse socioeconomic conditions are associated with low dietary diversity in low-income countries.^[19]

In such a study design, recall biases can affect the accuracy of the results. So, we need to interpret these results carefully. Despite the promising results, public health authorities must continue their educational programs to consolidate them.

CONCLUSION

The present study revealed that the dietary practices during pregnancy are generally appropriate. However, the practices are inappropriate in specific domains, like adding extra meals during pregnancy, consuming a diet rich in protein, consuming whole grains, and using iodised salts.

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Abbreviations list: Iraqi Dinars (IQD), Primary Healthcare Centre (PHCC), Statistical Package for Social Sciences (SPSS), World Health Organization (WHO).

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