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Nutritional Patterns in Pregnant Women Referred to Yasuj Health Care Centers

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ABSTRACT

Background: The quality and quantity of nutrition during pregnancy is very important. This study aimed at determining the nutritional patterns in pregnant women referred to Yasuj Health Care Centers.

Methods: In this cross-sectional study, 360 pregnant women in the third trimester of pregnancy referred to Yasuj Health Care Centers were enrolled. FFQ questionnaire was used to determine the nutritional patterns.

Results: The mean age was 26.4±4.9 years. Totally, 67.2% of pregnant women used frying as the method of cooking. Solid oils were used for cooking in 21.7% of participants. Monthly consumption of carbonated beverages was higher than milk and 67.5% of women received more and 24.2% received less calories than needed and only 8.3% received calories equivalent to their need. Totally, 81.1%, 63.3%, 55%, 48.9%, and 83.9% iron, zinc, calcium, magnesium and folate were less than recommendation by the RDA, respectively.

Conclusion: The result of the present study revealed that the intakes of fruits, vegetables and some micronutrients such as iron, zinc, calcium, magnesium and folate were less than recommendations in pregnant women in Yasuj. But fat intake and the intakes of food items in miscellaneous group were more than the recommendations. Nutritional educational programs seems necessary in order to create a healthy and desirable food pattern in this group.

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Introduction

One of the most important human needs in different conditions is adequate and appropriate nutrition which is necessary for good health. The need for specific nutrients varies with different conditions and is affected by various genetic, environmental, food patterns, embryos and growth rates. Thus, the

vulnerability of individuals to nutrient deficiencies is not the same (1, 2). In developing countries, including Iran, the situation is different and sensitive groups, including women, and especially women in deprived areas, are at higher risk of nutritional deficiencies and their food is usually not only quantitatively but also in terms of quality

lower than other family members (1).

Women have been struggling with different periods of life and pregnancy is one of the critical periods of life for this group, which is important in terms of the different dimensions and levels of health and social care for the individual, family and community. Mothers face certain conditions during pregnancy and due to different reasons such as hormonal, metabolic and physical changes have increased nutritional needs than before and in comparison to other groups which increases their risk and vulnerability to malnutrition (1, 3).

Therefore, the quality and quantity of nutrition during this period is very important and the occurrence of nutritional deficiencies and different forms of malnutrition in this period is more than the other stages of life (4). Inadequate energy intake of the pregnant women can have adverse effects; such as an increase in the risk of giving birth to a low birth weight baby. Obesity and excess energy intake are associated with hypertension, preeclampsia, and gestational diabetes (5).

The pattern of food consumption and inappropriate food habits can be an important factor in the development of obesity in this group (6). This overweight and pregnancy in pregnant women are causing a lot of problems, which, in addition to increasing the risk of cardiovascular disease and cancers, can have devastating effects on the fetus and cause mental problems in both (7).

The most important complications of obesity at the beginning of pregnancy include an increased risk of spontaneous abortion and congenital defects, and in late pregnancy this complication may also lead to the emergence of metabolic syndrome, the risk of urinary tract infection, hypertension and gestational diabetes due to increased insulin resistance (8, 9). Nutrition, both during pregnancy and before it, is very important. Basically, we are expecting a healthy baby with proper indicators from a mother who has the right nutrition before pregnancy and during it (10, 11). Pre pregnancy weight and height and also maternal weight gain during pregnancy are two important indicators related to the nutritional status of pregnant women, both of which have a relationship with the weight of the baby at the birth time. The mortality rate for babies with low birth weight is 40 times higher than the infants with normal weight. Therefore, these two indicators and the subsequent nutritional conditions of the mother in different periods of life is of importance (11, 12).

Considering the great importance of nutrition during pregnancy and its role in human life from embryo genesis to end-of-life, and given that there is no complete and comprehensive information on the

nutritional patterns of pregnant women in Yasuj, the present study aimed at determining the nutritional patterns in pregnant women referred to Yasuj health care centers.

Materials and Methods

In this cross-sectional study, 360 pregnant women were studied in the third trimester of pregnancy during one year. Health care centers in Yasuj, western Iran were considered as clusters and the number of samples in each cluster was calculated based on the average number of pregnant women covered by the center. Then they were selected by the simple sampling method. Women with underlying illnesses, including hypertension, diabetes, heart disease, or certain treatments with medications and diets, were excluded.

The information was obtained by a questionnaire containing demographic social questions, FFQ questionnaire, and three days of 24-hour food recall (2 working days and 1 holiday). The respondents were also getting the necessary information about completing the questionnaire during three sessions. In this study, the calorie intake of each person was determined in terms of weight, height, and considering the conditions and the increase in the need of pregnant women in the third trimester of pregnancy and it was compared to their energy intakes. The mothers' initial weights were based on the weight recorded in their health care records and their current weights were also recorded by using a scale with accuracy of ± 0.5 with minimum dressing and their height were measured using a tape meter with an accuracy of 0.1 cm without shoes and by a trained expert. Data analysis was performed using Nutritionist 4 software and compared with the Recommended Dietary Allowance (RDA). Finally, the information was analyzed by SPSS software (Version 19, Chicago, IL, USA) and T- tests at a significant level of 5%.

Results

The mean age of women in this study was 26.4 ± 4.9 years. Totally, 26.7% of participants were experiencing their first pregnancy. 63.3% of the women were housewives and 23.3% were educated under the diploma level. Table 1 shows the job status, literacy, the number of children and the education level of the spouse. The participants used different methods to cook their own meals. Frying were the dominant method of cooking for 67.2% of these women, and 5.8% used the boiling method, 0.5% steamed and none of them used barbecue or grilling method to cook the meal.

Of course, some people used a variety of methods

Table 1: Job status, education and number of children of the studied pregnant women (n=360).

Variable	Age Mean 26.4±4.9	No. (Percentage)
Pregnant women's education	Undergraduate	84 (23.3)
	Diploma and college degrees	123 (34.1)
	Bachelor's degree	141 (39.1)
	Master degree and PhD	14 (3.9)
Occupation of pregnant women	Housewife	228 (63.3)
	Worker	23 (6.4)
	Employee	85 (23.6)
	Other	24 (6.7)
Husband's education	Undergraduate	91 (25.3)
	Diploma and college degrees	116 (32.2)
	Bachelor's degree	131 (36.4)
	Master degree and PhD	22 (6.1)
Number of children	No child	96 (26.7)
	One	121 (33.6)
	Two	83 (23)
	Three	41 (11.4)
	More than three	19 (5.3)

to prepare their own foods: 14.7% were using frying+boiling, 2.5% applying frying+steaming, and 3.6% used frying+grilling, and 5.5% used frying+grilling+boiling for their cooking. A total of 78.3% used a variety of liquid fats to cook their own food and 21.7% used animal fat and solid fats to cook their own meals. In this study, 42.2% of pregnant women never used olive oil. 23.9% of them used fish weekly.

The frequency of monthly consumption of carbonated beverages (23.5%) was higher than that of the milk (2.45%) in pregnant women, and also the frequency of monthly consumption of various types of industrial juices (1.9%) was higher than the consumption of natural juices (1.1%). In this study, the intake of different food groups was also evaluated. Table 2 indicated the average consumption of each food group.

Comparing energy needs and energy intakes, we found that 67.5% received more calories than needed; 24.2% received less calories than their own body needs, and only 8.3% received calories equivalent to

their need. The rate of receiving important mineral substances was also studied in these individuals, 81.1% of iron, 63.3% of zinc, 55% of calcium, 48.9% of magnesium and 83.9% of folate use were less than recommended by RDA. The mean of the calorie intake, protein and other minerals and vitamins were also assessed and the mean of its intake is presented in Table 3.

Discussion

The findings of this study showed that only a small percentage of pregnant women received energy as needed, while a majority of them received more calories than their needs. In a study by Manafi *et al.*, 39.4% of pregnant women received calories less than 80% of recommended daily intakes (14). The results of Ismael Zadeh *et al.* indicated sufficient energy intake in pregnant women (1), while Farahaninia *et al.* reported that the average calorie intake was lower than the recommended daily dose for pregnant women (15). Also, in a study by Kushki *et al.*, the average energy intake in pregnant

Table 2: Average of food groups received in pregnant women.

Food group	Average consumption (Servings/day)	Recommended amounts* (Servings/day)
Bread and cereals	10.2±4.8	9
Vegetables	2.1±1.5	4
Fruits	2.3±1.72	3
Milk and Dairy	2.9±1.2	3
Meat and its products	6.4±3.6	2
Fat	11.7±5.2	-
Miscellaneous group	8.3±3.9	-

*Recommended amounts: Recommended guidance for food pyramid for energy level 2000 KCal (13).

Table 3: Mean energy, protein, vitamin and mineral intake in pregnant women.

Variable	Mean±SD
Energy (Kcal/day)	2834±675
Protein (g/day)	89.7±41
Iron (mg/day)	23.4±11.1
Zink (mg/day)	10.3±3.6
Calcium (mg/day)	1220±520
Magnesium (mg/day)	410±181
Folate (Ug/day)	129±72
Vitamin A (Ug/day)	590±192

women was lower than standard intake rates (16).

The result of the present study revealed that the intakes of fruits, vegetables and some micronutrients such as iron, zinc, calcium, magnesium and folate were below the recommendations in pregnant women in Yasuj. But fat intake and the intakes of food items in miscellaneous group were more than the recommendations.

Most studies indicated that the energy intake of pregnant women was not appropriate. Unlike the studies in which average calorie intake was less than the requirement, in the present study, the predominance of pregnant women received more energy than needed, which may be due to some cultural, economical and social differences among pregnant women in Yasuj and other cities. 67.2% of pregnant women used frying to cook their own food, and a low percentage of people used the boiled and steamed method. The results of this study were similar to the study of Bakhtiari *et al.* in pregnant women in Babol, in which 60.2% of pregnant women used the frying method in cooking (10), whereas boiling and steaming method of cooking maintains the nutrients in food and is good for health, as well as preventing the extra fat and calorie intake.

The results of this study showed that the average consumption of fruits and vegetables were 2.3 and vegetable 2.1 servings/day respectively, which is less than the recommendation. Farahaninia *et al.*, also reported that in Tehran, vegetable and fruit intakes were below the recommendations in 59% and 77% respectively. In another study by Ismailzadeh *et al.* in Maku, it was also found that the consumption of vegetables in urban pregnant women was less than the standard (1). Fruits and vegetables are two useful and essential food groups which are a rich source of many useful minerals and vitamins. But unfortunately, more than 90% of women did not have the necessary knowledge about the amount of food and vegetables needed.

In this study, the intakes iron, zinc, calcium, magnesium and folate in pregnant women were lower than the recommended values. Kushki *et al.*

also found that the intake of micronutrients such as folate, iron, calcium, zinc, and magnesium was less than that of the RDA (16). Also, the results of Manafi *et al.* Showed that the percentage of people consuming below 80% of the recommended amounts of Folate, magnesium, iron, calcium and zinc were 97%, 92%, 50%, 71%, and 89%, respectively. The intake of these micronutrients by pregnant women was not sufficient according to the standard (14). In another study in Tehran, Farahaninia *et al.* reported that the intake of iron (9 mg), folic acid (163 mg), and calcium (727 mg) were also lower than the RDA (15).

Although olive oil and fish have been found to be rich in omega-3 and have had many benefits during pregnancy, unfortunately, the consumption of olive and fish oil was limited, and 42.2% of pregnant women never used olive oil and 76.1% of them used different types of fish less than once a week. In a study of Bakhtiari *et al.*, which aimed to assess the pattern of consumption of food in pregnant women in Babol, was assessed and it was reported that the use of fish was low (10). Perhaps lack of information on the benefits of these, as well as the specific smell and taste of these foods cause low tendency and consumption. The results of this study showed that the mean fat intake in pregnant women was higher than normal (11.7±5.2) and, unfortunately, solid oils were still used. The results of this study were similar to those of Mohammadi Nasrabadi *et al.* in pregnant women in the north and east of Tehran in which the rate of receiving the fat group was much higher than the recommended values (13). In this study, the frequency of milk intake was low, but the frequency of carbonated beverages (2.45 vs. 23.5%) was high. Similarly, the results of the study by Ismailzadeh *et al.* showed that the intake of milk and its products in urban women in the city of Maku (163 grams per day) was lower than the recommended amount (1). In the study of Bakhtiari *et al.*, the average milk intake was lower than that of the soft drinks. (45.1 vs. 49.5) (10).

Conclusion

The result of the present study revealed that the intakes of fruits, vegetables and some micronutrients such as iron, zinc, calcium, magnesium and folate were below the recommendations in pregnant women in Yasuj. But fat intake and the intakes of food items in miscellaneous group were more than the recommendations. Nutritional educational programs seems necessary in order to create a healthy and desirable food pattern in this group.

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Conflict of Interest

None declared.

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