

Evaluation of Food Behaviour and Nutritional Status of Pregnant Women Resident in Keserwan

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Abstract

Pregnancy, this particular moment in the life of a woman, requires monitoring of eating behaviour changes. However the food choices during pregnancy should be healthy, including the consumption of different food groups, and nutritional status is the process of acquisition and consumption of food. So a varied diet is associated with good nutritional status. This is why the nutrition education is a strategy commonly applied to improve maternal nutrition during pregnancy. Therefore, it is crucial to assess "the eating behaviour and nutritional status of pregnant women living in Keserwan."

The purpose of this study is to evaluate the feeding behaviour, nutritional status and level of awareness of pregnant women residing in Keserwan.

A cross-sectional descriptive study is carried out, two main types of research instruments. A questionnaire containing socio-demographic, personal information, questions on eating behaviour, food frequency and nutritional education. As well as laboratory tests already done by pregnant women. The total sample surveyed included 150 pregnant women between the ages of 18 and 40 years randomly selected from the hospitals and clinics of the Keserwan gynaecologists and allocated in an equitable manner between two regions chosen according to altitude.

The final analysis led to the results obtained 48.7% of pregnant women are aged 30 to 40 years, 56% have a normal BMI between 18.5 and 24.9, 80.7% have acceptable food behaviour, 68% have an acceptable level of awareness and half have an acceptable nutritional status. Thus, age affects the eating behaviour, so more women that are pregnant are older plus they have good eating behaviour. It would be possible to institute an awareness-raising program in the aim of increasing the level of education of pregnant women with regard to eating behaviour and nutritional status.

Keywords: Eating behaviour; Nutritional status; Level of awareness; Pregnant woman; Pregnancy

Introduction

During pregnancy, nutritional requirements are altered due to the synthesis of new tissues, the energy requirements associated with this growth, and variations in the intake of various nutrients [1]. Thus, pregnancy is a period of increased metabolic needs, due to physiological changes in pregnant women and the needs of the fetus [2]. Vitamins, minerals and trace elements, commonly known as micronutrients, are major determinants of the health of pregnant women and the fetus [2]. Therefore, women, especially during their first pregnancy, tend to improve their eating habits [3]. A healthy diet during pregnancy is defined in the same way as in any other period of life by various, tasty and little processed foods; Fruits and vegetables; Fresh and high fiber products; Nutritious fish and fats and a limited supply of foods with low nutritional value [3]. The published literature shows that most pregnant women consume three meals a day, one or more snacks in the afternoon or evening [4]. Thus, socio-demographic factors such as age, employment and education affect food behaviour [5]. Similar results were found for employment and economic status as there is a significant trend in dietary behaviour [6]. Regarding body

mass index (BMI), pregnant women with a high BMI have disordered eating behaviour [7]. With regard to the consumption of alcohol, alcoholic beverages, cigarettes, coffee, tea and "fast food", several studies have shown a significant decrease in the consumption of these products since this consumption may have severe and permanent effects on the fetus [8-11]. In addition, nutritional status is the process of food acquisition and consumption. Thus, a diversified diet is associated with good nutritional status. The data indicate that the nutritional status of the mother before and during pregnancy plays a crucial role in the growth and development of the fetus [1]. Therefore, to evaluate the nutritional status of pregnant women, an anthropometric, clinical, biochemical and dietary assessment must be completed [12]. Thus, the primary goal of our study is to evaluate the eating behaviour of pregnant women to compare with the food pyramid during this period of life. As well as the anthropometric parameters and the laboratory tests necessary to assess the nutritional status of pregnant women in Keserwan, in order to develop a global idea related to their nutritional status and to detect any state of deficiencies or excesses.

Materials and Methods

This study is a descriptive cross sectional study. It was conducted with pregnant women residing in Keserwan. The study sample was obtained based on an approximation of the number of pregnant women residing in in this area according to the statistics of the Lebanese Medical Association and applying the Giezendanner formula with a 95% confidence interval and T=1.96. The number of women in Keserwan is N=2000. After specifying the inclusion and exclusion criteria, by accepting and signing the written consent form, 150 pregnant women between the ages of 18 and 40 were included in this study in an equitable manner between two selected regions, Altitude of the caza of Keserwan. The town of Keserwan was divided into 2 parts according to the altitude of 700 meters. Pregnant women are chosen by chance from the hospitals and clinics of the Keserwan gynaecologists, who are at an altitude of less than 700 m, such as the Saint-Louis hospital in Jounieh, and other women are also chosen by chance at Within the hospitals and clinics of the gynaecologists of Keserwan which are located at the altitude of more than 700 m such as Hospital Saint-Georges in Ajaltoun. The subjects selected for participation were selected according to the following criteria: inclusion criteria are Lebanese pregnant women residing in Keserwan, aged 18-49 with or without complications during pregnancy. So excluded women were those who were not Lebanese, aged ≤ 18 years or ≥ 49 years, pregnant women with pre-pregnancy complications such as diabetes, hypertension, heart disease, non-pregnant women and pregnant women residing outside Keserwan. The survey took place from the beginning of January 2016 to the end of November 2016. During our study and in order to meet the objectives, two main types of research instruments were used: A questionnaire validated in French and translated to Arabic. The data were collected during the face-to-face interview and a licensed dietician completed the questionnaire in Arabic. This questionnaire was divided into 5 parts: socio-demographic, personal, part including questions about eating behaviour, food frequency and nutritional education. In order to assess the nutritional status of pregnant women, we have referred to the laboratory tests already performed. The tests that have been consulted are the blood count, ferritin, transferrin, vitamins and minerals, glucose, HbA1C, Cholesterol, triglyceride. The questionnaire data and the results of the blood tests were analysed using the Statistical Software for Social Sciences (SPSS) version 16.0. The confidence interval (CI) was set at 95% and the results were considered significant with $p < 0.05$. A study was carried out to describe the different characteristics of the target population. The continuous quantitative variables were described as mean and standard deviation and the qualitative variables as the number and percentage. A bivariate analysis was conducted. The Chi-two test (χ^2) and Fisher's test were used to study the relationship between qualitative variables. Student's t-test was used to compare two averages.

Results and Discussion

Sociodemographic characteristics of pregnant women residing in Keserwan

Pregnant women included in the study were aging between 18 and 40 years old. Noting that among them 48.7% are aged between 30 and 40 years old, 67.3% are employed; this percentage could be explained by the fact that they represent the sexually active age group. In addition, 64.2% are earning a salary less than 1.500.000 L.L. In addition, 39.4% are at the first pregnancy (Table 1).

Variable	Total number (N)	Percentage (%)
Age		
18-25	28	18.7
25-30	49	32.7
30-40	73	48.7
Total	150	100
Salary		
<1, 500,000 L.L.	68	64.2
>1, 500,000L.L.	38	35.8
Total	106	100
Number of children		
0	59	39.4
1	51	34
2	32	21.3
3	6	4
>3	2	1.3
Total	150	100
Level of education		
Scolaire		77.3
Université		22.7
Total	150	100
Altitude		
<700 m	85	56.7
>700 m	75	43.3
Total	150	100
BMI		
<18.5	16	10.7
18.5-24.9	84	56
25-29.9	39	26
30-34.9	10	6.7
>35	1	0.7
Total	150	100
Weight gain		
Below recommendations	28	18.6
Around the recommendations	67	44.7
Above Recommendations	55	36.7

Total	150	100
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Table 1: Socio-demographic characteristics of pregnant women residing in Keserwan.

Moreover, given that before normal pregnancy a normal BMI is between 18.5 and 24.9, it should be noted that the average BMI of the target population is 23.44. This indicates that pregnant women residing in Keserwan have a normal BMI before pregnancy therefore they are starting their pregnancy in a healthy status (Table 2).

Variable	Poor eating behavior	Acceptable eating behavior	p
Age			
18-25	5 (3.3%)	23 (15.3%)	p=0.03
25-30	4 (2.7%)	45 (30%)	
30-40	20 (13.3 %)	53 (35.3%)	
Total	29 (19.3 %)	121 (80.7%)	
Job			
Free	0 (0%)	5 (4.7%)	p=0.583
Employee	19 (17.9 %)	82 (77.4%)	
Total	19 (17.9%)	87 (82.1%)	
Salary			
<1,500,000 L.L.	13 (12.3%)	55 (51.9%)	
>1,500,000 L. L.	6 (5.7%)	32 (30.2%)	p=0.579
Total	19 (17.9%)	87 (82.1%)	
Number of children			
1	13 (14.3%)	38 (41.8%)	
2	4 (4.4%)	28 (30.8%)	
3	2 (2.2%)	4 (4.4%)	p=0.833
>3	0 (0%)	2 (2.2%)	
Total	19 (20.9%)	72 (79.1%)	
Level of education			
School	7 (4.7%)	27 (18%)	
University	22 (14.7%)	94 (62.7%)	p=0.833
Total	29 (19.3%)	121 (80.7%)	

Table 2: Association between socio-demographic characteristics and eating behavior of pregnant women.

Eating behaviour of pregnant women

Good eating behaviour during pregnancy is basically based on the quantity and quality of food, although the recommended foods are

foods found in the food pyramid and available in the Lebanese diet (milk, fruits, vegetables, meats, Cereals, fat). On the other hand those which are not recommended are those that are harmful to the health of the mother and the baby (alcohol, coffee, tobacco, drinks). Thus, in Keserwan region, 79.3% of pregnant women have an acceptable eating behaviour, while 19.3% have poor eating behaviour and 1.3% has good eating behaviour. Compared to the food pyramid, pregnant women had an average consumption of starchy foods (46.3%), average milk consumption (65%), low fruit consumption (57.2%), average vegetable consumption (53.4%) and average consumption of meat (51.1%). Moreover, consumption of dairy and fat products is around the recommendations (56%, 55.3%). It should be stated that the usual diet of the target population is mostly made up of starches, milk and dairy products, fruits, vegetables and meats. In contrast, more than half of them consume dairy and fat products. This shows that almost half of the pregnant women residing in Keserwan respect the food pyramid (Table 3).

Variable	Meat consumption	Meat consumption	p
Ferritin			
<15 ng/ml	58 (38.7%)	9 (6%)	p=0.188
>15 ng/ml	77 (51.3%)	6 (4%)	
Total	135 (90%)	15 (10%)	
Iron			
<28 µg/dl	64 (42.7%)	9 (6%)	p= 0.08
>28 µg/dl			
Total	71 (47.3%)	6 (4%)	
	135 (90%)	15 (10%)	
Hematocrit			
<37%	25 (16.7%)	4 (2.7%)	p=0.448
>47%	110 (73.3%)	11 (7.3%)	
Total	135 (90%)	15 (10%)	

Table 3: Association between nutritional status and consumption of meat.

Nutritional status of pregnant women

The majority of the study population has normal hemoglobin between 11 and 16 g/dl and a hematocrit between 34 and 45%. Thus, most of them have no anaemia problems since they are determined by a low level of haemoglobin or hematocrit. Moreover, the World Health Organization when the prevalence of anemia is equal to or greater than 40% of the population consider anemia. So, more than half of pregnant women residing in Keserwan have good nutritional status (Table 4).

Variable	Acceptable Awareness	High awareness	P
Level of education			
School	26 (17.3%)	8 (5.3%)	
University Total	76 (50.7%)	40 (26.7%)	p=0.26
Total	102 (68%)	48 (32%)	
Salary			
<1,500,000 L.L.	51 (48.1%)	17 (16%)	
>1, 500,000 L.L.	17 (16%)	21 (19.8%)	
Total	68 (64.2%)	38 (35.8%)	p=0.1

Table 4: Association between level of awareness and different factors.

Nutrition awareness of pregnant women

The level of awareness was assessed through questions related to knowledge of nutrition education. Women were then classified into three levels of awareness: Low, medium and high. The results show that 68% of pregnant women residing in Keserwan have an acceptable level of awareness and 32% have a high level of awareness.

Association between socio-demographic characteristics and eating behaviour of pregnant women

It should be noted that 80.7% of pregnant women had acceptable eating behaviour, 35.3% of them were aged 30 to 40 years. So the older the pregnant women the more they have good eating behaviour. As well as 51.9% of pregnant women with a wage <1, 500,000 L.L have acceptable eating behaviour. This contradicts the literature, which states that low-income pregnant women have more disturbed eating habits because they do not have the ability to buy foods with high nutritional value [7]. It is for this reason that the socio-economic level of pregnant women is considered "good", the higher the level of food behaviour. Similarly, for BMI, pregnant women with a high BMI have more disordered eating behaviour [7]. So women with a high BMI were more likely to have a behavioural eating disorder because they are already accustomed to not eating well [8]. Thus, pregnant women who gained weight not according to the recommendations had poor eating behaviour. Since during pregnancy, changes in appetite are frequently observed [8].

Association between nutritional status and meat consumption

More than half of pregnant women consume meat and have a normal iron and ferritin content, as natural sources of iron are in particular animal sources such as meat, fish, poultry and eggs [7]. So pregnant women residing in Keserwan have good nutritional status.

Association between level of awareness and different factors

There is no significant relationship between the level of education and the level of awareness among pregnant women, which contradicts the literature, which shows that nutrition education is a commonly applied strategy for improving maternal nutrition during pregnancy.

Identified as an important predictor of women's knowledge of nutrition during pregnancy [9,10]. Thus, the monthly income of pregnant women is not identified as an important predictor of women's knowledge of nutrition during pregnancy [11-17].

Conclusion

Conclusively, the study on the assessment of eating behaviour and nutritional status of pregnant women was carried out in Keserwan region of the Lebanese territory, giving the possibility to continue it in future research. Our objective was to evaluate the utility of the questionnaire and laboratory tests in order to assess the eating behaviour and nutritional status of pregnant women. Thus, our starting hypothesis was as follows: "Would there be an association between the eating behaviour, the nutritional status and the level of awareness of the pregnant women?"

Indeed, the results indicate that 80.7% of pregnant women residing in Keserwan have acceptable eating behaviour, while 19.3% have poor eating behaviour. While 68% of pregnant women residing in Keserwan have an acceptable level of awareness, 32% have a high level of awareness. Thus, it should be noted that nutritional status is limited to haemoglobin, hematocrit, iron and ferritin since no albumin has been recorded. On the other hand, the tests involved in particular the one of chi-square and Fisher's test were able to denote a significant relation between the age and the food behaviour. Non-significant results may be due to the numbers included in the sample. If the sample is increased the value will be significant. Thus the results do not accept the starting hypothesis and do not approve the relationship between dietary behaviour and nutritional status. It would therefore be desirable to set up an awareness-raising program with the aim of increasing the level of education of pregnant women in terms of eating behaviour and nutritional status. Pregnant women are initiated to apply the basic principles for a healthy and balanced diet. These are well explained by dieticians and gynaecologists, hence the importance of regular visits to note any change in nutritional and medical condition. In addition, nutritional recommendations should be applied to avoid poor eating behaviour, poor nutritional status and low levels of awareness. It would be possible to develop a new approach on the Lebanese field, giving the opportunity to clarify thoughts on the problem of poor eating behaviour, poor nutritional status and low awareness, which they are accelerating remarkably among Lebanese pregnant women.

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