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NUTRITIONAL KNOWLEDGE OF PREGNANT WOMEN FROM KRAKÓW.

PART 4. NUTRITIONAL PREVENTION OF DIET-RELATED DISEASES¹⁾

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Summary

Aim. The aim of this study was to assess knowledge about nutritional prevention of diet-related diseases in pregnant women from Kraków.

Material and methods. Questionnaires on the knowledge about nutritional prevention of diet-related diseases were filled in by 115 pregnant women who were admitted to Gabriel Narutowicz City Specialist Hospital in Kraków. Statistical analysis was carried out by means of the IBM SPSS Statistics 19. The studied population was divided according to the trimester of pregnancy.

Results. Statistically significant differences were found for the answers to question whether decreasing food intake may prevent obesity. All women in the first trimester of pregnancy knew the correct answer to this question, whereas the percentages of correct answers given by the women in the second and the third trimester were 73.1% and 66.7%, respectively.

Conclusions. The studied pregnant women, irrespective of the trimester of pregnancy, were characterised by a high level of knowledge about nutritional prevention of diet-related diseases. Most probably, such a high level of knowledge in this field is the result of spreading in the mass media the information about the importance of nutritional factors in diet-related diseases prevention.

Key words: nutritional knowledge, pregnancy, diet-related diseases, women, Kraków

INTRODUCTION

In the nutritional recommendations for pregnant women little attention is paid to preventing diet-related diseases. In the books on nutrition during pregnancy this issue is not highlighted although it is well documented that the food intake during pregnancy influences the offspring's food preferences (1-3) and that mothers' food habits have major impact on their children's food habits (4-9). There is also evidence that food habits influence the risk of diet-related diseases in children as early as from the first years of life (10, 11). Therefore, it is essential to follow nutritional guidelines, especially in children genetically predisposed to diet-related diseases. That is why knowledge about nutritional prevention of diet-related diseases is indispensable to women both during pregnancy as well as at each stage of their children's lives.

The aim of this study was to assess knowledge about nutritional prevention of diet-related diseases in pregnant women from Kraków.

MATERIAL AND METHODS

Questionnaires on the knowledge about nutritional prevention of diet-related diseases were filled in by 115 pregnant women who were admitted to Gabriel Narutowicz City Specialist Hospital in Kraków. For this purpose, a questionnaire from our previous studies was adapted (12-17). Characteristics of the studied pregnant women were given in our previous article (18).

This study was approved by the Bioethics Committee of the Poznan University of Medical Sciences.

Statistical analysis was carried out by means of the IBM SPSS Statistics 19. The studied population was divided according to the trimester of pregnancy.

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Qualitative variables were presented in contingency tables. Statistical significance was determined using Pearson's chi-square test, except for the variables with more than 20% of cells with an expected frequency of less than five. In this case, the Kruskal-Wallis H test was used. The level of significance was set at $p \leq 0.05$.

RESULTS

Table 1 shows the studied pregnant women's correct answers to the questions concerning nutritional prevention of diet-related diseases according to the trimester of pregnancy. Statistically significant differences were found for the answers to question 9, whether decreasing food intake may prevent obesity. Post hoc tests did

Table 1. The studied pregnant women's correct answers to the questions concerning nutritional prevention of diet-related diseases according to the trimester of pregnancy. Results given in [%].

No.	Correct answers	Trimester of pregnancy			All women (n=115)
		The first (n=14)	The second (n=75)	The third (n=26)	
1	Inadequate food habits increase the risk of osteoporosis	78.6	77.3	84.6	79.1
2	Inadequate food habits increase the risk of chronic gastric and duodenal ulcer	100.0	89.3	100.0	93.0
3	Inadequate food habits increase the risk of diabetes	92.9	92.0	84.6	90.4
4	Inadequate food habits increase the risk of cancer	50.0	56.0	50.0	53.5
5	Inadequate food habits increase the risk of cardiovascular diseases	92.3	94.7	96.2	94.8
6	Inadequate food habits increase the risk of atherosclerosis	100.0	93.3	100.0	95.7
7	Inadequate food habits increase the risk of obesity	100.0	100.0	100.0	100.0
8	Adequate weight maintenance is important in the prevention of diet-related diseases	42.9	73.3	73.1	69.3
9	Decreasing food intake may prevent obesity*	100.0	66.7	73.1	71.9
10	Preventing obesity is beneficial to health	100.0	100.0	100.0	100.0
11	High saccharose intake increases dental caries	64.3	70.7	76.9	71.3
12	Unrefined food should not be exchanged for refined food	64.3	65.3	65.4	65.2
13	Fried meat should be avoided to prevent diet-related diseases	92.9	93.3	96.2	93.9
14	Boiled meat should be eaten to prevent diet-related diseases	100.0	96.0	100.0	97.4
15	Stewed meat should be eaten to prevent diet-related diseases	84.6	88.0	84.6	86.8
16	Salt intake should be reduced to prevent hypertension	78.6	82.7	80.8	81.7
17	Intake of animal fat and cholesterol rich foods should be reduced to prevent myocardial infarction	100.0	97.3	92.3	96.5
18	Alcohol intake should be reduced to prevent myocardial infarction	100.0	90.7	92.3	92.2
19	Vegetable oil prevents atherosclerosis	85.7	77.3	61.5	74.8
20	Animal fat increases the risk of atherosclerosis	100.0	89.3	80.8	88.7
21	Fish fat prevents atherosclerosis	92.9	77.3	73.1	78.3
22	Pregnant women should reduce cholesterol intake	71.4	70.7	53.8	67.0
23	Preventing overweight and obesity should start in childhood	78.6	54.7	61.5	59.1

Bold type denotes statistical significance at $p \leq 0.05$.

*Post hoc tests did not show statistically significant differences between the pairs of trimesters.

not show statistically significant differences between the pairs of trimesters. All women in the first trimester of pregnancy knew the correct answer to this question, whereas the percentages of correct answers given by the women in the second and the third trimester were 73.1% and 66.7%, respectively.

DISCUSSION

The studied pregnant women's level of knowledge about nutritional prevention of diet-related diseases was high, similarly to their level of knowledge about general principles of nutrition during pregnancy (18). The mean percentages of correct answers given by the studied population ranged from 81.8% in the women in the third trimester of pregnancy to 85.7% in the women in the first trimester of pregnancy. Most probably, such a high level of knowledge is the result of spreading in the mass media the information about the importance of nutritional factors in diet-related diseases prevention. It also confirms previous observations that women are more interested in nutritional guidelines than men and are willing to modify their diets according to those guidelines (19-21). Moreover, women pay more attention to weight maintenance and to health-giving properties of food (19, 21-25).

All the studied women knew that inadequate food habits increase the risk of obesity and that preventing obesity is beneficial to health (26). Moreover, all women in the first and the third trimester of pregnancy knew that inadequate food habits increase the risk of both chronic gastric and duodenal ulcer (27) as well as atherosclerosis (28) and that boiled meat should be eaten to prevent diet-related diseases (29). Although only all women in the first trimester of pregnancy answered correctly that intake of animal fat and cholesterol rich foods as well as alcohol intake should be reduced to prevent myocardial infarction and that animal fat increases the risk of atherosclerosis (28), the percentages of correct answers given by the women in the second and the third trimester were also high and ranged from 80.8% in case of the women in the third trimester who knew that animal fat increases the risk of atherosclerosis to 97.3% in case of the women in the second trimester who knew that intake of animal fat and cholesterol rich foods should be reduced to prevent myocardial infarction.

The percentages of correct answers to the above-mentioned questions were also high in the previously studied populations. The only exception were young fencers (16) of whom only 26.2% knew that inadequate food habits increase the risk of atherosclerosis, whereas among trade fair exhibitors this percentage was 85.1% in women and 86.8% in men (14). The correct answers to the question whether animal fat increases the risk of atherosclerosis were given by all female vegetarians (30), 92.3% of male vegetarians (30), 86.9% of preschool staff from Nowy Sącz and the vicinity (17) and 86.7% of preschool children's parents from Nowy Sącz and the vicinity (15). As much as 95.7% of female and 88.7% of male trade fair exhibitors (14), as well as 86.6% of preschool children's parents from Pabianice (12) knew

that diet rich in animal fat is one of the risk factors for atherosclerosis. All female vegetarians (30), 92.3% of male vegetarians (30), as well as 95.7% of female and 94.3% of male trade fair exhibitors (14) answered correctly to the question about reducing intake of animal fat and cholesterol rich foods to prevent myocardial infarction. Only 28.3% of male and 51.1% of female trade fair exhibitors (14), but as much as 89.3% of preschool staff from Nowy Sącz and the vicinity (17), 93.0% of preschoolers' parents from Pabianice (12) and 95.0% of preschoolers' parents from Nowy Sącz and the vicinity (15) knew that alcohol intake should be reduced to prevent myocardial infarction. Among trade fair exhibitors, 90.6% of men and 97.9% of women (14) answered correctly that inadequate food habits increase the risk of chronic gastric and duodenal ulcer.

More than 90% of the studied women, irrespective of the trimester of pregnancy, knew that inadequate food habits increase the risk of cardiovascular diseases (28) and that fried meat should be avoided to prevent diet-related diseases (29). Also more than 90% of the women in the first and the second trimester of pregnancy and 84.6% of the women in the third trimester knew that inadequate food habits increase the risk of diabetes (31). The studied women's level of knowledge was higher in comparison with the knowledge of trade fair exhibitors (14), young fencers (16), preschool staff from Pabianice (13) and Nowy Sącz and the vicinity (17), and preschoolers' parents from Pabianice (12) and Nowy Sącz and the vicinity (15). The percentages of correct answers to the question whether inadequate food habits increase the risk of cardiovascular diseases ranged from 51.8% in young fencers (16) to 83.3% in preschool staff from Nowy Sącz and the vicinity (17), whereas the percentages of correct answers to the question whether inadequate food habits increase the risk of diabetes ranged from 62.4% in young fencers (16) to 85.8% in preschoolers' parents from Nowy Sącz and the vicinity (15). The percentages of correct answers to the question whether fried meat should be avoided to prevent diet-related diseases ranged from 31.9% in young fencers (16) to 84.0% in trade fair exhibitors (14).

The percentages of correct answers given by the studied women to the question whether salt intake should be reduced to prevent hypertension and to the question whether stewed meat should be eaten to prevent diet-related diseases were 81.7% and 86.8%, respectively, however the highest percentages of correct answers to both questions were found for the women in the second trimester of pregnancy, 82.7% and 88.0%, respectively. In the studied pregnant women, the percentages of correct answers to the question whether salt intake should be reduced to prevent hypertension (32) was higher in comparison to the percentages of correct answers to this question given by young fencers, 37.6% (16), trade fair exhibitors, 63.0% (14), and preschool staff from Pabianice, 74.9% (13), but lower in comparison to the percentages of correct answers given by preschoolers' parents from Nowy Sącz and the vicinity, 83.3% (15),

vegetarians, 85.0% (30), and preschool staff from Nowy Sącz and the vicinity, 86.9% (17). However, the percentage of correct answers given by the studied women, irrespective of the trimester of pregnancy, to the question whether stewed meat should be eaten to prevent diet-related diseases was the highest in comparison to the previously studied populations: parents of preschoolers from Pabianice, 57.2% (12), preschool staff from Pabianice, 66.1% (13), preschool staff from Nowy Sącz and the vicinity, 75.0% (17), parents of preschoolers from Nowy Sącz and the vicinity, 76.7% (15), and trade fair exhibitors, 78.0% (14).

The percentages of correct answers given by the studied pregnant women to the questions whether high saccharose intake increases dental caries, whether vegetable oil and fish fat prevent atherosclerosis, and whether inadequate food habits increase the risk of osteoporosis ranged from 71.3% to 79.1%, however the women in the first trimester of pregnancy gave the most correct answers to the questions whether vegetable oil and fish fat prevent atherosclerosis, 85.7% and 92.9%, respectively, and the women in the third trimester of pregnancy gave the most correct answers to the questions whether high saccharose intake increases dental caries and whether inadequate food habits increase the risk of osteoporosis, 76.9% and 84.6%, respectively. The studied pregnant women's level of knowledge about inadequate food habits as the risk factor for osteoporosis, irrespective of the trimester of pregnancy, was higher compared to the knowledge of preschool staff from Nowy Sącz and the vicinity, 70.2% (17), preschool staff from Pabianice, 73.5% (13), preschoolers' parents from Nowy Sącz and the vicinity, 73.3% (15), and from Pabianice, 67.9% (12), young fencers, 22.0% (16), and trade fair exhibitors (14). However, the level of knowledge about high saccharose intake as the risk factor for dental caries was higher in young fencers, 80.9% of correct answers (16), than the knowledge of the studied pregnant women irrespective of the trimester of pregnancy, 71.3% of correct answers.

In case of the question whether vegetable oil prevents atherosclerosis, the percentage of correct answers was higher in trade fair exhibitors (14) compared to the women in the third trimester of pregnancy, 77.0% vs 61.5%, whereas in case of the question whether fish fat prevents atherosclerosis, the percentage of correct answers was higher in trade fair exhibitors, 81.0% (14), compared to the women in the second and the third trimester of pregnancy, 77.3% and 73.1%, respectively.

From 65.2% to 69.3% of the studied women knew that unrefined food should not be exchanged for refined food, that pregnant women should reduce cholesterol intake and that adequate weight maintenance is important in the prevention of diet-related diseases (26). The percentages of correct answers given by the studied women, irrespective of the trimester of pregnancy, to the question whether unrefined food should not be exchanged for refined food were higher in comparison to the percentages of correct answers given by trade

fair exhibitors, 54.0% (14), but lower in comparison to the percentages of correct answers given by vegetarians, 100.0% (30). A lower percentage of the studied women, irrespective of the trimester of pregnancy, knew that adequate weight maintenance is important in the prevention of diet-related diseases compared to the percentage of trade fair exhibitors, 88.0% (14), and parents of preschoolers from Nowy Sącz and the vicinity, 76.7% (15). Nevertheless, a higher percentage of the studied women in the second and the third trimester of pregnancy answered correctly to this question, 73.3% and 73.1%, respectively, in comparison to parents of preschoolers from Pabianice, 49.2% (12), and preschool staff from Nowy Sącz and the vicinity, 72.6% (17).

53.5% of the studied women knew that inadequate food habits increase the risk of cancer and 59.1% of them knew that preventing overweight and obesity should start in childhood. In comparison to the women in the first and the third trimester of pregnancy, the percentage of correct answers to the question about inadequate food habits as the risk factor for cancer, was lower in young fencers, 19.1% (16), parents of preschoolers from Pabianice, 44.4% (12), and from Nowy Sącz and the vicinity, 45.0% (15), and trade fair exhibitors, 49.0% (14). The highest percentage of correct answers to this question was found for the preschool staff from Pabianice, 56.2% (13).

CONCLUSIONS

1. The studied pregnant women, irrespective of the trimester of pregnancy, were characterised by a high level of knowledge about nutritional prevention of diet-related diseases.
2. Most probably, such a high level of knowledge in this field is the result of spreading in the mass media the information about the importance of nutritional factors in diet-related diseases prevention. □

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