Knowledge of the principles of healthy nutrition among women from Rzeszów District

Znajomość zasad zdrowego żywienia wśród kobiet z powiatu rzeszowskiego

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Summary

Aim of the study: Assessment of knowledge of the principles of healthy nutrition among women from the Rzeszow administrative district, taking into account their level of education.

Material and methods: The study involving the method of diagnostic survey covered 300 women aged 30–40 years, residents of Rzeszow administrative district. The percentage shares of respondents' answers to individual survey questions were calculated. The collected research results were analyzed with the use of Chi-square ($\chi 2$).

Results: Respondents largely correctly answered most of the questions in the survey. The answers to the question about the proportion of vegetable consumption in relation to fruit varied widely. The Chi-square test showed statistically significant differences in the frequency of obtaining information from training ($p = 0.012$) and specialist literature/magazines ($p = 0.046$).

Conclusions: Knowledge of the principles of healthy nutrition among women from the Rzeszow administrative district is sufficient, although the respondents have a problem with determining the proportion of vegetable consumption in relation to fruit. Mostly women get knowledge about proper nutrition from a doctor and the Internet. The frequency of obtaining information from training and science publications depends on the level of education. These sources are most often used by women with higher education, and least often by people with basic education.

Keywords: eating habits, obesity prophylaxis, health education

Introduction

Nutrition is the basic biological human need and caring for a proper diet has a significant impact on health [1–6]. Proper eating habits are one of the most important elements of healthy lifestyle. Proper nutrition requires such an all-day menu that includes the right amounts of various foods representing all groups of food products and meets the body's energy needs [7]. Errors in nutrition can lead to numerous irregularities in the functioning of the human body. The most common include energy balance disorders, which may arise as a result of the intake of excessive amounts of food exceeding the energy expenditure. Eating excessive amounts of food leads to the development of overweight or obesity, which are among the risk factors for many chronic non-communicable diseases, for example diet-related cancers [8, 9], but are also associated with depressed mood and even depression [10]. Authors dealing with issues related to the structure and function of the musculoskeletal system believe that long-term static foot load with excessive body weight leads to a gradual failure of their active-passive stabilizers, which is manifested by a decrease in longitudinal arch, limitation of joint mobility and degenerative lesions [11]. The negative impact of obesity on the general health of the population justifies the need for effective methods to prevent excessive weight gain [12].

Eating habits depend on various factors, such as cultural background, socioeconomic factors, availability of food products, ethnic or religious influence [13].

Glibowski and Misztal [10] emphasized that eating food next to the function of satisfying physiological hunger and providing necessary nutrients to the body often becomes a way to meet emotional needs. Some food ingredients, such as B vitamins,

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fatty acids, carbohydrates or caffeine have a beneficial effect on improving human mood, because they increase the synthesis of neurotransmitters: dopamine and serotonin. According to Gorbaniuk and Chuchra [7], the most typical, unfavorable eating habits include eating meals at the wrong intervals, at the wrong times of the day and the wrong volume, as well as eating in a hurry and snacking, especially sweets.

It should be emphasized that in general women are responsible for feeding their own families and therefore have a great impact on shaping their eating habits. This fact became the reason for undertaking study aimed at assessing the knowledge of healthy eating principles among women from Rzeszów District, taking into account their level of education.

Materials and methods

Women from Rzeszów District aged 30–40 years were included in the study conducted by the diagnostic survey method. The average age of the female respondents was 34.27 ± 3.78 years. 21 respondents had primary level education, 149 women had secondary level education, and 130 women had higher education.

The research tool included an author's own survey consisting of 12 closed-end single-choice questions and one closed-end multiple-choice question. A total of 330 questionnaires were handed over. The return rate was 90%, and after checking the completeness and correctness of the questionnaires, 300 forms were subjected to final analysis. The survey questions were intended to check the general knowledge of women about the principles of healthy eating.

Having collected the material, the percentages of the female respondents' answers to individual survey questions were calculated. For the analysis of results, a non-parametric Pearson Chi-square independence test (χ^2) was used, assuming the level of statistical significance α=0.05. Calculations were made in Statistica 13.1 program made by Stat Soft.

Results

In response to the question about the optimal number of meals in accordance with the principles of the *Pyramid of Healthy Nutrition and Physical Activity* [14], the vast majority of respondents answered correctly saying that you should eat 4 to 5 meals a day and the intervals between meals should be 3–4 hours . The correct answer was given by: 91% of women with higher education, 81% of women with secondary level education and 62% with primary level education (Table 1).

The female respondents had a problem with choosing the answer to the question about the proportions of vegetable consumption in relation to fruit in accordance with the principles of the *Pyramid of Healthy Nutrition and Physical Activity* [14]. The correct proportions (¾ vegetables: ¼ of fruit) were indicated by 19% of women with primary level and higher education and 14% of women with secondary level education (Table 2).

Most of the female respondents (100% women with higher education, 98% women with secondary level education and 62% with primary level education) correctly classified light bread as products that are made of refined grain (Table 3).

When asked whether, in accordance with the principles of the *Pyramid of Healthy Nutrition and Physical Activity* [14], animal fats should be replaced with vegetable oils, the most correct affirmative answers were given by women with higher education: 74% of female respondents (Table 4).

The vast majority of the respondents said that according to the principles of the *Pyramid of Healthy Nutrition and Physical Activity* [14], for the prophylaxis of obesity, the consumption of sugar and sweets as well as salt should be reduced (Table 5).

Most of the respondents stated that cooking is the most beneficial type of food technological processing from the point of view of obesity prevention. The incidence of these responses increased proportionally to the level of education (Table 6).

Most of the respondents correctly answered that the optimal volume of water recommended for daily consumption accord-

Table 1.

Distribution of female respondents' answers to the question about the optimal number of meals in the prevention of obesity

Response categories	Level of education						Total	
	Primary education		Secondary education		Higher education			
	n	%	n	%	n	%	n	%
2 meals a day	0	0.0	2	1.0	2	1.0	4	1.0
4–5 meals a day and breaks between meals should be 3–4 hours	13	62.0	120	81.0	118	91.0	251	84.0
3 meals a day at any time of the day	7	33.0	8	5.0	5	4.0	20	7.0
The frequency of food intake should be determined at your discretion	1	5.0	19	13.0	5	4.0	25	8.0
Total	21	100.0	149	100.0	130	100.0	300	100.0

Table 2.

Distribution of female respondents' answers to the question about the proportion of vegetable consumption in relation to fruit

Response categories	Level of education						Total	
	Primary education		Secondary education		Higher education			
	n	%	n	%	n	%	n	%
¾ of vegetables : ¼ of fruit	4	19.0	19	14.0	25	19.0	48	16.0
½ of vegetables : ½ of fruit	3	14.0	29	19.0	22	17.0	54	18.0
⅓ of vegetable : ⅔ of fruit	4	19.0	5	3.0	15	11.0	24	8.0
Irrelevant	6	29.0	49	33.0	38	29.0	93	31.0
No such information	4	19.0	47	31.0	30	24.0	81	27.0
Total	21	100.0	149	100.0	130	100.0	300	100.0

Table 3.

Distribution of female respondents' answers to the question about the types of products that arise from refined grains

Response categories	Level of education						Total	
	Primary education		Secondary education		Higher education			
	n	%	n	%	n	%	n	%
White bread	13	62.0	145	98.0	130	100.0	288	96.0
Granary bread	2	9.0	2	1.0	0	0.0	4	1.0
No such information	6	29.0	2	1.0	0	0.0	8	3.0
Total	21	100.0	149	100.0	130	100.0	300	100.0

Table 4.

Distribution of female respondents' answers to the question whether animal fats should be replaced with vegetable oils

Response categories	Level of education						Total	
	Primary education		Secondary education		Higher education			
	n	%	n	%	n	%	n	%
Yes	12	57.0	83	56.0	96	74.0	191	64.0
No	9	43.0	66	44.0	34	26.0	109	36.0
Total	21	100.0	149	100.0	130	100.0	300	100.0

Table 5.

Distribution of female respondents' answers to the question about whether the consumption of sugar, sweets and salt should be limited in the prevention of obesity

Response categories	Level of education						Total	
	Primary education		Secondary education		Higher education			
	n	%	n	%	n	%	n	%
Yes	20	95.0	146	98.0	129	99.0	295	98.0
No	1	5.0	3	2.0	1	1.0	5	2.0
Total	21	100.0	149	100.0	130	100.0	300	100.0

Table 6.

Distribution of female respondents' answers to the question about the most beneficial type of food technological processing from the point of view of obesity prevention

Response categories	Level of education						Total	
	Primary education		Secondary education		Higher education			
	n	%	n	%	n	%	n	%
Frying	6	28.0	8	5.0	0	0.0	14	5.0
Cooking	8	39.0	92	62.0	116	88.0	216	71.0
Baking	0	0.0	27	18.0	9	7.0	36	12.0
Pasteurizing	0	0.0	9	6.0	2	2.0	11	4.0
Drying	6	28.0	13	9.0	2	2.0	21	7.0
Other	1	5.0	0	0.0	1	1.0	2	1.0
Total	21	100.0	149	100.0	130	100.0	300	100.0

ing to the *Pyramid of Healthy Nutrition and Physical Activity* [14] is 1.5 liter. The most correct answers were given by women with higher education (97% of respondents), followed by secondary level (86%) and primary level education: 72% of female respondents (Table 7).

Data in Table 8 indicate that the majority of respondents learn about proper nutrition from a doctor (58% women with higher education, 57% women with primary level education and 52% women with secondary level education) and the Internet (51% women with higher education and the same for secondary level education and 36% of women with primary level education). Percentages do not add up to 100 because the respondents could provide more than one answer. The Chi-squared test showed a statistically significant differentiation in the incidence of obtaining information from training (p=0.012) and professional literature (p=0.046). In both cases, the higher the level of education, the more often these sources of knowledge were used. In the case of "Other sources of knowledge" information from other family members and friends was given as the answer.

Discussion

In the scientific literature you can find reports on lifestyle in the aspect of nutrition among persons representing various social environments and different age groups. Gorbaniuk and Chuchra [7] based on a study of 200 persons between the ages of 20 and 64 found that women more rigorously follow the rules regarding the number of meals and the time of their consumption. There were also statistically significant gender differences in the frequency and quantity of consumed vegetables, red meat, fruit, nuts, legumes and sweets, which indicate greater care of women for healthy eating. Eating between meals was quite common among both women and men. The assessment of own eating habits was difficult for the respondents, and only 55% of the surveyed women and 51% of men declared willingness to change their eating habits. Gogojewicz et al. [15] assessed the qualitative and quantitative diet of women aged 20–40 attending fitness classes and physically inactive women. Body composition was determined using the bioelectrical impedance

Table 7.

Distribution of female respondents' answers to the question about the optimal volume of water recommended for daily consumption according to the guidelines of the Pyramids of Healthy Nutrition and Physical Activity

Response categories	Level of education						Total	
	Primary education		Secondary education		Higher education			
	n	%	n	%	n	%	n	%
0.5 liter of water a day	1	5.0	3	2.0	0	0.0	4	1.0
1.5 liter of water a day	15	72.0	128	86.0	127	97.0	270	90.0
4 liters of water a day	3	14.0	4	3.0	1	1.0	8	3.0
5–6 liters of water a day	2	9.00	14	9.0	2	2.0	18	6.0
Total	21	100.0	149	100.0	130	100.0	300	100.0

Table 8.

Źródła wiedzy respondentek na temat prawidłowego żywienia

Response categories	Level of education						Chi-squared test
	Primary education		Secondary education		Higher education		
	n	%	n	%	n	%	
Doctor	8	57.0	80	52.0	77	58.0	$\chi^2(2)=1.07$; p=0.586
Dietician MA	1	7.0	29	19.0	38	29.0	$\chi^2(2)=5.93$; p=0.051
Training/lecture	0	0.0	1	1.0	9	7.0	$\chi^2(2)=8.84$; p=0.012*
Scientific publications	2	14.0	33	22.0	44	33.0	$\chi^2(2)=6.16$; p=0.046*
TV	3	21.0	44	29.0	29	22.0	$\chi^2(2)=1.85$; p=0.397
The internet	5	36.0	78	51.0	67	51.0	$\chi^2(2)=1.23$; p=0.541
Other	0	0.0	5	3.0	10	7.0	$\chi^2(2)=3.54$; p=0.171
Not looking for information	2	14.0	20	13.0	11	8.0	$\chi^2(2)=1.78$; p=0.411

* p<0,05

method, and eating habits information was collected by 24-hour food intake interview for the next three days. The variety of food consumed was assessed using the "FIVeQ Food Consumption Variety Questionnaire". In both groups, deficiencies were found in daily food rations in terms of quality and quantity, with an inadequate degree of variety in consumed food, which indicated low energy intake and nutrient deficiencies, except for carbohydrates. Gruszka and Malczyk [16] on the basis of an analysis of the diet of patients between 18 and 78 years old, reporting to the dietitian office, concluded that their diet was satisfactory, and the main errors included irregular eating, frequent snacking, and excess of sweets, using "Vegeta" or "Kucharek" spices, preferring frying as a heat treatment for meat and fish, low quantity of consumption of vegetables, fruits, legumes, coarse groats, unprocessed cereals as well as wholemeal and wholegrain breads. Rybowska [17], as a result of study using a diagnostic survey of eating stereotypes in a group of 260 residents of the Tricity, stated that consumers have a lot of knowledge in the field of nutrition, which is confirmed by their own opinions on this subject, although they are often based on popular beliefs, not always according to the latest knowledge. The respondents with higher education pointed to the press, television and the Internet as a source of information. Persons with secondary level education responded in a similar way, while most people with primary level education received information on nutrition from family or friends. The author pointed to the need to continue studies in demographically diverse populations. The own study has shown that knowledge of healthy eating principles is sufficient for most women from Rzeszów District, however, the female respondents had a problem with choosing the answer to the question about the ratio of vegetable consumption to fruit. Mostly, female respondents get knowledge about proper nutrition from a doctor and the Internet. The incidence of obtaining information from training and scientific articles depended on the level of education. These sources are most often used by women with higher education, and least often by people with primary level education. This indicates the need to popularize lectures, training and scientific literature, especially among the residents of Rzeszów District with primary level education. Raising awareness about the principles of proper nutrition and side effects that result from negligence in this area will increase the level of health in the society. To sum up, it is also worth emphasizing that, in accordance with the recommendations of the Institute of Food and Nutrition, efforts for a well-balanced diet should be supplemented with physical activity. The above recommendations were included in the *Pyramid of Healthy Nutrition and Physical Activity* [14]. The importance of physical activity, which should complement a well-balanced diet, has been emphasized by many authors [12, 18–22], and their conclusions are the starting point for further scientific searches in the field of the issues discussed.

Conclusions

1. Knowledge of the principles of healthy nutrition among most women from Rzeszów District is sufficient, although the female respondents have a problem with determining the proportion of vegetable consumption in relation to fruit.
2. Mostly, female respondents get knowledge about proper nutrition from a doctor and the Internet. The incidence of obtaining information from training and scientific publications depended on the level of education. These sources are most often used by women with higher education, and least often by people with primary level education.

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Streszczenie

Cel pracy: Ocena znajomości zasad zdrowego żywienia wśród kobiet z powiatu rzeszowskiego z uwzględnieniem poziomu ich wykształcenia.

Materiał i metody: Badaniami metodą sondażu diagnostycznego objęto 300 kobiet z powiatu rzeszowskiego w wieku 30–40 lat. Narzędzie badawcze stanowiła ankieta. Obliczono udziały procentowe odpowiedzi respondentek na poszczególne pytania ankiety. Do analizy wyników zastosowano test Chi-kwadrat Pearsona ($\chi 2$).

Wyniki: Respondentki w dużej mierze prawidłowo odpowiedziały na większość pytań zawartych w ankiecie. Odpowiedzi na pytanie o proporcje spożycia warzyw w stosunku do owoców były mocno zróżnicowane. Test Chi-kwadrat wykazał statystycznie istotne zróżnicowanie pod względem częstości czerpania informacji ze szkoleń ($p=0,012$) oraz literatury specjalistycznej/czasopism ($p=0,046$).

Wnioski: Znajomość zasad zdrowego żywienia w przypadku większości kobiet z powiatu rzeszowskiego jest wystarczająca, aczkolwiek respondentki mają problem z określeniem proporcji spożycia warzyw w stosunku do owoców. Wiedzę na temat prawidłowego żywienia kobiety w większości czerpią od lekarza oraz z Internetu. Częstość uzyskiwania informacji ze szkoleń i publikacji naukowych zależy od poziomu wykształcenia. Z wymienionych źródeł najczęściej korzystają kobiety z wykształceniem wyższym, a najrzadziej lub wcale osoby z wykształceniem podstawowym.

Słowa kluczowe: zachowania żywieniowe, profilaktyka otyłości, edukacja zdrowotna