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*Evaluation of dietary habits of various age groups
of the Lublin population*

Dietary habits are one of the basic factors determining the health state and proper functioning of the human organism. Following the principles of rational nutrition will allow us to enjoy long, physically and mentally healthy life.

Rational nutrition is to provide the organism with necessary amounts of nutrients suitable for physiological needs and to shape appropriate dietary habits affecting general mental state. However, the above assumptions are not fully accomplished due to numerous socio-economic factors. Increased rate of living resulting from the civilization development is the reason why we do not pay enough attention to nutrition. We normally satisfy hunger and do not think about meals and their effects on our organisms. Accelerated development of the food market made rational nutrition more complicated, more difficult to understand and accomplish (4, 6).

The aim of the present study is to analyse comparatively dietary habits of various age groups of the Lublin population, particularly the most common dietary errors which are likely to influence future health.

MATERIAL AND METHODS

The study encompassed 171 adults of various age groups: 41 aged 21–30 (age group A), 30 aged 31–40 (age group B), 31 aged 41–50 (age group C), 32 aged 51–60 (age group D) and 37 aged > 60 (age group E).

The population studied was weighed and measured to determine BMI. Dietary habits were evaluated using the anonymous questionnaire concerning the number and regularity of meals, frequency of consumption of sweets and fast-food, etc. The results were statistically analysed. For unrelated qualitative characteristics, the inter-group differences were detected using the homogeneity χ^2 test. The inter-characteristic relations were analysed by the independence χ^2 test. $P < 0.05$ was accepted as statistically significant. The database and statistical calculations were based on the STATISTICA 7.0 software (StatSoft, Polska).

RESULTS

BMI for each age group were calculated using height and weight measurements. Abnormal body weight was found in 60% of the population studied. Underweight was characteristic of only

younger age groups (A and B), which constituted 8% of the total population, whereas overweight and obesity were observed in all age groups, 36% and 16%, respectively. Distribution of BMI in the studied population is presented in Figure 1.

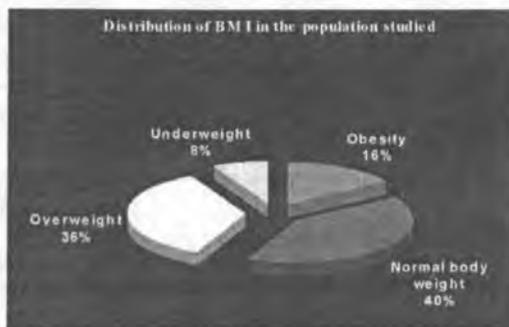


Fig. 1. Distribution of BMI in the population

The results of evaluation of dietary habits and other health-promoting forms of behaviour of the studied population of Lublin are presented in Table 1.

The analysis demonstrated statistically significant differences ($p < 0.05$) regarding satisfaction with appearance and age. Dissatisfaction with appearance increased with age. An exception was the age group over 60, in which satisfaction was stated by 83.8% of respondents. There were no statistically significant differences in the number of meals consumed during the day. Over half of the respondents in all age groups consumed 4–5 meals a day. However, statistical differences were observed in relation to breakfast consumption before leaving home. The biggest attention to breakfast was paid by the oldest group, in which only 13.5% of the population stated that they leave home without breakfast. Lunch was most often consumed by the 40–50 age group (48.4%).

Moreover, differences were observed in the time of last meals. The majority of respondents over 60 had their last meal between 6–8 p.m. Up to 56% of respondents up to the age of 30 had their last meal between 8–10 p.m. The comparative analysis showed that on average every second respondent had meals in front of the television set, irrespective of age, and one fourth of respondents aged 31–60 purchased food products guided by the commercial information.

Health-promoting foodstuffs were most often purchased by people at the age of 31–40. The percentage of those stating that they know the effects of these products on the organism was also the highest one – 60%.

A substantial part of respondents do not pay attention to diet planning and cooks spontaneously. Only almost half (45.9%) of those over 60 planned their meals successively. Highly processed food products for meals were most often used, at least once a week, by the 21–30 age group (51.2%). The majority of the respondents used plant oils for frying, however sunflower oil, which at high temperatures quickly undergoes oxidation, was also quite often used. The consumption of fish increased with age, yet the frequency of consumption in all age groups was only once a week. Fast food (hot-dogs, French bread pizza, hamburgers, pizza) was consumed at least once a week by one fourth of the respondents aged 21–30, whereas older people most often stated that they had it once a year. No statistical differences were observed in the frequency of consumption of sweets according to age. Most of the respondents between 21 and 50 ate sweets at least once a day. However, the population studied was characterized by proper consumption of vegetables and fruits, which were consumed at least twice a day by the respondents between 41–50 (80%).

Table 1a. Distribution of answers concerning evaluation of dietary habits and other forms of behaviour in the population studied

Parameter	Group A 21–30 yrs.	Group B 31–41 yrs.	Group C 41–50 yrs.	Group D 51–60 yrs.	Group E > 60 yrs.	Significance of statistical differences
Satisfaction with appearance yes no	87.8% 12.2%	76.7% 23.3%	74.2% 25.8%	50.0% 50.0%	83.8% 16.2%	p<0.05
Number of meals during the day 4–5 1–3	56.1% 43.9%	63.3% 36.7%	61.3% 38.7%	68.7% 31.2%	54.0% 45.9%	p>0.05
Consumption of breakfast no yes	41.5% 58.5%	43.3% 56.7%	51.6% 48.4%	50.0% 50.0%	13.5% 86.5%	p<0.05
Consumption of lunch I prepare it at home I buy it in shops I do not have lunch	34.1% 22.0% 43.9%	40.0% 23.3% 36.7%	38.7% 12.9% 48.4%	50.0% 18.7% 31.2%	54.0% 0.0% 45.9%	p>0.05
Time of the last meal 6 p.m.–8 p.m. 8 p.m.–10 p.m.	43.9% 56.1%	66.7% 33.3%	38.7% 61.3%	59.4% 40.6%	86.5% 13.5%	p<0.05
Consumption of meals in front of the television set yes no	65.8% 34.1%	60.0% 40.0%	71.0% 29.0%	56.2% 43.7%	48.6% 51.4%	p>0.05
Food shopping under the influence of ommercial yes no	21.9% 78.1%	23.3% 76.7%	25.8% 74.2%	25.0% 75.0%	18.9% 81.1%	p>0.05
Purchasing products like Actimel, Benecol, Activia, Flora pro activ no yes	70.7% 29.3%	56.7% 43.3%	74.2% 25.8%	81.3% 18.7%	75.68% 24.32%	p>0.05
Knowledge about effects of such products as Actimel, Activia, Benecol, Flora pro activ on the organism yes no	46.3% 53.7%	60.0% 40.0%	48.4% 51.6%	34.4% 65.6%	45.9% 54.1%	p>0.05
Meal planning yes no	14.6% 85.4%	20.0% 80.0%	25.8% 74.2%	18.7% 81.2%	45.9% 54.1%	p<0.05
Highly-processed food once a month once a week less often	17.1% 51.2% 31.7%	16.7% 30.0% 53.3%	32.3% 16.1% 51.6%	6.3% 31.2% 62.5%	5.4% 10.8% 83.8%	p<0.05

Fat for frying	53.7%	56.7%	54.8%	68.7%	59.5%	p>0.05
universal oil	9.8%	10.0%	19.4%	6.3%	5.4%	
lard	29.2%	23.3%	16.1%	12.5%	18.9%	
sunflower oil	7.3%	6.7%	9.7%	6.3%	5.4%	
butter	0.0%	3.3%	0.0%	6.2%	10.8%	
margarine						
Frequency of fish consumption						p<0.05
2-3 times a week	12.2%	23.3%	0.0%	15.6%	13.5%	
once a week	36.6%	46.7%	48.4%	56.3%	70.3%	
less often	51.2%	30.0%	51.6%	28.1%	16.2%	
Consumption of fast food (hot-dogs, French bread, pizza, hamburgers, pizza)						p<0.05
once a year	34.1%	43.3%	38.7%	75.0%	83.8%	
once a month	39.0%	33.3%	54.8%	25.0%	16.2%	
once a week	26.8%	23.3%	6.5%	0.0%	0.0%	

Table 1b. Distribution of answers concerning evaluation of dietary habits and other forms of behaviour in the population studied

Parameter	Group A 21-30 yrs.	Group B 31-41 yrs.	Group C 41-50 yrs.	Group D 51-60 yrs.	Group E > 60 yrs.	Significance of statistical differences
Consumption of sweets						p>0.05
once a day	61%	60.0%	64.5%	40.6%	40.5%	
once a week	31.7%	30.0%	35.5%	40.6%	35.2%	
once a month	7.3%	10.0%	0.0%	18.7%	24.3%	
Consumption of vegetables and fruits at least twice a day						p>0.05
yes	68.3%	73.3%	80.7%	75.0%	75.7%	
no	31.7%	26.7%	19.3%	25.0%	24.3%	
Knowledge about rational nutrition principles						p>0.05
sufficient	34.2%	36.7%	45.16%	43.7%	48.7%	
insufficient	65.8%	63.3%	54.84%	56.3%	51.3%	
Changes in dietary habits						p>0.05
fat	19.5%	30.0%	35.5%	43.7%	46.0%	
sugar	24.4%	16.7%	16.1%	18.7%	10.8%	
regularity of meals	34.2%	30.0%	19.4%	18.8%	24.3%	
all mentioned above	21.9%	23.3%	29.0%	18.8%	18.9%	
Frequency of alcohol consumption						p<0.05
every day	0.0%	0.0%	6.4%	12.5%	5.4%	
once a week	31.7%	26.7%	45.2%	21.9%	18.9%	
once a month	19.5%	26.7%	6.5%	12.5%	5.4%	
several times a year	48.8%	46.6%	41.9%	53.1%	70.3%	
Tobacco smoking						p>0.05
yes	17.1%	23.3%	9.7%	28.1%	13.5%	
no	82.9%	76.7%	90.3%	71.9%	86.5%	

Diseases						
cardiovascular system	7.3%	6.7%	29.0%	50.0%	59.5%	p<0.05
digestive system	9.7%	6.7%	16.1%	18.7%	10.8%	
others	9.8%	10.0%	16.2%	6.3%	24.3%	
healthy	73.2%	76.6%	38.7%	25.0%	5.4%	

The information about the principles of rational nutrition was positively evaluated by almost half of the respondents, mainly by those in the 31–40 age group (65%). All the respondents wanted to change their dietary habits; in the >41 age group the changes were mainly connected with reduction of fats while in the <40 age group with regularity of meals. The analyses performed revealed the differences in the frequency of alcohol consumption in various age groups. One third of the 21–30 respondents (31.7%) admitted drinking alcohol once a week and one tenth (12.5%) at the age 51–60 drank alcohol every day. The majority of respondents do not smoke cigarettes, the respondents in the 51–60 age group most often admitted that they smoked. The majority of the 21–40 age group respondents were healthy. The most common diseases in the population studied were cardiovascular diseases which affected mainly the individuals below 50.

DISCUSSION

The findings of the study show that all age groups of the Lublin population followed the guidelines of rational nutrition to a limited degree, which is confirmed by the distribution of BMI. A high percentage of people with overweight and obesity, which are risk factors of numerous degenerative diseases, observed in the 40–60 age group seems alarming.

Body weight deficiencies in group A and B, concerning mainly women, are likely to be related to the ideal of a slim figure popularized by mass media. Therefore, satisfaction with appearance observed in these groups was the highest one. The percentage of individuals over 60 stating that they were satisfied with their body weight was high, despite overweight and obesity commonly observed in this group. This may be explained by the fact that some people whose figures are not within standards are capable of maintaining the distance to social pressure and choose their own style of living, dressing and thus accept their appearance. According to Kobos et al., older people are less focused on their appearance and more concerned with their identity. One group (younger) may treat health disorders as a disease while another one (older) as a health index. A classical example of this is obesity, which in many societies has not been regarded as abnormality but a sign of wealth (5).

Despite many changes in lifestyle of modern societies, conventional meals: breakfast, dinner, supper are still strongly fixed (5); people over 60 are particularly convinced that three meals a day are vital to maintain proper weight. In this group, the percentage of those who have lunch is low. Unfortunately the number of people who attach significance to breakfast and lunch decreases with age. It is alarming that young people in group A and B had supper late at night compared to older respondents in group C and D. The majority of the elderly consumed their last meal between 6–8 p.m., which is consistent with the principles of rational nutrition (1).

A mass phenomenon in all age groups is the tendency to have meals in front of the television set, the best example of which is a high percentage of people purchasing products under the influence of information provided by commercials. One of few positive aspects of effects of some commercials on men is the fact that a high percentage of respondents knows the effects of functional foodstuffs on the organism. The highest interest in such products is observed in the 31–40 age group, which is likely to indicate the presence of hidden health problems in this group.

The increased rate of living resulted in the situation in which less attention is paid to planning

and preparation of meals and highly-processed foodstuffs are more often used. Ready-made products were mostly used by young people up to the age of 31. Almost half of respondents over 60 planned their meals for the next day, including in their diets fresh and low caloric products. The highest consumption of fast food was observed amongst the respondents below 40. Only one third of the respondents below 50 could abstain from eating sweets every day. A high level of sweet consumption is likely to result from their availability and effects on general mood. According to Kobos et al., the diet-related disturbances are the reaction to stress caused by difficulties in accomplishing vital goals or coping with problems. The above factors and improper attitudes result in pathological coping with difficulties in which tensions are reduced by excessive consumption of food leading to severe obesity (5).

Low consumption of fish in all age groups was most likely related to high price of these products as well as religious reasons.

The present study demonstrates that people over the age of 40 much more often consume alcohol. Although results of some studies show that the risk of ischaemic heart disease is higher in total abstainers than in those drinking moderate amounts of alcohol, its adverse effects on the organism should be realized. In Poland, the structure of alcoholic beverages is wrong and the amounts drunk too high. Generally, high proof alcohols are drunk, which may lead to addiction (7).

After a short-lived period of fashion for nonsmoking, a relatively high percentage of smokers in the age group below 30 was observed. According to Rapacka et al., tobacco smoke, both this inhaled by active and passive smokers, contains many chemical compounds which have multi-directional toxic effects on the human organism, accelerate atheromatous changes and increase the incidence of acute coronary episodes (7).

Lack of knowledge about the principles of food preparation amongst the respondents under the age of 30 is visible in the kind of fat they use for frying. Higher price does not always mean higher usefulness and better properties. Similar results were reported by Cieřlik et al. who demonstrated high share of sunflower oil in the preparation of fried meals (2). Despite clear dietary errors, the majority of age groups evaluated their knowledge about the principles of rational nutrition as sufficient. Unfortunately, the studies show that this knowledge is insufficient. Therefore it seems necessary to involve mass media in shaping the dietary awareness of the Poles, which is confirmed by the study conducted by Jeřowska-Zychowicz et al. (3).

CONCLUSIONS

1. Dietary habits of the respondents in all age groups, particularly of those between 40 and 50, awake serious reservations due to many departures from current principles of rational nutrition.

2. Age is a factor visibly differentiating the frequency of consumption of some foodstuffs such as: fish, alcohol, fast food and highly-processed food products.

3. High consumption of sweets and alcohol may be a serious problem related to the proper development of the population studied.

4. Increased speed of living resulting from the civilization development also affects dietary and consumer habits.

5. Proper dietary habits shaped in youth may also be followed at older age, however it is necessary to update the knowledge about foodstuffs and their effects on the organism.

6. Due to a poor knowledge about the principles of rational nutrition in all age groups, it seems necessary to undertake actions correcting consumers' wrong beliefs and preferences

The society should be provided with reliable information about the importance of proper nutrition in maintaining good health.

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SUMMARY

The main aim of the study was to evaluate dietary habits in various age groups of the Lublin population. The anonymous and voluntary questionnaire survey was conducted in the group of 171 randomly chosen adults. The questions concerned the regularity of meals, frequency of consumption of different foodstuffs and substances and dietary preferences. Moreover, BMI in the group studied was determined. The results were statistically analysed. The respondents' meals were improper and irregular, irrespective of age. Age is a factor visibly differentiating the frequency of consumption of such food products as: fish, alcohol, fast-food, and highly-processed food. Dietary habits of people between 40 and 50 awake serious reservations due to numerous errors and departures from current principles of rational nutrition. High consumption of sweets and alcohol may lead to future problems connected with proper development of the population studied. Increased pace of living resulting from civilization development also affects dietary and consumer habits. The results of the present paper indicate that dietary habits of the population studied should be further monitored.

Ocena sposobu żywienia różnych grup wiekowych populacji Lublina

Głównym celem pracy była ocena sposobu odżywiania się populacji Lublina w różnych grupach wiekowych. Anonimowe i dobrowolne badania ankietowe przeprowadzono w grupie 171 losowo wybranych osób dorosłych. Pytania ankietowe dotyczyły między innymi regularności odżywiania się oraz częstości konsumpcji i poziomu preferencji różnych grup produktów spożywczych i używek. W badanej próbie ustalono wskaźnik BMI. Uzyskane wyniki badań poddano analizie statystycznej. Niezależnie od wieku mieszkańcy odżywiali się nieprawidłowo i nieregularnie. Wiek jest czynnikiem wyraźnie różnicującym częstość spożycia tylko niektórych produktów spożywczych, takich jak: ryby, alkohol, żywność typu *fast food* oraz żywność wysoce przetworzona. Sposób odżywiania się osób między 40 a 50 rokiem życia budzi poważne zastrzeżenia z powodu stwierdzonych wielu błędów i odstępstw od zasad racjonalnego żywienia. Wysokie spożycie słodczy i alkoholu może stanowić w przyszłości poważny problem w prawidłowym rozwoju badanej populacji. Wzrost tempa życia, będący wynikiem rozwoju cywilizacyjnego, ma wpływ również na przyzwyczajenia żywieniowe i konsumenckie. Uzyskane wyniki badań wskazują na konieczność dalszego monitorowania sposobu odżywiania się badanej populacji.