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Analysis of lifestyle of young adults in the rural and urban areas

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Abstract

An unhealthy lifestyle among young people is a serious and often unnoticed problem. It seems that there are differences in the lifestyle of young people from rural and urban areas. The objective of this study was to compare eating habits and physical activity of young adults according to their body weight, gender and place of residence. The study involved a group of 18-year-olds from rural and urban environments. The study included 50% girls and 50% of boys in each group, selected by simple random sampling (SRS). The author-designed questionnaire evaluating the nutrition habits and physical activity was provided. It was found that in the group of boys the value of BMI was markedly higher than in girls. Compared to the normal weight, young overweight adults ate meals more frequency, the majority preferred meat dishes, more often ate under the stress, and had lower physical activity. It was found that gender had a significant impact on the studied parameters. The girls ate meals more frequent during the day, the majority preferred fruit and vegetable, but had lower physical activity than the boys. It was found that the young adults from the rural area preferred fast food and frequently ate sweets. Compared to the subjects from the urban environment, the young adults living in the countryside consumed fewer meals daily and were more physical active. About a half of the studied adults were not satisfied with their weight, and nearly 40% of the subjects in both groups admitted that they had made effective or ineffective attempts to lose weight. The lifestyles of young people in rural and urban areas were slightly different; however, dietary factors which predispose to weight gain were comparable in both groups. In the rural areas, the most frequent nutritional faults were a preference for fast food, frequent consumption of sweets, and few meals during the day. A positive aspect of the lifestyle of young people in the rural areas was a relatively high level of physical activity and the small effect of stress on excessive consumption.

Key words

young adults, rural area, urban area, eating habits, physical activity, questionnaire

INTRODUCTION

Obesity is often associated with the presence of cardiovascular diseases. Overweight young adults are more likely to have hypertension, type 2 diabetes mellitus, and dyslipidemia. Furthermore, adolescent obesity and overweight strongly predicts the risk for obesity and metabolic syndrome in later life [1]. Good nutrition, a physically active lifestyle and absence of the use of tobacco and alcohol may delay or prevent the onset of cardiovascular disease. In the past few decades, physical activity patterns in adolescents have changed as a result of increased television watching, spending much time at a computer, and spending less time at physical activities in schools and communities. Improving diet and physical activity has been emphasized by many national scientific societies, e.g. the American Heart Association (AHA) and Polish Society of Cardiology as one of their primary aims [2].

An unhealthy lifestyle among young people is a serious and often unnoticed problem. This applies to young people from all backgrounds, but often it seems that young people brought up in rural areas lead a healthier lifestyle compared to their peers in big cities. Youths in the big cities have easier access to shopping malls, supermarkets, etc., which continually advertise unhealthy food and high-calorie products. Access to public transport does not incline them to take daily walks. On the other hand, rural youths have a problem with access to sports facilities and a lower financial status, which often limits access to healthy food and an active way of spending their spare time [3, 4]. It is well known that the ability to lead a healthy lifestyle depends on various environmental factors, such as the level of nutrition education, access to sports facilities, and eating habits [5, 6, 7].

There are some data which confirm the significant impact of body mass and gender on life style [1, 8]. Little research has been conducted on comparisons of eating habits and physical activity between the urban and rural environments. The objective of this study was estimation of the lifestyle of young adults according the body mass, gender and place of residence.

MATERIAL AND METHODS

The study involved a group of 18-year-olds, a total of 300 young adults from a rural area and 300 young adults from an urban environment in Wielkopolska. The study included 50% girls and 50% boys in each group. The urban area comprised

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4 cities, including Poznan, and the rural area comprised 22 villages in Wielkopolska. The study was subjects were selected by simple random sampling (SRS), i.e. each individual was chosen at random from a large population. Eating habits and physical activity were declared in an author-designed questionnaire. The respondents were asked to answer questions concerning the following:

- how many meals they consumed in a typical day of the week;
- how many times they consumed sweets in a typical week;
- what kind of food they preferred in their everyday diet;
- have they ever tried to lose weight, and what was the effect;
- do they eat more when they are stressed

The questionnaire reliability had been assessed before by a validation procedure in a random sample of 100 students. A pilot study was conducted among 100 students at Poznan University of Economics in which the validity of results was checked. Each subject had body mass and height measured. Based on these results, the BMI was calculated using the following formula:

$$BMI = \frac{\text{weight [kg]}}{(\text{height [m]})^2}$$

Statistical calculations were performed using the Statistica 6.0 programme, using the Chi^2 test and Chi^2 test with the amendment Yeats at the significance level $p < 0.05$.

RESULTS

According to BMI value (≥25 kg/m²), 22.8% of the respondents were diagnosed as being overweight. The difference in the prevalence of overweight between girls and boys reached statistical significance. There were no significant impact of place of residence on BMI (Tab. 1).

Table 1. BMI distribution in the studied population.

	BMI (kg/m²)		p
According to place of residence (urban/rural)	21.5±3.5	20.9±2.7	p=0.100
According to place of residence for females (urban/rural)	20.6±3.7	20.6±2.2	p=0.080
According to place of residence for males (urban/rural)	22.3±3.0	22.1±2.7	p=0.670
According to gender (female/male)	20.3±2.9	22.2±2.9	p<0.001
According to gender in urban population (female/male)	20.6±3.7	22.3±3.0	p=0.002
According to gender in rural population (female/male)	19.8±2.1	22.1±2.7	p<0.001

Comparing young adults with overweight with those with normal body mass (BMI <25 kg/m²) it was found that a higher percentage of subjects with overweight would like or and had tried to lose weight. Overweight young adults ate meals more frequency than those with normal weight. Significantly more respondents with normal weight ate sweets every day and preferred fast food than overweight respondents, while a half of the young adults with high BMI preferred meat dishes. It was also found that stress was a significant factor contributing to excessive consumption in the overweight group. Physical activity was more frequent in respondents with normal weight, but more overweight respondents would like to be more physically active in the future (Tab. 2-4).

Table 2. Responses of overweight and normal weight subjects related to body weight and weight loss.

QUESTION	BODY WEIGHT		chi-square; p
	Overweight (n=137)	Normal weight (n=463)	
Desire to weigh less?	n (%)		21,879; 0.00002
Yes	84 (61)	216 (47)	
No	32 (23)	208 (45)	
Do not know	21 (16)	39 (8)	
Attempt to lose weight?			9,912; 0.00704
Yes, effective	39 (29)	102 (22)	
Yes, ineffective	32 (23)	70 (15)	
No	66 (48)	291 (63)	

Table 3. Responses of overweight and normal weight subjects related to food intake.

QUESTION	BODY WEIGHT		chi-square; p
	Overweight (n=137)	Normal weight (n=463)	
Number of meals during the day?	n (%)		24,907; 0.00000
>2	7 (5)	41 (9)	
2-3	40 (29)	230 (50)	
>3	90 (66)	192 (41)	
Frequency of sweet consumption?*			41,247; 0.00000
Once a week	25 (18)	32 (7)	
2-3 times a week	87 (64)	216 (47)	
Every day	25 (18)	215 (46)	
Preferred food?*			73,083; 0.00000
Fruit and vegetables	56 (41)	109 (24)	
Fast food	13 (9)	233 (50)	
Meat dishes	68 (50)	121 (26)	
Effects of stress on excessive consumption of food?			113,207; 0.00000
Yes	44 (32)	19 (4)	
Sometimes	70 (51)	194 (42)	
No	23 (17)	250 (54)	

*p<0.05

Table 4. Responses of overweight and normal weight subjects related to physical activity.

QUESTION	BODY WEIGHT		chi-square; p
	Overweight (n=137)	Normal weight (n=463)	
Frequency of physical activity?	n (%)		8,128; 0,01718
None	11 (8)	34 (7)	
2-3 times a week	90 (66)	246 (53)	
Every day	36 (26)	183 (40)	
Duration of physical activity?			11,970; 0.00252
None	11 (8)	31 (7)	
20 minutes a day	60 (44)	279 (60)	
>20 minutes a day	66 (48)	153 (33)	
Desire for daily physical activity?			11,770; 0.00278
Yes	94 (69)	251 (54)	
Yes, but not sure	38 (28)	205 (44)	
No	5 (3)	7 (2)	

A significant impact was found of gender on studied the parameters – that a higher percentage of women than men would like to and had tried to less weight. Compared to the

young adult males, the adult young women ate more meals during the day, most frequently consumed sweets, and ate under stress. The most preferred food in the female group were fruit and vegetables, and in the male group - fast food. Physical activity was more frequent and longer-lasting in the male group than in the female group (Tab. 5-7).

Table 5. Responses of females and males related to body weight and weight loss.

QUESTION	GENDER		chi-square; p
	Female (n=300)	Male (n=300)	
Desire to weigh less?	n (%)		114,750; 0.00000
Yes	195 (65)	105 (35)	
No	57 (19)	183 (61)	
Do not know	48 (16)	12 (4)	
Attempt to lose weight?			105,821; 0.00000
Yes, effective	102 (34)	39 (13)	
Yes, ineffective	81 (27)	21 (7)	
No	117 (39)	240 (80)	

Table 6. Responses of females and males related to food intake.

QUESTION	GENDER		chi-square; p
	Female (n=300)	Male (n=300)	
Number of meals during the day?	n (%)		19,874; 0.00005
>2	18 (6)	30 (10)	
2-3	114 (38)	156 (52)	
>3	168 (56)	114 (38)	
Frequency of sweets consumption?*			29,046; 0.00000
Once a week	40 (13)	17 (6)	
2-3 times a week	120 (40)	183 (61)	
Every day	140 (47)	100 (33)	
Preferred food?*			121,651; 0.00000
Fruit and vegetables	142 (47)	23 (8)	
Fast food	80 (27)	166 (55)	
Meat dishes	78 (26)	111 (37)	
Effects of stress on excessive consumption?			174,218; 0.00000
Yes	47 (16)	16 (6)	
Sometimes	197 (65)	67 (22)	
No	56 (19)	217 (72)	

*p<0.05

Table 7. Responses of females and males related to physical activity.

QUESTION	GENDER		chi-square; p
	Female (n=300)	Male (n=300)	
Frequency of physical activity?	n (%)		101,554; 0.00000
None	39 (13)	6 (2)	
2-3 times a week	208 (69)	128 (43)	
Everyday	53 (18)	166 (55)	
Duration of physical activity?			34,543; 0.00000
None	38 (13)	4 (1)	
20 minutes a day	172 (57)	167 (56)	
>20 minutes a day	90 (30)	129 (43)	
Desire for daily physical activity?			11,660; 0.00294
Yes	153 (51)	192 (64)	
Yes, but not sure	142 (47)	101 (34)	
No	5 (2)	7 (2)	

On analyzing the influence of place of residence on the studied parameters, it was noted that in the rural area a high percentage of young adults would not like to weigh less, while most subjects living in the city were dissatisfied with their weight. However, a comparable number of young adults from the rural and urban areas admitted that they had undertaken attempts to lose weight – effective or ineffective (Tab. 8). On taking the dietary habits into account, it was observed that subjects from the countryside ate meals less frequently than those in the urban area (Tab. 9). The consumption of sweets was high in the study population, but young adults living in the rural area rarely ate sweets, compared to the urban group. Among young adults in the rural area, the most preferred food was fast food, while subjects in the urban area more frequently chose fruit and vegetables and meat dishes as favourite food. A lower percentage of young adults from the countryside, compared to those from a city, recognized stress as a significant factor contributing to their excessive consumption.

Table 8. Responses of subjects from rural and urban area related to body weight and weight loss.

QUESTION	ENVIRONMENT		chi-square; p
	Rural	Urban	
Desire to weigh less?	n (%)		9,720; p=0.00775
Yes	132 (44)	168 (56)	
No	138 (46)	102 (34)	
Do not know	30 (10)	30 (10)	
Attempt to lose weigh?			4,766 p>0.05
Yes, effective	60 (20)	81 (27)	
Yes, ineffective	57 (19)	45 (15)	
No	183 (61)	174 (58)	

Table 9. Responses of subjects from rural and urban area related to food intake.

QUESTION	ENVIRONMENT		chi-square; p
	Rural	Urban	
Number of meals during the day?	n (%)		26,099; 0.00000
>2	24 (8)	24 (8)	
2-3	165 (55)	105 (35)	
>3	111 (37)	171 (57)	
Frequency of sweets consumption?*			27,262; 0.00000
Once a week	15 (5)	42 (14)	
2-3 times a week	180 (60)	123 (41)	
Every day	105 (35)	135 (45)	
Preferred food?*			67,280; 0.00000
Fruit and vegetables	51 (17)	114 (38)	
Fast food	171 (57)	75 (25)	
Meat dishes	78 (26)	111 (37)	
Effects of stress on excessive consumption of food?			10,623; 0.00493
Yes	30 (10)	33 (11)	
Sometimes	114 (38)	150 (50)	
No	156 (52)	117 (39)	

*p<0.05

The respondents living in the rural areas declared that they were physically active 2-3 times a week or everyday, and that their physical activity lasted 20 minutes or longer. Young adults from a city had less frequent and shorter periods of physical activity. The majority of the studied subjects from both groups declared that they would like to practice selected forms of physical activity every day (Tab. 10).

Table 10. Responses of subjects from rural and urban area related to physical activity.

QUESTION	ENVIRONMENT		chi-square; p
	Rural	Urban	
Frequency of physical activity?	n (%)		91,350; 0.00000
None	0 (0)	45 (15)	
2-3 times a week	144 (48)	192 (64)	
Every day	156 (52)	63 (21)	
Duration of physical activity?			46,528; 0.00000
None	0 (0)	42 (14)	
20 minutes a day	189 (63)	150 (50)	
>20 minutes a day	111 (37)	108 (36)	
Desire for daily physical activity?			12,952; 0.00154
Yes	171 (57)	174 (58)	
Yes, but not sure	129 (43)	114 (38)	
No	0 (0)	12 (4)	

DISCUSSION

The prevalence of overweight and obesity among children and adolescents is rising rapidly worldwide. In the presented study it was found that 22.8% of all young adults were overweight. Overweight was overrepresented among boys compared to girls. Published data concerning the prevalence of obesity among youths in Poland give precedence to boys – in a group of 1,719 schoolchildren aged between 10–17.9 years 25% of males were overweight or obese (BMI>25kg/m^2) (when compared to 12% of females); 8% of males were obese (1% of females) [9]. When compared with data from Sweden, a similar trend can be observed – in a similar age group the percentage of overweight and obese males was 19% and 7%, respectively, whereas the prevalence of overweight and obese females was reported as 9% and 4%, respectively [10].

In the WOBASZ study, it was shown that the Polish population aged 20-34 years is characterized by low quality nutrition, and poor knowledge of non-pharmacological methods of preventing civilization diseases, including obesity [11]. The studies showed that the main causes of obesity are inappropriate eating habits and lack of physical activity [8]. Ostrowska et al. [1] found that weight at the age of 18 was correlated most with current body weight. Moreover, these authors showed that obese people ate more often between meals, had a night eating problem, did not control the calorific value of meals, compared to people with normal weight.

Inappropriate eating behaviours in obese and overweight males and females was also showed by Lange and al. [12]. In the mentioned studies, obese females ate larger portions and more frequently consumed sweets, but obese males preferred fried dishes and meat. Similar results was found in the presented study.

Presumably, the consciousness of being obese should have an impact on change of lifestyle, but according to Bak-Sosnowska and Zachorska-Markiewicz [13], in obese people the imagined figure of their bodies can by slimmer than in reality, and their own body image is not altered by weight reduction. In this study, nearly half of overweight subjects did not try to loss weight.

In the presented study, significant differences were observed in eating behaviours and physical activity between the female and male subjects. Some authors have found that young women have a more healthy lifestyle than young men. Łagowska et al. [14] and Szponar and Krzyszycha [15] showed significant differences in the frequency of the consumption of red meat, vegetable oil, sweetened drinks and fried food between female and male students, and concluded that the nutritional habits in males may predict them to be overweight and obese more distinctly than females. In the presented study, it was also found that the males had higher values BMI than the females.

In the study conducted among children and adolescents from small towns and villages in Poland it was found that girls were more knowledgeable about eating habits than boys, but overweight was more frequently observed in girls [16]. However, Szczuko et al. [17] found that the composition of an increased daily diet predicted obesity and arteriosclerosis in later life only in young males. Healthier eating habits were also observed in female students than in male students in the USA, but difference was not significant [18].

The most common dietary faults among the studied young adults living in the rural areas was the small number of meals per day, a high intake of sweets and preference for fast food. Such eating behaviours may contribute to the development of obesity and diet-related diseases. The presented research showed that the young adults controlled their weight, which was evidenced by attempts to lose weight. According to Bogdanski et al [19], at the age of 18 about 40% of young people, both rural and urban areas, had undertaken an attempt to lose weight. The number of attempts to lose weight increases with age. It is important to remember that eating disorders such as anorexia or bulimia are the other extreme of nutritional problems.

The differences between urban and rural nutritional habits of young and older people have also been demonstrated in the other studies. Most of these results indicated dietary faults and a high risk of developing obesity in people living in rural areas. Some authors have observed that rural youths are at greater risk than urban youths for obesity and physical inactivity [20, 21]. Ismailov and Leatherdale [22] found that the level of urbanization had an influence on increased body mass among adolescents in Ontario, Canada. In that study, the percentage of overweight and obese subjects from the rural area was significantly higher than in the urban area. Davy et al. [23] observed that school-age children in rural Mississippi in the USA were at a high risk of obesity caused by high consumption of fat, salt and soft drinks, and a low intake of fruit and vegetables. It has also been reported that adolescents living in a rural area in Croatia consumed more fast food and soft drinks than those in an urban area [24]. The presented study confirms these data. It was observed that young adults from the rural area more often preferred fast food than fruit and vegetables. Dean et al. [25] also observed that adults from a rural area had a lower intake of fruit and vegetable than their urban counterparts. The above-mentioned authors found that the low intake of fruit and vegetables was associated with the inability to afford to eat balanced meals, cutting or skipping meals, and an increased distance to the nearest supermarket. However, Libman et al. [26] observed that overweight and obesity in the rural community was associated with physical inactivity and abnormal eating behaviour such as: drinking sweetened beverages and eating during other activities (e.g. while watching television).

Oyhenart et al. [27] found that overweight was similar in the rural and urban groups and the obesity was higher among urban schoolchildren. Other authors observed higher prevalence of overweight among the rural children in the USA but also modestly higher physical activity levels than in the urban area [28]. In this study subjects living in a countryside also were more active than young people from a city.

According to Oyhenart et al. [27], the differences in the nutritional habits among adolescents can be caused by economic and educational factors. Amarasinghe et al. [29] suggested that socioeconomic conditions and the surrounding economic environment could have an impact on people's health and quality of life. Findings of their study also provide evidence that urban sprawl is a likely contributing factor to lifestyle choices and, therefore, the health and obesity status of rural people.

The development of communication and mass media (especially the Internet) lead to the blurring of differences in lifestyle in the rural and urban areas. Therefore, differences in the analyzed components of lifestyles were not significant in most cases.

To summarize, in agreement with Breat et al. [30], young people make numerous mistakes in their diet and eating habits under the influence of educational factors and environmental pressure. These phenomena may affect health of the future generations [31].

CONCLUSIONS

Overweight is a common problem in young adults, with higher prevalence in males. Both overweight and gender influence nutritional habits and physical activity.

The lifestyle of young people in the rural and urban areas was slightly different. In the rural areas the most frequent nutritional faults were a preference for fast food, frequent consumption of sweets, and few meals during the day.

A positive aspect of the lifestyle of the young adults in the rural areas was the relatively high level of physical activity, and the small effect of stress on excessive consumption.

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