Family Medicine & Primary Care Review 2020; 22(2): 120–125 https://doi.org/10.5114/fmpcr.2020.95320

ORIGINAL PAPERS

ISSN 1734-3402, eISSN 2449-8580

Self-evaluation of behaviors related to the health of young Polish adults

JULIA MARTYN[B, D, E, G], MAŁGORZATA MARĆ[A, C, F]
ORCID ID: 0000-0003-0564-5871

Institute of Health Sciences, Medical College of Rzeszow University, Poland

A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary **Background.** Taking action that is conducive to health can shape healthy behavior.
Objectives. The aim of this study is to analyze and evaluate selected behaviors related to the health of young adults in connection with selected economic and sociodemographic variables.
Material and methods. A total of 500 people were selected for the study, including 184 university students and 316 high school students aged 18 years and over. The research method was a diagnostic survey, and a survey and indirect measurement were the techniques used. An original questionnaire created by the author and the standardized Inventory of Health Behavior was the research tool for the purposes of this work.
Results. Women were more likely to declare normal eating habits than men (m = 3.3590 vs m = 3.2241). The university students demonstrated a higher level of preventative behaviors than the high-schoolers (m = 3.3078 vs m = 3.1382). The respondents living in the countryside presented a higher level of preventative behavior than those from small towns (p = 0.01). It was found that one's place of residence had a positive impact on one's psychological attitude (p = 0.011).
Conclusions. Women declare proper eating habits to a greater degree than men. University students and rural residents are more likely to take preventative measures. University students and people with a very good financial situation more often follow good health practices. Rural residents and people declaring a good financial situation have a higher level of positive mental attitude.
Key words: health, health promotion, students.

Martyn J, Marć M. Self-evaluation of behaviors related to the health of young Polish adults. *Fam Med Prim Care Rev* 2020; 22(2): 120–125, doi: https://doi.org/10.5114/fmpcr.2020.95320.

Background

Health behaviors, attitudes towards health, and, consequently, lifestyle have an impact on the overall health of an individual and, consequently, of the entire population. Health behaviors may be beneficial or threatening (anti-health) to health by nature [1]. Positive health behaviors contribute to maintaining or enhancing human health [2]. Good health depends on the manner of nutrition, physical activity, stress-managing skills, and environmental factors [3]. Proper eating habits are important for the optimal functioning of the body, in which the type and quality of the food consumed should be taken into account. Nutrition plays an important role in the lives of young people [4]. Preventative practices are equally important, including adherence to health recommendations and the ability to search for information on health and diseases [3]. Regular physical activity and adequate sleep and rest play a considerable role in the daily functioning of young people [5]. An equally important factor of a healthy lifestyle is mental resistance. In order to live a healthy life, one should avoid stress, excessively strong emotions, tension, and depressing situations [6]. An awareness of one's own health behavior is important for proper functioning. Whether one develops health-benefiting or harmful behaviors depends on one's level of awareness [7].

Adolescents do not get enough physical activity. Studies show that 77% of boys and 86% of girls in Europe, the USA, and Canada are at risk of having inadequate physical activity. The level of physical activity is related to age and gender: older youths and girls are less active [8]. The financial situation of the family is the main factor which affects the health of the child and the family. Boys and girls from better-off families typically report a higher level of physical activity and more often follow medical recommendations [9]. One's place of residence also affects one's level of physical activity. Recent research shows that young people living in the countryside and small towns have a higher level of activity than young people from large cities [9]. Proper nutrition is of great importance to the health of adolescents. It has been found that in adolescents who regularly eat breakfast, the risk of being overweight or obese is lower than in their peers who skip breakfast [10]. The current nutritional recommendations for children and adolescents emphasize the positive impact of fruit and vegetables in one's daily diet as a rich source of vitamins and minerals. In addition, it is recommended to limit one's intake of highly-processed and sweetened foods and drinks, which contribute the most to overweight and obesity, as well as to oral diseases among young people. Dietary habits in childhood and adolescence translate into lifelong eating habits in adulthood. The study confirmed the impact of socio-economic status on the consumption of health-beneficial products. The intake of fruit and vegetables has for many years been higher among girls than boys, and the frequency of eating such foods decreases with age [11]. More and more young people smoke cigarettes, and "vaping" has become popular. E-cigarettes are often marketed as an effective alternative to tobacco smoking. Men are more likely to smoke cigarettes and e-cigarettes than women [12]. The World Health Organization recommends taking measures to limit the sale of e-cigarettes to minors, banning advertising campaigns in mass media outlets and smoking in public places, equating the danger from e-cigarettes with the threat of traditional smoking [13]. Currently,

teenagers seem to be assessing their health worse and worse. Research shows that one in six teenagers has serious concerns about his/her own health. Self-assessment of health worsens with age and is significantly worse in girls [14]. The results of the European Health Interview Surveys, performed in 2014, indicate that one-quarter of the children in Poland has long-term health problems or chronic diseases [15]. An analysis of health problems in elementary and middle school students in Lublin in the period 2010–2015 found that health problems were diagnosed in 44.3% of elementary school students and in 50.6% of middle school students. The frequency of health disorders increases with the age of the students. The predominant health problem among both elementary school and middle school students is defects and diseases of the motor organs [16].

Attention is drawn to the socio-economic determinants of schoolchildren's subjective complaints. The dominant influence of the school atmosphere and the nature of family relationships has been demonstrated, but factors such as family well-being and socioeconomic status are important [17].

Objectives

The aim of this study is to analyze and evaluate selected behaviors related to the health of young adults depending on selected economic and sociodemographic variables.

Material and methods

Study design

The research method was a diagnostic survey, and a survey and indirect measurement were the techniques used. An original questionnaire created by the author and the standardized Inventory of Health Behavior (IHB) by Z. Juczyński was the research tool for the purpose of this work [18]. Each respondent was asked to choose the corresponding number which best suited their situation, according to a Likert scale: 1 – almost never, 2 – rarely, 3 – occasionally, 4 – often, or 5 – almost always. The first stage of the study was a questionnaire study. Selected high school and university students completed the questionnaire; 615 completed questionnaires were obtained. The second stage was to check all questionnaires, wherein 115 questionnaires were rejected because they were not completely and reliably completed. The next step was the statistical analysis of the results.

The research project was closely consulted with the management of schools and organizational units of the universities.

Setting

The research was conducted from January 2017 to December 2018 at the University of Rzeszów, the University of Information Technology and Management, the State Higher School of Technology and Economics, Rev. Stanisław Konarski 1st High School in Rzeszów, Col. Leopold Lisa-Kul II High School in Rzeszów, and Tadeusz Rejtan School Complex No. 2 in Rzeszów. Participation in the research was voluntary. Each of the participants expressed their written consent to participate in the study, after becoming acquainted with the research project.

Participants

The respondents were educated or pursued studies in the fields of science and the humanities. The high school students were 18–19 years old and the university students were 20–32 years old. Women constituted a larger proportion of the respondents than men (58%, $n = 291$ vs 42%, $n = 209$). The percentage of people living in the countryside was 51%, and in cities 49%.

Variables

The IHB contains 24 statements regarding health-related behaviors in four areas: appropriate eating habits, preventative behaviors, health practices, and a positive mental attitude. These were the dependent variables in the study. The research tool was accompanied by a personal profile describing the sociodemographic status of the respondents. The assessment took into account such data as gender (men or women), age (18–32 years), education (university student or high school student), place of residence (countryside, large cities, or small towns), financial situation (insufficient, sufficient, good, or very good). These were the independent variables of the study.

Study size

The sample size of the test group was determined with the Calculator for the Size of the Test Sample. The 500 people in the study were randomly selected, including 184 university students and 316 adult high school students of the city of Rzeszów. The exclusion criteria were individuals who were under 18 years of age or who did not agree to take part in the study.

Statistical methods

The statistical analysis consisted of a one-way analysis of variance with post-hoc NIR tests. The critical value for statistical significance was set at $p < 0.05$. The statistical analysis was performed with IBM SPSS 22 software.

Ethical considerations

All procedures performed in this study on human participants were in accordance with the ethical standards of the institution and the national research committee, as well as with the 1964 Helsinki declaration and its later amendments and comparable ethical standards. The study was approved by the Ethics Committee of the University of Rzeszów (no. 27/04/2016).

Results

The sex of the respondents differentiated their health behavior in the category of "proper eating habits" in a statistically significant way ($p = 0.047$). The women declared proper eating habits at a greater frequency than the men (3.3590 vs 3.2241). The university students displayed a higher level of preventative behaviors than the high school students (3.3078 vs 3.1382) (Table 1).

There was also a statistically significant difference in the mean values between preventative behaviors depending on the place of residence ($p = 0.028$). The respondents living in the countryside reported a higher level of preventative behaviors compared to those from small towns (0.20803; $p = 0.01$) (Table 2).

A statistically significant difference in mean values signifying the implementation of good health practices ($p = 0.008$) was found between university and high school students. The high school students reported a higher overall mean value representing health practices (3.3034) than university students (3.1031) (Table 1). Also, a statistically significant relationship was found between health practices and declared financial situation ($p = 0.041$). The respondents who described their financial situation as very good assessed their application of health practices higher than those with insufficient financial means (0.50574; $p = 0.038$) and those with sufficient financial means (0.24997; $p = 0.019$) (Table 2).

The place of residence correlated with a positive mental attitude ($p = 0.011$). The rural inhabitants were characterized by a positive psychological attitude ($p = 0.015$) to a slightly higher degree than those living in small towns. The residents of large cities achieved a better result than the respondents from

small towns (p = 0.005) (Table 1). The respondents' financial situation also differentiates their positive psychological attitude (p = 0.024). Compared to the other groups, the respondents with a very good financial situation reported a more positive mental attitude; this category of behaviors was rated higher by them than by those with insufficient financial means (0.52586; p = 0.017), and those with sufficient financial means (0.20424; p = 0.033) (Table 2).

Table 1. Categories of health behaviors and sociodemographic factors

	n	Health practices		Positive mental attitude		Preventative behaviors		Proper eating habits	
		M	SD	M	SD	M	SD	M	SD
Gender									
Women	209	3.2244	0.91617	3.3506	067952	3.1970	0.74708	**3.2241**	0.73812
Men	291	3.2335	0.73037	3.2311	0.76636	3.2032	0.76115	**3.3590**	0.75087
Total sample	500	3.2297	0.81235	3.2810	0.73299	3.2006	0.75456	**3.3026**	0.74780
df	1								
S		0.015	3.248			0.008		**3.981**	
p		0.901	0.072			0.928		**0.047**	
Level of education									
University students	184	**3.1031**	0.67870	3.2680	0.74144	3.3078	0.73546	3.3749	062102
High school students	316	**3.3034**	0.87347	3.2886	0.72910	3.1382	0.75965	3.2605	0.81053
Total sample	500	**3.2297**	0.81235	3.2810	0.73299	3.2006	0.75456	3.3026	0.74780
df	1								
S		**7.161**		0.91		**5.937**		2.733	
p		**0.008**		0.763		**0.015**		0.099	
Place of residence									
Countryside	255	3.2524	0.71403	**3.3163**	0.69632	**3.2611**	0.72314	3.2804	0.71045
Large cities	110	3.3377	1.12080	**3.3892**	0.69797	**3.2413**	0.79860	3.3876	0.78627
Small towns	135	3.0988	0.66436	**3.1263**	0.80580	**3.0531**	0.76156	3.2753	0.78431
Total sample	500	3.2297	0.81235	**3.2810**	0.73299	**3.2006**	0.75456	3.3026	0.74780
df	2								
S		2.846		**4.564**		**3.596**		0.913	
p		0.059		**0.011**		**0.028**		0.402	
Financial situation									
Insufficient	12	**2.8475**	0.9249	**2.8333**	0.83207	2.8892	0.72943	3.0008	1.15137
Sufficient	101	**3.1033**	0.66676	**3.1550**	0.77808	3.1272	0.71745	3.1705	0.73553
Good	251	**3.2320**	0.65764	**3.3108**	0.69075	3.2048	0.74059	3.3701	0.67845
Very good	136	**3.3532**	1.09014	**3.3592**	0.74831	3.2749	0.80371	3.3028	0.82231
Total sample	500	**3.2297**	0.81235	**3.2810**	0.73299	3.2006	0.75456	3.3026	0.74780
df	**3**								
S		2.779		3.183		1.445		2.404	
p		0.041		0.024		0.229		0.067	

n – number of respondents; % – percentage of the respondent's group; *p* – statistical significance coefficient; SD – standard deviation; M – average; *df* – degrees of freedom; *S* – strength of statistical significance.

Table 2. Categories of health behaviors and sociodemographic factors

NIR		Positive mental attitude		Preventative behaviors	
		mi-mj (medium difference)	*p*	mi-mj (medium difference)	*p*
Place of residence					
Countryside	large cities	-0.07291	0.380	0.01986	0.817
	small towns	**0.18998***	**0.015**	**0.20803***	**0.010**
Large cities	countryside	0.07291	0.380	-0.01986	0.817
	small towns	**0.26289***	**0.005**	0.18816	0.052
Small towns	countryside	**-0.18998***	**0.015**	**-0.20803***	**0.010**
	large cities	**-0.26289***	**0.005**	-018816	0.052
NIR		**Positive mental attitude**		**Health practices**	
		mi-mj (medium difference)	***p***	**mi-mj (medium difference)**	***p***
Financial situation					
Insufficient	sufficient	-0.32162	0.149	-0.25577	0.300
	good	**-0.47746**	**0.027**	-0.38445	0.108
	very good	**-0.52586**	**0.017**	**-0.50574**	**0.038**

Table 2. Categories of health behaviors and sociodemographic factors					
NIR		Positive mental attitude		Health practices	
		mi-mj (medium difference)	*p*	mi-mj (medium difference)	*p*
Sufficient	insufficient	0.32162	0.149	0.25577	0.300
	good	-0.15585	0.070	-0.12868	0.177
	very good	**-0.20424**	**0.033**	**-0.24997**	**0.019**
Good	insufficient	**0.47746**	**0.027**	0.38445	0.108
	sufficient	0.15585	0.070	0.12868	0.177
	very good	-0.04839	0.533	-0.12128	0.159
Very good	insufficient	**0.52586**	**0.017**	**0.50574**	**0.038**
	sufficient	**0.20424**	**0.033**	**0.24997**	**0.019**
	good	0.04839	0.533	0.12128	0.159

p – statistical significance coefficient; mi-mj – medium difference; NIR – NIR post hoc test; * – statistically significant difference of averages.

Discussion

Other research by the author concluded that women are more likely to have proper eating habits than men. Women are more open than men to changes when it comes to nutritional health behaviors [19]. In the author's previous study, it was mainly women who consumed fruit and vegetables and who limited the consumption of animal fats and sugar. Women pay attention to the products they consume more often than men. They avoid stodgy foods, instead choosing a light, low-fat diet enriched with fruit and vegetables, and they remember to eat regularly, in small and frequent portions [19]. It may be assumed that this is related to the current fashion for healthy eating among women, in order to achieve a slim figure, which, according to women, equates to a healthy lifestyle. This indicates that contemporary cultural patterns of femininity have consequences for individual's nutrition [20]. Most men do not follow global trends, so their diet depends on their own preferences. Other studies show that men more often than women consume fatty meat, preserved foods, and smaller amounts of fruit and vegetables than women [21]. Rasińska reported that instead of aiming for a perfect body shape, men prefer to strive for a good mood and to have a good time. Her research also shows that appropriate eating habits are less frequent in men than in women [22]. Other studies have shown that men more often than women make dietary mistakes. The main cause of poor nutrition among men is a lack of time and inadequate knowledge about a proper diet [23].

Preventative behavior is an important aspect in the healthy functioning of the population [24]. In the author's own study there was no statistically significant difference between gender, financial situation, and the level of prophylaxis among the respondents. However, the place of residence played an important role with regard to preventative behavior. Rural residents were characterized by a higher level of preventative behaviors than the residents of small or large urban centers. This is probably related to the slower pace of life in rural areas [25]. Residents of cities live under stressful conditions with a fast pace of life, and they have no time for disease prevention [26]. In my own study, the results indicate that the age of the respondents also differentiated the level of preventative behaviors. A higher rate of preventative behaviors were reported among university students than high school students. Knowledge about disease prevention increases with age and along with accumulated life experience and a growing body of knowledge [27].

In the present study, it can be seen that the age of the respondents has an impact on their health practices. It is noteworthy that, conversely, in the case of preventative behaviors, high school students exhibited a higher level of health practices than university students. According to the IHB questionnaire, high school youths got sufficient rest and sleep and avoided overworking and smoking more often than university students. This points to the practice of overworking among academic students, which is probably associated with intense intellectual and physical exertion [28]. High school students are more physically active than their peers at university because they attend physical education classes several times a week [29]. The literature on the subject shows that adolescents' place of residence affects their physical activity. Young people living in the city are more likely to get physical activity than people living in the countryside [30]. Delisle et al. noticed a positive correlation between moderate physical activity and positive health practices. People who play sports more often pay attention to proper nutrition, avoidance of stimulants, regular rest, and active forms of spending free time [31]. In another study by the author, the financial situation of high school and university students also correlates with health practices. The better the respondents' financial situation, the more frequently they follow health practices. The respondents did not have to strive to improve their financial situation, so they were able to spend more time resting, reducing the pace of work, and not refraining from addictions [32].

The author's own research demonstrates that the place of residence and the financial situation of the respondents had the greatest impact on their positive mental attitude. People with a very good financial situation faced the world with a positive attitude, avoided situations that depressed them, and tried to avoid excessively strong emotions, stress, and tension. Kim et al. demonstrated that people with a good financial situation also had a higher index of life satisfaction. The population with higher life satisfaction was more active in caring for their health and more often used the prophylactic services of healthcare institutions [33]. According to the current study, the inhabitants of the countryside had a higher rate of positive mental attitude than those from urban centers. Lankila et al. presented a study which suggested that rural residents are have a positive attitude to life and that one of the reasons for moving from the countryside to urban areas is the increased availability of specialized medical services for treating emerging somatic diseases and mental disorders [34]. Walkiewicz et al. showed that women pay more attention to details, which causes them to have more negative emotions. Women present a higher level of emotional intelligence than men. This can cause women to have negative emotions more often [35]. However, in own research, no relationship was found between gender and health behaviors associated with mental health.

Limitations of the study

The IHB scale is a scale of subjective answers, not an objective measurement. The scale does, however, provide an opportunity to test a large group of people with the assumption of measurement error [18]. The IHB scale does not take into account the current state of health of the respondents. This is one factor that limits the study. The current state of health can have an impact on changing health habits [36]. Although the respondents marked their health condition in questionnaires, it is only a subjective answer. The IHB scale also does not take into account individual living standards, which may influence their pro-health activities; the respondents only subjectively assessed

their financial situation in the questionnaire. The scale does not distinguish whether a given health attitude is an opinion, a pattern that one strives for, or a genuine attitude [18]. A serious limitation of the study is the authenticity of the respondents' statements. In questionnaire studies, the truthfulness of the respondents is very important [37].

Conclusions

1. Women declare proper eating habits to a greater degree than men.
2. University students and respondents living in the countryside are more likely to take preventative measures (preventative behavior).
3. High school students and people in a very good financial situation follow health practices more often.
4. Rural residents and people declaring a good financial situation have a higher level of a positive mental attitude.

Source of funding: this work was funded by the authors' own resources.
Conflicts of interest: the authors declare no conflicts of interest.

References

1. Choi SH, Duffy SA. Analysis of health behavior theories for clustering of health behaviors. *J Addict Nurs* 2017; 28(4): 203–209.
2. Schwarzer R. Modeling health behavior change: how to predict and modify the adoption and maintenance of health behaviors. *Appl Physiol* 2008; 57(1): 1–29.
3. Jezewska-Zychowicz M, Gębski J, Guzek D, et al. The associations between dietary patterns and sedentary behaviors in polish adults (LifeStyle Study). *Nutrients* 2018; 10(8): 2–16.
4. Ohlhorst SD, Russell R, Bier D, et al. Nutrition research to affect food and a healthy life span. *Am J Clin Nutr* 2013; 98(2): 620–625.
5. Maher JP, Pincus AL, Ram N, et al. Daily physical activity and life satisfaction across adulthood. *Dev Psychol* 2015; 51(10): 1407–1419.
6. Janssen E, Osch L van, Vries H de, et al. Examining direct and indirect pathways to health behaviour: the influence of cognitive and affective probability beliefs. *Health Psychol* 2013; 28(5): 546–560.
7. Sheeran P, Gollwitzer PM, Bargh JA. Nonconscious processes and health. *Health Psychol* 2013; 32(5): 460–473.
8. Kalman M, Inchley J, Sigmundova D, et al. Secular trends in moderate-to-vigorous physical activity in 32 countries from 2002 to 2010: a cross-national perspective. *Eur J Public Health* 2015; 25: 37–40.
9. Janssen I, Leblanc AG. Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *Int J Behav Nutr Phys Act* 2010; 11: 40, doi: 10.1186/1479-5868-7-40.
10. Levin K, Kirby J. Irregular breakfast consumption in adolescence and the family environment: underlying causes by family structure. *Appetite* 2012; 59: 63–70.
11. Fismen AS, Smith OR, Torsheim T, et al. A school based study of time trends in food habits and their relation to socio-economic status among Norwegian adolescents, 2001–2009. *Int J Behav Nutr Phys Act* 2014; 25: 115, doi: 10.1186/s12966-014-0115-y.
12. Shpakou A, Kovalevskiy V, Klimatskaia L, et al. Traditional smoking and e-smoking among medical students and students-athletes – popularity and motivation. *Fam Med Prim Care Rev* 2018; 20(1): 61–66.
13. World Health Organization (WHO). WHO Framework Convention on Tobacco Control, Electronic nicotine delivery systems. Report by WHO (FCTC/COP/6/10). Available from URL: http://apps.who.int/gb/fctc/PDF/cop6/FCTC_COP6_10-en.pdf.
14. Cavallo F, Dalmasso P, Ottová-Jordan V, et al. Trends in self-rated health in European and North-American adolescents from 2002 to 2010 in 32countries. *Eur J Public Health* 2015; 25: 13–15.
15. Piekarzewska M, Zajenkowska-Kozłowska A. Zdrowie i zachowanie zdrowotne mieszkańców Polski w świetle Europejskiego Ankietowego Badania Zdrowia (EHIS) 2014 r. Wydział Statystyki Zdrowia Departament Badań Społecznych i Warunków Życia GUS [cited 24.02.2017]. Available from URL: http://stat.gov.pl/obszary-tematyczne/zdrowie/ (in Polish).
16. Kocka K, Ślusarska B, Bartoszek A, et al. Comparative analysis of health problems in students from elementary school and middle school in Lublin, 2010–2015. *Fam Med Prim Care Rev* 2018; 20(1): 7–12.
17. Vervoort T, Logan D, Goubert L, et al. Severity of pediatric pain in relation to school-related functioning and teacher support: an epidemiological study among school-aged children and adolescents. *Pain* 2014; 155: 1118–1127.
18. Juczyński Z. *Narzędzia pomiaru w promocji zdrowia i psychologii zdrowia. Warszawa*: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego; 2001 (in Polish).
19. Imamura F, Micha R, Khatibzadeh S, et al. Dietary quality among men and women in 187 countries in 1990 and 2010: a systematic assessment. *Lancet Glob Health* 2015; 3(3): 132–142.
20. Bissonnette-Maheux V, Provencher V, Lapointe A, et al. Exploring women's beliefs and perceptions about healthy eating blogs: a qualitative study. *J Med Internet Res* 2015; 17(4): 87, doi: 10.2196/jmir.3504.
21. Musaiger AO, Al-Mufty BA, Al-Hazzaa HM. Eating habits, inactivity, and sedentary behavior among adolescents in Iraq: sex differences in the hidden risks of noncommunicable diseases. *Food Nutr Bull* 2014; 35(1): 12–19.
22. Rasińska, R. Nawyki żywieniowe studentów w zależności od płci. *Now Lek* 2012; 81(4): 354–359.
23. Dudzińska M, Neć M, Zwolak A, et al. The role of the primary care outpatient clinic in the promotion of healthy nutrition – preliminary reports. *Fam Med Prim Care Rev* 2016; 18(3): 230–234.
24. Marchal S, Van't Hof AW, Hollander M. The new European guideline on cardiovascular disease prevention; how to make progress in general practice? *Eur J Gen Pract* 2018; 24(1): 57–59.
25. Stockdale A, Theunissen N, Haartsen T. Staying in a state of flux: a life course perspective on the diverse staying processes of rural young adults. *Popul Space Place* 2018; 24(8): e2139.
26. Kanchi R, Perlman SE, Chernov CW, et al. Gender and race disparities in cardiovascular disease risk factors among New York city adults: New York City Health and Nutrition Examination Survey (NYC HANES) 2013–2014. *J Urban Health* 2018; 95(6): 801–812.
27. Wang M, Han X, Fang H, et al. Impact of health education on knowledge and behaviors toward infectious diseases among students in Gansu Province, China. *Biomed Res Int* 2018; 2018: 6397340, doi: 10.1155/2018/6397340.
28. Laveena D, Meena M, Pinto N. A study on the self esteem and academic performance among the students. *Int J Health Sci* 2018; 2(1): 1–7.
29. Jansen P, Ellinger J, Lehmann J. Increased physical education at school improves the visual-spatial cognition during adolescence. *Educ Psychol* 2018; 38(7): 964–976.
30. Starczewska M, Tamulewicz A, Stanisławska M, et al. The analysis of selected factors contributing to the health behaviors of teenagers. *Fam Med Prim Care Rev* 2015; 17(1): 39–42.
31. Delisle TT, Werch CE, Wong AH, et al. Relationship between frequency and intensity of physical activity and health behaviors of adolescents. *J Sch Health* 2010; 80(3): 134–140.

32. Lopuszanska-Dawid M. Life satisfaction as a health determinant among Polish adult population. *Anthropol Anz* 2018; 75(3): 175–184.
33. Kim ES, Kubzansky LD, Smith J. Life satisfaction and use of preventive health care services. *Health Psychol* 2015; 34(7): 779–782.
34. Lankila T, Näyhä S, Rautio A, et al. Health and well-being of movers in rural and urban areas a grid-based analysis of northern Finland birth cohort 1966. *Soc Sci Med* 2013; 76(1): 169–178.
35. Walkiewicz M, Sowińska K, Tartas M. Medical studies, team roles and emotional intelligence. *Fam Med Prim Care Rev* 2018; 20(1): 71–77.
36. Miller B, Baptist J, Johannes E. Health needs and challenges of rural adolescents. *Rural Remote Health* 2018; 18: 4325.
37. Bänziger T, Mortillaro M, Scherer K. Introducing the Geneva Multimodal Expression Corpus for Experimental Research on Emotion Perception. *Emotion* 2012; 12: 1161–1179.

Tables: 2
Figures: 0
References: 37

Received: 7.04.2019
Reviewed: 17.04.2019
Accepted: 27.11.2019

Address for correspondence:
Julia Martyn, MSc
Instytut Nauk o Zdrowiu
Kolegium Nauk Medycznych
Uniwersytet Rzeszowski
ul. Warzywna 1A
35-310 Rzeszów
Polska
Tel.: +48 17 851-89-65
E-mail: martyn1420@gmail.com