Original Articles

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The comparison of selected lifestyle variables of first-year students at two universities in Košice

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A – Study Design
B – Data Collection
C – Statistical Analysis
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Abstract

The objective of the presented paper was to compare the selected variables of lifestyle in first-year students at two universities in Košice. The research sample group consisted of the first-year students of the P. J. Šafárik University in Košice (UPJŠ, n=918, 651 women and 267 men) and the Technical University in Košice (TUKE, n=653, 239 women and 414 men). We compiled our own test battery named "The risk factors of obesity and its prevention through physical activity" and administered it to students at the beginning of the respective academic years (September 2012 and September 2013). Presented paper focuses on questions related to: the students' satisfaction with their lifestyle, students expressing a need to change their lifestyle, frequency of structured physical activity, motivation to engage in structured physical activity, sedentary behaviour, and a structure of leisure activities. To process the collected data, we used the statistical software R. To test the significance of differences between the universities we used the Wilcoxon rank-sum test. No significant difference between the universities was found on variables indicating the satisfaction with lifestyle. The most repeated lifestyle components that students of both universities would like to change were physical activity and dietary habits. These data reflect the findings that in the last half year over 61.5 % of UPJŠ students and 48.9 % of TUKE students were engaged in structured physical activity either irregularly or they were not engaged in any structured physical activity at all. Another analysis of significant difference ($p<0.001$) between the two universities was employed to indicate the frequency with which students engaged in structured physical activity. The analysis revealed a higher frequency in students of TUKE. The analysis also confirmed that the gender of a respondent had a greater influence on that difference than the university they attended. The students of both universities indicated that figure (appearance), enjoyment, health and physical fitness were the main motivators for structured physical activity. The difference between the universities, with regard to variables indicating the time which students spent engaged in sedentary behaviours was significant ($p<0.001$) during both working days and weekend days, where gender had no influence on this difference. Sedentary behaviours prevailed among the most common leisure activities in students of both universities. At the beginning of their university studies, lifestyle of a large number of first-year students at the two universities is characterized by the low level of engagement in structured physical activity and by sedentary leisure activities, with the existing differences between genders and the universities.

Keywords: *lifestyle, university students, structured physical activity, motivation, sedentary behaviour, leisure activities*

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INTRODUCTION

In general, world academic literature perceives lifestyle as a way of expression in thinking and behaviour characterised by typical features that clearly distinguish it from other styles. Lifestyle also reflects the values of an individual or a social group [1]. It is a way of people's life, the way they live, eat, educate themselves, behave in an array of situations, enjoy themselves, work, consume, communicate with each other, act, make decisions, travel, profess and adhere to particular values, take care of their children, etc. [2]. Therefore, when we refer to lifestyle, we refer to a complex of interacting phenomena that manifest themselves in the wholeness of being. Specific features of lifestyle can be also observed in the population of university students. From the developmental point of view, the period of university study is an initial stage of early adulthood (age 18-35) and there are plenty of life changes associated with that stage, including leaving home to study or work, pregnancy, and sharing flats with other people [3]. These changes might also result in lifestyle changes such as decreased physical activity level, increased levels of sedentary behaviour, alcohol intake and smoking, worse dietary habits, etc. [4,5]. The objective of this paper is to compare some of these lifestyle variables of first-year students with various study specializations at the two universities at the beginning of their university studies.

METHODS

Participants

The research sample groups comprised of first-year students of the P. J. Šafárik University in Košice (UPJŠ, n=918, 651 women and 267 men) and the Technical University in Košice (TUKE, n=653, 239 women and 414 men). All the participating students were informed about the aim and conditions of the research. We used a convenience sampling of students attending classes of sport activities. Such classes were compulsory for students of the Technical University and the Faculty of Medicine of the P. J. Šafárik University (n=284, 18.1%). The basic characteristic of the research sample groups is presented in the Table 1. Differences in numbers of participants in Tables 1 to 6 were due to the fact that students of the research sample groups did not respond to all the questions that were included in the applied test battery.

Measures and procedures

Research data collection was carried out on the premises of the Institute of Physical Education and Sport of the P. J. Šafárik University in Košice and at the Department of Physical Education of the Technical University in Košice. We compiled our own test battery named "The risk factors of obesity and its prevention through physical activity" and administered it to students at the beginning of the respective academic years (September 2012 and September 2013).

Table 1 Basic characteristic of study sample groups

		n (%)	age	BH	BW	BMI
UPJŠ	women	651 (71%)	19.7±1.3	166.5±6.3	60.0±11.0	21.6±3.6
	men	267 (29%)	19.8±1.4	179.4±6.7	75.9±14.2	23.5±4.0
	∑	918	19.7±1.3	170.3±8.7	64.7±14.0	22.2±3.8
TUKE	women	239 (37%)	19.8±1.1	166.5±6.1	60.6±10.6	21.9±3.7
	men	414 (63%)	19.6±1.0	178.8±6.5	75.2±11.8	23.5±3.4
	∑	653	19.7±1.0	174.3±8.7	69.9±13.3	22.9±3.6

Note: BH – body height, BW – body weight, BMI – Body mass index

Presented paper focuses on questions related to: the students' satisfaction with their lifestyle (rate on a 1 – 7 scale, where 1 = completely unsatisfied, 7 = completely satisfied), students expressing a need to change their lifestyle (possibility to choose from several lifestyle components), frequency of structured physical activity, motivation to engage in structured physical activity (possibility to choose from any number of given responses), sedentary behaviour (time spent engaging in sedentary behaviour) and a structure of leisure activities (possibility to choose from any number of given responses).

Statistical analysis

To process the collected data, we used the statistical software R [6]. To test the significance of differences between the universities we used the Wilcoxon rank-sum test.

RESULTS

No significant difference between the universities was found on variables indicating the satisfaction with lifestyle. The mean value of satisfaction rated on the scale from 1 (completely unsatisfied) to 7 (completely satisfied) was 4.5±1.3 for students of UPJŠ and 4.6±1.3 for students of TUKE. Physical activity and dietary habits were the two lifestyle components that students of both universities wished to change the most (Tab. 2). These data reflect the findings that in the last half year over 61.5 % of UPJŠ students and 48.9 % of TUKE students were engaged in structured physical activity either irregularly or they were not engaged in any structured physical activity at all. 10 % of UPJŠ students and 11.4% of TUKE students were engaged in structured physical activity only once a week (Tab. 3).

Another analysis of significant difference ($p<0.001$) between the two universities was employed to indicate the frequency with which students engaged in structured physical activity. The analysis revealed a higher frequency in students of TUKE. The analysis also confirmed that the gender of a respondent had a greater influence on that difference than the university they attended (Tab. 3). Students of both universities reported figure (appearance), enjoyment, health

Table 2 Expressing a need to change components of lifestyle

	1	2	3	4	5	6	7	8	9
	%								
UPJŠ (n=918)	57.4	52.0	35.6	35.6	13.1	9.2	7.1	5.0	3.4
TUKE (n=653)	48.1	47.2	23.9	32	14.2	7.5	6.3	5.4	2.9

Note: 1 – physical activity, 2 – dietary habits, 3 – liquid intake, 4 – sleep, 5 – smoking, 6 – physical environment, 7 – social environment, 8 – alcohol, 9 – sex life

Table 3 Frequency of engagement in structured physical activity in the last 6 months

frequency		∑		women		men	
		n	%	n	%	n	%
UPJŠ (n=916)	never	71	7.8	59	9.1	12	4.5
	irregularly	492	53.7	390	60.0	102	38.3
	once a week	92	10.0	60	9.2	32	12.0
	twice a week	105	11.5	71	10.9	34	12.8
	three times a week	156	17.0	70	10.8	86	32.3
TUKE (n=651)	never	50	7.7	26	10.9	24	5.8
	irregularly	268	41.2	135	56.7	133	32.2
	once a week	74	11.4	30	12.6	44	10.7
	twice a week	94	14.4	18	7.6	76	18.4
	three times a week	165	25.3	29	12.2	136	32.9

Table 4 Motivators for structured physical activity of university students

	figure	enjoyment	health	physical fitness	relax	stress	movement	weight loss
	%							
UPJŠ (n=918)	61.2	53.1	52.8	51.9	38.2	36.0	33.2	31.4
TUKE (n=653)	53.9	55.1	47.2	48.4	25.9	25.1	28.5	22.7

Table 5 Average time of students engaged in sedentary behaviour in the last 7 days

	working day		weekend day	
	n	hours	n	hours
UPJŠ	862	11.8±13.6	855	7.7±7.1
TUKE	614	7.7±5.1	609	5.9±3.1

Table 6 Structure of students' leisure activities

	friends	PC	music	reading	TV	housework	sport training
	%						
UPJŠ (n=918)	44.9	44.1	32.8	25.7	18.3	16.3	15.5
TUKE (n=653)	41.0	50.7	28.5	12.7	17.9	18.4	24.7

and physical fitness as the main motivators associated with their engagement in structured physical activity (Tab. 4). Table 5 presents the average time that the students spent engaged in sedentary behaviour. The findings show that the difference between the two universities was significant with regard to this variable, during both the working and weekend days ($p<0.001$). Gender of students had no influence on the findings. Students of UPJŠ (both women and men) spent more time engaged in sedentary behaviour than the students of TUKE. As students were not asked to specify their sedentary behaviours, we can only assume that the more time spent engaged in sedentary behaviour by the students of UPJŠ had to do with their study specialization. Sedentary behaviour prevailed in the majority of the leisure activities of students at both universities (meeting friends, PC, listening to music, reading, watching TV) (Tab. 6). Combined with the study, sedentary behaviour made up a significant share in the total time available to students.

DISCUSSION

The findings showing the higher frequency of structured physical activity in men from the observed study groups are in line with the findings presented in some studies [7], but they are contrary to the findings of those studies which did not find any differences between the genders with regard to levels of physical activity [8]. To offer the comparison, first-year male students of the Czech Technical University in Prague [9] engaged in structured physical activity less than students of UPJŠ and TUKE (43.8%, or 57.1% and 62%).

A large number of first-year students of both universities, however, do not engage in sufficient structured physical activity at the beginning of their studies (61.5% students of UPJŠ and 48.9% students of TUKE). This finding is in line with the general knowledge about the gradual decline in physical activity between the ages of 13 and 18 [10, 11, 12, 13] which is, apart from the strong biological predisposition, influenced by other non biological variables – psychological, social and the environ

ment (physical) [10]. Yet it is crucial to maintain the engagement in physical activities during the transition phase from adolescence to early adulthood. Among other things it can reduce the risk of cardiovascular diseases and improve the mental health of young people [14]. Intervention directed at the preventive involvement of adolescents in structured physical activities [15] proves to be a suitable tool that can influence a level of physical activity. On the institutional level of the socio-ecological model of behavioural changes [16, 17], universities and institutions of physical education (institutes, departments, clubs, sport centres) can help to influence level of physical activity. It can do so by creating conditions for regular structured physical activity of university students by means of various types of physical activities. If the approach is right, the university staff of physical education can influence a level of physical activity of a large number of young people (in the academic year of 2014/15, Slovak institutions of higher education were attended by 175 430 students, out of which 59.6% were women). Research suggests that the increasing level of physical activity of senior students might also increase the likelihood of those students engaging in the physical activity after completion of their university studies [8].

Students of both universities expressed a need to change the level of their physical activity. When taking this into consideration, we need to be aware of the fact that the expressed intention to engage in physical activity itself does not have to lead to a change of behaviour of young people [18]. According to the Transtheoretical Model of Behaviour Change, the motivation of an individual and her or his readiness to change are usually not at the same level [19]. The findings of various studies on students' distribution into 5 stages of behaviour change in relation to physical activity were as follows: 10% - 15% of students are in the precontemplation stage, that means they do not even contemplate starting a physical activity or changing their behaviour; 25% - 30% of students are in the contemplation stage, when students are intending on engaging in physical activity but they do not engage in it yet; 15% - 20% of students are in the preparation stage, when students are ready to start physical activity; 15% - 20% of students are in the action stage, that means students regularly engaged in physical activity; and 20% - 30% of students are in the maintenance stage, being engaged in regular physical activity for a minimum of 6 months [8]. This distribution is consistent with our findings indicating insufficient engagement of students in structured physical activity. To put it in practice, we need to take into consideration another very important finding. Frequently used action-oriented approaches to promote physical activity, such as movement programmes, are relatively ineffective for people in pre-action stages [20].

Students participating in our study indicated figure (appearance), enjoyment, health and physical fitness as the main motivators for their engagement in structured physical activity. When developing programmes and interventions improving physical activity of university students, it is necessary to focus on the particular motivators, as there are some differences when a motivation to engage in various types of structured physical activity is concerned. Sport participation is more closely linked to intrinsic motivators, whereas exercise participation is rather associated with extrinsic motivators. Intrinsic motivators seem to be more appropriate for the motivation strategies promoting active lifestyle as they do not lead to undesirable effects that might be associated with extrinsic motivators, such as social pressure and fear for health [21]. For young people it is more important to feel good and enjoy the physical activity than to achieve victory and engage in physical activity just to please others. At the same time, this age group might perceive the traditional promotion of healthy lifestyle as vague and the fear for the future state of their health might not be enough to motivate them to change their current behaviour [18]. Given that, it would seem fitting to prefer physical activities associated with enjoyment (having fun) without placing an excessive emphasis on health aspects of physical inactivity. Weigh loss is a frequent motive associated with exercise activity in women. It is therefore necessary to eliminate the negative consequences of such motivation (social pressure, fear, feelings of guilt). One of the motivators that students presented most often was enjoyment

of physical activity. The way how to increase the level of enjoyment and how such enjoyment might help students to maintain the regularity of their engagement in physical activity can offer possible objective for further research [8].

Sedentary behaviour of university students, which was significantly higher in students of UPJŠ, needs to be addressed, too. It is necessary to concentrate on PC usage in men and TV watching in women since they both are thought to have relate negatively to exercise and physical activity in general. Interventions should be designed so that they are perceived as more accessible and rewarding than working on PC or watching TV [11] and they could then reduce the overall level of sedentary behaviour [7]. On the other hand, the intervention using telephones (smartphones) could be one of the possible strategies [22, 23] given the fact that the Internet is the main source of information about health and healthy lifestyle for university students [24] and it allows the necessary individualization of interventions. However, the influence of the Internet-based intervention on body weight adjustment has not been confirmed yet [25].

One of the limiting factors of our study is that it was carried out on the research sample groups of first-year students at the beginning of their university studies and hence they might not have been familiar enough with an offer of physical activities at their respective universities [26]. In addition, their current level of physical activity reflected their existing lifestyle. In further research it would seem appropriate to focus on the observation of changes in levels of physical activity of students in the course of their studies, as well as on the determinants of these changes. Study of the positive changes can help us to propose successful programmes and interventions. Although the existing interventions promoting physical activity for university students brought some short-term effects, the long-term effects aimed at adherence to previously initiated behaviour associated with physical activity were rather disappointing [8].

CONCLUSION

At the beginning of their university studies, lifestyle of a large number of first-year students at the two universities is characterized by the low level of engagement in structured physical activity and sedentary leisure activities, with the existing differences between genders and the universities. When designing and implementing interventions promoting lifestyle changes through increasing physical activity level of university students, it is necessary to take into consideration multifactorial conditionality of either physical activity or inactivity, as well as a need to employ a multi-level approach (intrapersonal, interpersonal, and institutional level and public policy level).

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