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Original Article

Lifestyle and health status of adolescents from the secondary school medicine in Banska Bystrica

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Abstract

A listed pilot survey presents results from a health and a healthy lifestyle field. Its aim was to establish a level of selected lifestyle and health determinants of adolescent students from Secondary School of Medicine in Banská Bystrica. A research group consisted of female students, ranging from the first to the fourth grade of a stated school. A total number was 421 female students and their average age was 16.74 years.

We used the second field of a standardized questionnaire CINDI "health services and health status", which was created by World Health Organization (WHO). The research affirmed a presence of a musculoskeletal system weakening, especially back pain, during the last year. Statistically significant differences among groups were not detected. A low effect of effect size was detected, which means that result was not influenced by statistics possibilities ($p>0.05$; Chí = 2.171; w = 0.144).

A presence of problems was much more diverse, during the last month, within which we could observe some connection between the particular problems. The students stated that a headache caused them most of the problems. It can be linked to a sleeplessness and a back, a scruff and a shoulders pain. The sleeplessness is to a large extent caused by a stress, which occurred in 83.4 % from all cases ($p<0.01$; Chí = 6.653; w = 0.253). Despite this unfavourable ascertainment, 75.9 % of the adolescent female students from the first and 73.2 % from the second group evaluate their health status to be positive ($p<0.05$; Chi = 9.516; $\varphi_c = 0.304$). However, it clashes with a previous ascertainment because almost 80 % of all respondents have 3 and more ascertained health problems within the last month.
Key words: adolescents, health, health status, lifestyle.

Introduction

A current prevalence of lifestyle diseases that are caused by a wrong lifestyle, a negligence of health status or by a stress, encourages us to seek for solutions to a prevention of these problems (Šmída & Pavlovič, 2015). Lucas et al. (2015) state that in fact, lot of stated facts influence the health status and life of a human being already in a young age. We do not realize consequences of a current hurried time, until the health problems emerge. This is a reason why an intentional care and prevention of the health in every of its forms is very important factor, which should be taken into an account (Bendíková, 2011; Nemček, 2016).

Nowadays, we can observe an influence of an overall social development on the health of the human being, especially through social networks, IT technologies or media. These inform the human being about the health and healthy lifestyle in a private or a social life (Rozim, 2005; Broďáni & Žišková, 2015; Mills, 2016; Nemček & Simon, 2016; Štulajter & Štulajter, 2016). However, the influence of current trends has also a negative character and is responsible for causing a lot of physical and mental illnesses, together with cardiovascular diseases, a cancer, a diabetes mellitus, chronic respiratory diseases, a musculoskeletal system weakening and others (Bendíková & Stackeová, 2015). The current lifestyle diseases are mostly caused by the wrong lifestyle, wrong eating habits, missing of an active life, smoking, alcohol and stress (Fitton et al., 2013).

The health is a primary source and assumption for an ideal working of a human body in the intentions of their perception as a sociocultural and biomental structure (Labudová et al., 2012). Ihász & Rikk (2010) consider the health to be as vitally prominent and irreplaceable in a relationship to fulfilling of any goals. The health body functions without any damage of the health status, objective qualities and productivity restrictions to complex impulses and impacts of different inside and outside factors, show a resistance to negatively functioning subjects of a biological, chemical, social and physical nature. Many different authors are concerned with defining the term health (Seedhouse, 1995; Holčík, 2004; Labudová & Vajcziková, 2009). The following statement of the WHO is being considered as the most popular definition of the term health: The health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 2005). Labudová (2012) claims that a level of a quality health care and a health position is normalized by various determinants among which the most important and complex are: a) a life style (share in the health is 49 to 53 %), b) an environment (share in the health is 17 to 20 %), c) a health care (share in the health is 8 to 10 %), d)

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genetics (share in the health is 18 to 22 %). There is a very close connection between the terms of the lifestyle and health.

The lifestyle can be described as an individual summary of values, attitudes and skills, which can be observed in someone's activity. It includes a mixture of interpersonal relations, movement activity, diet, interests, time management, hobbies and so on (Hartl & Hartlová, 2000). However, the human beings often do not realize to what extend all of these influences the lifestyle of individuals. The health as a state of a vital satisfaction is a manifestation of a required level of the quality of life (QOL). Fyodorov & Erlikh (2016) define the quality of life as a complete satisfaction with a life and a complete feeling of an individual well-being, of a mental harmony and a life contentment. Lucas et al. (2015) also state that a synthesizing term of the life quality implies to social, economic and individual mental well-being indicators. It represents a summary of the key social life features, individuals, units of society and includes socio-political, economic, legislative, ecologic-environmental, mental and medical-health aspects.

Harmonizing of the stated factors, relationships, values and interrelations reflects in the term of the healthy lifestyle. We are talking here about a summary of goal-directed, learned, systematic and continuous activities, which the human beings do for their healthy lifestyle. The healthy lifestyle is defined by a homeostasis of mental, physical and psychical load. The primary function of an individual or a group healthy lifestyle is the effort to develop and maintain the human health. We consider the lifestyle to be a significant factor and what is more, to be one of the most important factors, regarding the health status (Ghyppo et al., 2016).

The research aim was to establish the level of the selected lifestyle and health determinants of the adolescent students from the Secondary School of Medicine in Banská Bystrica.

Method

Subject characteristics

The research group was chosen intentionally, consisted of the female students, ranging from the first to the fourth grade of the stated school. The total number was 441 female students, while 98 female students were from the first grade (4 classes), 125 female students were from the second grade (5 classes), 103 female students were from the third grade (4 classes) and 115 female students were from the fourth grade (5 classes). The overall number was 441 adolescents. Unfortunately, we had to exclude 20 of them, due to incorrect completion of the questionnaire. It means that our research group consisted of 421 adolescents who were divided into two groups, according to their age (Table 1).

Table 1 Primary characteristics of the research group (n = 421)

Sample/factors	n	Age	Height/cm	Weight/kg	BMI
Gr. 1	212	15.69 ± 0.53	167.12 ± 6.26	58.49 ± 10.74	20.94 ± 3.31
Gr. 2	209	17.79 ± 0.65	167.95 ± 6.98	57.10 ± 7.49	20.24 ± 2.47

Gr. 1 – first group; Gr. 2– second group; n – number of probands; BMI – body mass index; ± – determinative deviation

Measurement organisation

The research was conducted at the beginning of the school year 2016/2017. On the 16th of February we distributed the questionnaires in the Secondary School of Medicine in Banská Bystrica, in person and within one week on the 23rd of January, 2017 as were collected in person as well. We divided the respondents into two groups, according to Macek's division (1999). The first group consisted of the respondents in the middle of adolescent age and the second group of the respondents in the late adolescent age. The first group comprised of 212 questionnaires from the female students of the first and second grade, the second group comprised of 209 questionnaires from the female students of the third, as well as the fourth grade.

Measurement taking

We used the second field of the standardized questionnaire CINDI, monitoring of the health status that is one part of the CINDI (Countrywide Integrated Noncommunicable Diseases Intervention) created by the World Health Organization (WHO). The second part of the questionnaire focuses on the issues of the healthcare and health status. CINDI is a questionnaire that is aimed to find out health behaviour and risk factors in the lifestyle of European population.

Data Analyses

We processed acquired information in the Microsoft™ Office Excel by means of charts and graphs with applying of logical methods (an analysis, a synthesis and a comparison) and using descriptive statistics (an arithmetic mean (x), a maximum, a minimum, a percentage-frequency analysis (%), a determinative deviation (±) and a quantity). We used mathematical methods of statistics, namely chi-square test (Chí $p<0.01$, $p<0.05$) on an importance level of 1% and 5% to establish the statistic importance differences between the groups from the acquired information.

We considered the factual importance of the test by the Effect size method for Chí square (Cohen's "w" and Cramer's "Phí" – φ_c) with a small (0.1), a middle (0.3) and a large (0.5) effect of the factual importance.

Results

The stated question field researched the health status and health care of the adolescents. In this part, we present the evaluation of the following nine questions. Regarding to the health status and health care services, we surveyed how many times the adolescents visited their dentist during the last year. The first group of the adolescents stated that they visited their dentist 2.94 times on the average while the number of the second group was 1.77 times.

We can consider this ascertainment to be a positive, because only 6.7 % of the female students from the first group and 3.3 % from the second group stated that they did not visit their dentist during the last year. The majority of all of the probands visited their dentist at least 2 times during the last 12 months. We tried to find out the number of days, in which the respondents were not able to fulfil their everyday duties, which means that were incapable of a work during the last year.

We measured a bit higher numbers of the work incapability in the first group. On the average, the adolescents from the first group were not able to fulfil their daily duties, on the average of 15.03 days in the last year while by the second group the number was 10.83 days. We found out that only 6.6 % of the students were not incapable of the work in the last 12 months.

We were interested also about how many times the adolescents visited their general practitioner. On the average, the female students from the first group stated that they visited their general practitioner 4.53 times in the last 12 months and regarding to the second group it was 5.75 times. No proband stated that she did not visit her general practitioner in the last 12 months. We registered the maximum amount by the student of the second grade who visited the general practitioner doctor even 23 times.

We researched also an outbreak of the particular diseases in our research group. Two diseases from the following were not diagnosed nor treated by any of our probands. These diseases are a heart failure and a myocardial infarction. The most often occurred disease in our research group was the musculoskeletal system weakening while 43.4 % of the students from the first group and 36.4 % of the students from the second group stated that they were diagnosed with and treated for the back pain (Table 2). The differences among the groups were not detected.

The low effect of a real significance was detected, which means that the result was not influenced by the statistic possibilities ($p>0.05$; Chí = 2.171; w = 0.144). The ascertainment was that 10 % of the probands from the second group were diagnosed with a high cholesterol and 13.4 % of the probands from the second group were diagnosed with a hypertension, which is worth of noticing (Table 2).

Table 2 Statistical and real significance of disease outbreak during the last year (n = 421)

Disease/Parameters	Group 1 (%)	Group 2 (%)	p	Chí	ES „w“
Stomach inflammation	2.4	0.0	<0.05	4.988	0.219
Asthma	6.6	3.3	>0.05	2.352	0.15
Chronic bronchitis	4.2	0.0	<0.01	9.066	0.297
Back pain	43.4	36.4	>0.05	2.171	0.144
Rheumatism	0.0	12.9	<0.01	24.972	0.502
Angina	0.0	0.0	>0.05	0.012	0.011
Diabetes mellitus	10.4	10.0	<0.05	6.001	0.241
High cholesterol	6.6	10.0	>0.05	1.638	0.125
Hypertension	3.3	13.4	<0.01	14.072	0.372

$p<0.01$ – statistically significant on the level of 1 %; <0.05 - statistically significant on the level of 5 %; $p>0.05$ - statistically insignificant Chí – value of chi-square test; ES “w” – real significance of Effect size Cohen’s “w”

We recorded the statistical significance of differences among the groups in the outbreak and treatment of the diseases on the level of 1 % with the middle effect of the real significance by the chronic bronchitis and hypertension. With the high effect of the real significance, the statistically significant difference among the groups emerged by the rheumatism.

The statistically significant difference on the significance level of 5 % emerged by the stomach inflammation and diabetes. In both cases, the middle effect of the real significance was recorded and that is why the results were not affected by the statistic possibilities. No significant differences among the groups were recorded ($p>0.05$) while considering another health problems (asthma, back pain, tonsillitis, higher cholesterol, etc.) but in all constituents, at least a little effect of the real significance was recorded. Therefore, we can state that the results were not affected by the statistic possibilities.

The table 3 of the fifth question shows that our probands went through a lot of different problems during the last month and we can assume that a lot of the health problems are interconnected and they arise on the basis of other health problems. The headache had the greatest level of the representation among the health problems during the last month. It was recorded by 86.8 % of the female students from the first group and 79.9 % of the female student from the second group. The back pain, which emerged among 59.9 % of the probands from the first group and among 56.5 % from the second group could relate to the headache.

The pain in the back of the neck and shoulders was noticed among 20.3 % of the female students from the first group and among 26.3 % from the second group.

Again, we can expect that there is some relation between the headache and depressions (23.1 % of the first group and 29.7 % of the second group) and certain relation with the stress because among 83.5% of the probands from the first group and 83.3 % from the second group, which creates almost the same number who have the stress problems.

Moreover, we found out that 40.1 % of the adolescents from the first group and 52.6 % from the second group have the problems with the sleeplessness during the last month. We recorded the statistical significance of differences between the groups on the significance level of 1 % by the sleeplessness, feet swelling, paint in joins and daily cough.

The middle effect was detected by the stated problems and that was why the results were not influenced by the statistic possibilities. By other problems no statistically significant differences among the groups were recorded (p>0.05) but in all constituents, at least a little effect of the real significance was recorded.

Table 3 Statistical and real significance of problems during the last year (n = 421)

Symptom/Parameters	Group (1 %)	Group 2 (%)	p	Chí	ES „w“
Teeth pain	22.6	26.3	>0.05	0.769	0.086
Depression	23.1	29.7	>0.05	2.327	0.149
Sleeplessness	40.1	52.6	<0.01	6.653	0.253
Headache	86.8	79.9	>0.05	3.602	0.186
Constipation	9.9	6.7	>0.05	1.420	0.116
Eczema	17.0	20.1	>0.05	0.676	0.08
Varicose veins	6.6	3.3	>0.05	2.352	0.15
Feet swelling	3.3	19.6	<0.01	23.294	0.484
Shoulders pain	20.3	26.3	>0.05	2.145	0.143
Back pain	59.9	56,5	>0.05	0.514	0.07
Joints pain	30.2	43.5	<0.01	8..066	0.280
Chest pain	17.0	16.7	>0.05	0.004	0.006
Daily cough	37.3	53.1	<0.01	10.672	0.323
Stress	83.5	83.3	>0.05	0.004	0.006

p<0.01 – statistically significant on the level of 1 %; <0.05 - statistically significant on the level of 5 %; p>0.05 - statistically insignificant; Chí – value of chi-square test; ES “w” – real significance of Effect size Cohen’s “w”

By filling in the questionnaire the respondents should evaluate their health status. The majority of our research group considered their health status as good or adequate. 75.9 % of the female students from the first group and 73.2 % of the female students from the second group evaluated their health status positively. We consider the positive evaluation to be when the health status was evaluated as good or adequate.

Here we come to a clash with the previous question, in which we found out that none of the probands from the first group and only 2.4 % of the probands from the second group had none of the above stated symptoms.

On the contrary, 76.7 % of the adolescents from the first group and 80 % of the adolescents from the second group were diagnosed with minimum of 3 or more health problems during the last month and we could not consider these facts to be as the good health status.

It is necessary to realize that not only the feeling of some ache but also incapability of the work, as well as many other factors indicated a bad health status.

We recorded the significant differences among the groups on the significance level of 5 % with the middle effect of the real significance (p<0.05; Chi = 9.516; φ_c = 0.304). Regarding to the above stated, we can clarify that the results were not affected by the statistic possibilities.

We also researched, if the female students who participated in our research took any medicine, pills or tablets in the last 7 days. The following table 4 shows that the most taken pills were painkillers.

Table 4 Statistical and real significance of medicine taking during the last 7 days (n = 421)

Medicines/Parameters	Group 1 (%)	Group 2 (%)	p	Chí	ES „w“
Contraception	4.2	11.0	<0.01	6.847	0.257
Vitamins	30.7	39.7	>0.05	3.783	0.19
Sedatives	3.8	10.5	<0.01	7.251	0.265
Cough	7.1	25.8	<0.01	22.595	0.476
Other paint	34	50.2	<0.01	11.443	0.334
Headache	47.2	32.5	<0.01	9.398	0.302
High cholesterol	0.0	3.8	<0.01	8.272	0.283
Hypertension	0.0	2.4	<0.05	5.133	0.222

p<0.01 – statistically significant on the level of 1 %; <0.05 - statistically significant on the level of 5 %; p>0.05 - statistically insignificant; Chí – value of chi-square test; ES "w" – real significance of Effect size Cohen's "w"
Especially, 47.2 % of the female students from the first group and 32.5 % of the female students from the second group took medicine because of the headache and 34 % of the female students from the first group and 50.1 % of the female students from the second group took medicine because of the another pain. Another interesting factor was that 30.7 % of the female students from the first group and 39.7 % of the female students from the second group took the vitamins, minerals or other supplements.

The statistically important difference among the groups on the 1 % level with the middle effect of the real significance was recorded by taking the contraception, which taking the contraception was more common among the older adolescent female students. Statistically significant difference between the groups was stated not only by taking the vitamins (p>0.05) but statistically important differences between the groups with the middle (sedatives, other painkillers, headache pills, pills against high cholesterol and blood pressure) and high (pills against cough) effect of the real significance were recorded also by all the other medicines. The results were not affected by the statistic possibilities. We also asked when was the last time that our probands were measured with the higher level of the blood pressure and cholesterol.

The most of the respondents stated that they were measured with the higher level of the blood pressure in the recent period. Among 60.4 % of the female students from the first group and 74.2 % of the female students from the second group the measurement was carried out while ranging from 1 to 5 years, in which 13.2 % of the female students from the first group and 6.2 % of the female students from the second group stated that they were measured with the higher level of the blood pressure. 26.4 % of the adolescents from the first group and 19.1 % of the female students from the second group were not able to answer this question. We recorded the significant difference among groups on the significance level of 1 % with the middle effect of the real significance ($p<0.01$; $Chi = 11.71$; $\varphi_c = 0.338$), so the results were not affected by the statistic possibilities.

Discussion

Our ascertainment in the field of an oral health is comparable to the ascertainment of the statistic office. It states that in Banská Bystrica Region the facts are as follows: On the average, one registered patient visited the dentist 1.82 times within a year, from which the preventive examination was only 0.74 times by the patients from 15 to 18 years. Among 15 years old adolescents, the oral health index of 3.26 was ascertained. This puts the region on the last ranks within the whole Slovakia. The oral health index expresses, how many of permanent teeth on one patient are afflicted by a decay, have filling in it or how many of them are missing because of the tooth decay**.** Regarding to the visits of the general practitioner, our ascertainment is still comparable to the ones from the statistic office. It states that in the stated period, the number of the general practitioner visits, regarding to the age of 15 - 18 in Banska Bystrica Region, was 4.8 times per year.

The preventive medical examination creates only small part from the all visit number, especially 0.4 times per year (Štatistické prehľady, 2016). The ascertainment of the heart failure and myocardial infarction was not recorded by any of the probands, therefore it could be presupposed on the basis of more theoretical studies (Goncalvesová & Fabián, 2006; Kovář, 2007; Fischerová, 2008; Masaryková et al.). These also states that these kinds of problems occur in the higher age. We recorded the higher number of problems with the musculoskeletal system in the field of research and treatment what is in the line with the research authors (Lemons et al., 2012), who point out the high occurrence of problems with the musculoskeletal system by the children and youth. A lot of different problems emerged in our research group during the last month and that is why we can presuppose that a lot of problems are interconnected and break out on the basis of another problems.

A lot of different authors (Hnízdil, 2000) agree with this statement in their works. Rýchliková (2009) states that the headache can have association with the pain that emerges in the cervical and lumbar part of vertebrae. Jakubíková (2009) agrees with her statement as she claims that the primary headache is tense headache and it is a result of higher tension in the back of the neck muscles, shoulders, scalp and jaw. She also notifies frequent connection between the headache and stress, as well as depression and unease. The stress is very closely connected with the sleeplessness (Pretl, 2010). Many people consider their health status as something natural and do not realize the effects of the bad health status on the human life. We often do not realize the connection between the health status and our life quality. Moreover, we also do not realize our current health status. Jakubíková (2009) points out how important are the proper treatment of the headache because the abuse of the analgesics can lead to the headache cause by the medicine. In short term, the sporadic and acute tense headache can be treated by a rest, common analgesics and removing of the stress (Dahlof, 2002).

The female students in the adolescent age often take medicine due to menstrual cramps and what is more, they are exempted from the physical education classes. This pain thus can be eliminated with special exercise (Bendíková, Uvinha & Marko, 2016). Our research confirms the sentence of Račanskej (2014) that nowadays, the society resorts to supplements and forgets about taking vitamins, varied in food and sunshine.

Conclusion

In the field of the health services and health status of the adolescents we found out that only 6.7 % of the female students from the first group and 3.3 % of the female students from the second group did not visit their dentist in the last 12 months.

Regarding to the duty of the dentist visit within the preventive examination once a year, we consider this ascertainment to be a positive. Considering the general practitioner, the respondents of the first group stated that they visited him/ her 4.53 times and in the second group 5.75 times a year, on the average.

On the ground of the above stated we presuppose the high outbreak of the different health problems. The average numbers of days in which were the female students incapable of the work only confirmed the assumption. The first group stated that they were incapable of the work for 15.03 days and 10.83 days among the second group. Approximately 6 % of the respondents were not incapable of the work. Our research was aimed on the health status of the respondents, which brought the result that the majority had problem with the musculoskeletal system, especially with the back pain during the last year.

The presence of the problems was much more diverse during the last month, where we could observe some connections between the particular problems. The female students stated that the headache caused them the most of the problems. It could be linked to the sleeplessness and back, scruff and shoulders pain.

To a large extend, the sleeplessness is caused by the stress, which occurred in 83.4 % cases from both groups ($p<0.01$; Despite of all unfavourable ascertainment, 75.9 % of the adolescent female students from the first group and 73.2 % of the adolescent female students from the second group evaluated their health status as positive ($p<0.05$;

However, it clashed with the previous ascertainment because almost 80 % of all of the respondents had 3 or more ascertained health problems within the last month. The outbreak of the health problems was closely connected to their treatment.

There were a lot of methods how the health problems could be treated. Unfortunately, the mostly used method, as well as one of the easiest was taking medicines. 47.2 % of the adolescents from the first group and 32.5 % of the adolescents from the second group stated that they took the medicines because of the headache during the last week and 34 % of the adolescents from the first group and 50.1 % of the adolescents from second group took the medicines because of the other pain. In most of the cases, the fact was statistically confirmed on the significance level of 1% ($p<0.01$) that the older adolescent female students were taking more different medicines as their younger adolescent female colleagues.

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