

8th ICEEPSY 2017
**The International Conference on Education and Educational
Psychology**

**ATTITUDES TOWARDS STRESS AND LIFESTYLE
OF UNIVERSITY STUDENTS IN HEALTH EDUCATION**

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Abstract

Shaping the attitudes to lifestyle in a holistic concept is included in all stages of education in the Czech Republic. The objective of the present research is to identify the attitudes of university students to concepts associated with bio-psycho-social aspects of lifestyle (including stress) and their development by year of study and gender. The research sample comprises students who will become teachers of subjects in the category of Health education and will thus deliberately influence the lifestyle of their students. Students' attitudes were measured by means of the ATER two-factor semantic differential (plus own questionnaire). The respondents were presented with concepts associated with both positive and negative aspects of lifestyle, self-conception and social relationships. The obtained data were used to develop a semantic space of the concepts. The differences between various groups were further compared by means of the Student's t-test and analysis of variance. The results suggest that the attitudes of students of Health education correspond with the aspects of an optimum lifestyle. A comparison of the attitudes by year of study and gender revealed differences only in some concepts. In both dimensions a statistically significant difference was observed in the concept Mental stress, which has poor evaluation and is energy demanding. The results demonstrated that the attitudes of students of Health education were consistent with the theoretical knowledge and the profile of a graduate from this field of study. The results also correspond with the content of the curriculum defined by the Czech curricular documents.

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Keywords: Stress, Lifestyle, Students, Attitudes, Semantic Differential



1. Introduction

Lifestyle can be described as a combination of voluntary behaviour (selection) and a specific life situation (possibility). In a simplified way, this is always a free choice between these alternatives, which either support or harm the health of an individual. In a broader sense, this is a summary of the ways a specific person lives (Machová & Kubátová, 2016). To achieve an appropriate lifestyle, it is necessary for each individual to have a sufficient amount of information about what is beneficial and harmful in terms of health. Everybody needs to be sufficiently informed and motivated for strengthening one's own health. At the same time, any harmful factors should be eliminated and conditions for a healthy lifestyle provided.

2. Problem Statement

Modern lifestyle can aptly be described by the following: sedentary lifestyle, lack of physical activity of at least moderate intensity, deterioration of interpersonal relationships. This way of life is often accompanied by problems that prematurely deteriorate its quality or shorten its length. Presently, the concept of a healthy lifestyle is widely supported and promoted. This concept is frequently associated with appropriate regimen, strengthening and maintaining optimum health, and prevention of non-communicable diseases (Zeleníková, 2012). The aspect of lifestyle that have the greatest influence on human health include nutrition, physical activity, stress, relaxation, daily regimen, sleep, smoking, alcohol and use of habit-forming substances (Kastnerová, 2012).

Shaping the attitudes to an optimum lifestyle in a holistic concept is included in all stages of education in the Czech Republic. Therefore, the authors of the present paper were interested in these indicators among pre-service teachers specialized in Health education.

2.1. Health and lifestyle

According to the modern holistic concept of health, overall health of an individual is a sum of mutual relations and influences concerning not only physical, mental, social and spiritual health, but also healthy relationships with the community and the world, i.e. the society and nature. The factors that modify health can be classified from different perspectives. The basic classification distinguishes between uncontrollable factors (personal or family medical history, gender, age, genetics), and controllable factors, which are significantly associated with lifestyle, socio-economic status and social position reflecting the person's material security (Kastnerová, 2012). The most urgent trend in the development of the society in the 21st century is the quickly deteriorating health of the global population. As a result, new plans and strategies of lifelong health promotion are developed. The greatest threat to the health of future generations is the prevalence of chronic diseases, which usually occur in industrial societies marked by considerable economic and industrial progress. These are usually non-communicable diseases known as lifestyle diseases (obesity, diabetes, cancer, coronary artery disease, etc.), which can be considered degenerative diseases caused by lifestyle and regimen (Lieskovská et al., 2013).

According to Kastnerová (2012), the onset and subsequent development of a number of acute and chronic diseases may be influenced in the sense of prevention or mitigation of their consequences by observing behavioural factors that have an effect on health and lifestyle.

2.2. Lifestyle in university students

University study is a period of intellectual growth and development, a transition from young adulthood to adulthood. For optimum return on this investment later in life, students need to maximize their academic effort and personal growth (Hershner & Chervin, 2014). The results of a number of research studies confirmed that health in university students is worse compared with their peers not enrolled in university. One of the reasons is the fact that university students face specific situations and adaptation problems, often accompanied by distress. The greatest source of stress in these students is the academic environment (Josífková, 2013).

This can be illustrated on a specific research study focusing on the correlation between stress and increased food consumption among university students in the first year. As suggested by Papier et al. (2015), the results show that 52.9% of participating students felt distressed and that both girls and boys consumed larger quantities of 'unhealthy' food (with higher fat and sugar) as a result. The preventive measure recommended to university students is an active lifestyle, the importance of which is acknowledged by most students; they are also aware of relevant health risks (consequences of smoking, alcohol, poor dietary habits and lack of physical activity). Many of them try to change their lifestyle to avoid these negative consequences. Yet, there are many students who try to enjoy university life (parties, dating, social events, summer jobs, sports and other events and entertainment) and do not worry about possible consequences. Despite the hectic nature and hastiness of university life, everybody should find time and space for observing appropriate regimen in order to prevent later problems (Hegedúšová, 2014).

The experience that students gain in universities (i.e. structured environments) has priceless value and generally includes the acquisition of knowledge, skills and a certain degree of independence, which they may use later to become valuable members of the society (Hershner & Chervin, 2014). For this reason, universities are an ideal location for inducing changes in the area of lifestyle and improving students' behaviour to support their health. During their study at university, students are surrounded by a vast amount of research-based knowledge and multidisciplinary professionals, and have access to world-class information, technologies and resources, which makes universities a potentially ideal health promoting environment. The age of university students still enables positive changes in their behaviour and adoption of better habits and attitudes which will affect their health in the future (Plotnikoff et al., 2015).

2.3. Stress in university students

Nowadays an increased emphasis is on acquiring a university degree as a key to life satisfaction and success (Thurber & Walton, 2012). University students need to observe specific requirements concerning preparation for study, examination and assessment. This often causes overloading and health problems. They also need to achieve higher standards concerning their abilities, skills and knowledge compared with secondary school students or their peers not enrolled in university who already found a

job. Another stressful circumstance is their economic dependence on parents. What frequently happens is that students devote most of their free time to earning money. This reduces space for their own study and academic preparation, but also for hobbies and relaxation, or entertaining student life. All of these circumstances including many others place a considerable mental stress on university students, which often leads to various psychosomatic diseases (Josífková, 2013).

The transition from home to a foreign environment alone might present an excessive burden for students. This change may cause stress or even depression, lack of appetite and concentration problems (Thurber & Walton, 2012). Leaving home and being outside parental control and supervision is an unprecedented challenge (Mahmoud, Staten, Hall & Lennie, 2012; Moreno, Jelenchick, Koff & Eickhoff, 2012; Wright et al., 2012). According to current research studies, a higher degree of load can also be caused by social networks and the content of shared posts from friends (Chou & Edge, 2012; Jelenchick, Eickhoff, & Moreno, 2013). University students are pressured to meet various requirements, achieve adequate classification, pass tests and examinations, absorb a large amount of knowledge during a short period of time, and, without their own academic objective, university is the most significant stressor (Kumaraswamy, 2013).

University students are constantly confronted with high pressure, which can result in sleep disorders. As suggested by relevant research studies, 68% university students indicated stress as the greatest barrier to good sleep; this usually includes academic stress (39% of students) or emotional stress (25%). Poor falling asleep due to stress causes even more stress. Long sleepless nights can lead to extreme fatigue the next day, which most students deal with by taking stimulants, for example caffeine. Many students thus find themselves in the vicious circle and try to eliminate daily fatigue by taking stimulants and then use other sleep induction means (White, Buboltz & Igou, 2013). In this context, university students for the first time experience more serious problems concerning their health and lifestyle, which they usually resolve by taking 'lighter' stimulants, such as the previously mentioned caffeine, energy drinks, alcohol, and later may resort to habit-forming substances, or some hidden mental disorders such as schizophrenia may evolve (Pedrelli et al., 2015). For these reasons it is important to understand the aspects that cause an elevated degree of anxiety and stress, and that may cause a significant disruption of their social, professional and academic functioning (Goswami et al., 2012).

Negative side effects of anxiety and stress show how important it is to work with these aspects in university students. Stress is associated with harmful behaviours such as smoking, poor eating habits, lack of physical activity, poor sleep habits, and non-observance of healthy lifestyle recommendations (Doom & Haeffel, 2013).

2.4. Attitudes

Attitudes express specific feelings in relation to an object (Hewstone & Stroebe, 2006). Knowledge is influenced by emotions; therefore, this is a subjective type of evaluation. Evaluation expressed through words is an opinion. If such evaluation is solid and fixed, it is referred to as a conviction; in a negative sense it is considered a prejudice. Emotions affect the intensity of the attitude from extremely positive (the subject is strongly for) through neutral (neither - nor) to extremely negative (strongly against). The neutral attitude relates to an object that is unknown or unimportant to the subject.

As reported by Kohoutek (2008), attitudes are not innate but develop through learning from an early age during the process of socialization. Attitudes are formed within multiple groups, to which an individual belongs. To a limited extent, they are influenced by mass media. Attitudes are learned from other people and groups. For the purposes of being included in a group or accepted by someone else, a person adapts, changes behaviour and expresses an attitude, which is considered socially desirable. Children's attitudes are of a general nature; later they are differentiated and at the same time clustered in specific groups of attitudes. This grouping of attitudes is called attitude integration. Attitudes have a certain direction (positive, negative), certain intensity (stable, unstable), and impact on human behaviour (significant, insignificant).

3. Research Questions

Based on a review of scientific publications, research studies (Thurber & Walton, 2012; Doom & Haeffel, 2013; Josífková, 2013; Chrásková & Kvintová, 2016a) and the profile of a graduate from Health education (Hřivnová, 2016), the following research questions were formulated:

Do the attitudes of students of Health education to lifestyle including stress change throughout their undergraduate preparation for the teaching profession?

Are there any gender-based differences in the attitudes to negative and positive lifestyle determinants and to the concepts from the students' social area?

4. Purpose of the Study

The objective of the research study was to identify the attitudes of university students (pre-service teachers) to concepts associated with the bio-psycho-social aspects of lifestyle (Chrásková & Kvintová, 2016b). Regarding the focus of the study, the research sample deliberately included those students who will become teachers of subjects in the category of Health education. They will directly influence not only their own lifestyle (including stress coping), but also the lifestyle of their students. Therefore, once they become teachers they should be able to influence their students in a desirable way, by which the affective objectives of education will be achieved. The conclusions of the present study will be used to modify relevant courses to achieve the desired profile of a graduate from Health education (Hřivnová, 2016), and to develop specific health promotion programmes.

5. Research Methods

The research study was conducted using the semantic differential method, which analyses the associations evoked by specific concepts presented to the respondents. The objects were assessed by all respondents subjectively, i.e. how they 'see' them. Each concept has a specific cultural meaning, and then additional meanings that vary among the assessors. Sometimes the results differ considerably.

5.1. ATER two-factor semantic differential

The main research method to measure the attitudes of Czech university students was a simplified version of the ATER two-factor semantic differential (Chráska sr., 2016). This measurement tool was developed on the basis of analyses of the scales of the original semantic differential designed by C. Osgood. The tool contains 10 scales, of which 5 measure the evaluation (ev) factor and 5 measure the energy (en) factor, * indicates a reverse scale – see Fig. 1.

HEALTHY LIFESTYLE				
1	good	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	bad	ev
2	undemanding	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	demanding	en*
3	pleasant	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	unpleasant	ev*
4	trouble	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	trouble-free	en
5	fair	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	dark	ev
6	light	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	heavy	en*
7	ugly	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	beautiful	ev
8	easy	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	difficult	en*
9	sweet	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	sour	ev
10	strict	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	lenient	en

Figure 01. Data sheet of two-factor semantic differential – ATER for the concept “Healthy lifestyle”

The first factor of the ATER measuring tool was in accordance with C. Osgood (Osgood, 1964) identified as the evaluation factor, the other factor is a combination of the original factors of potency and activity and is called the energy factor. The scales that are saturated by this energy factor indicate the degree to which the selected concepts are perceived by the respondents as something that is associated with exertion, difficulty, transformation or activity.

According to Chráska sr. (2016), the evaluation of the concepts according to all three factors is too detailed and does not produce a significantly large amount of information. Moreover, the activity (a) and potency (p) factors might be subject to misinterpretation. Therefore, in an educational context a two-factor semantic differential can be used. However, it is always necessary to test this measurement tool for its factor structure (Chráska jr. & Chrásková, 2016) and select appropriate scales.

5.2. Description of the research sample

The research sample included 65 Czech university students who will become teachers of subjects in the category of Health education – see Tab. 1. During the teaching process¹ they will provide their students with information about an optimum lifestyle. Specifically, the research sample included all students of the Faculty of Education, Palacký University in Olomouc in the third year of the Bachelor’s degree programme Health education with a focus on teaching, and the first and second year of the follow-

¹ In the Czech Republic, the graduates from the Bachelor’s teacher training degree (after three years of study) can only become assistant teachers. To be qualified for the teaching profession, students must take the follow-up Master’s degree, i.e. after a total of five years of study.

up Master's degree programme Teaching of Health education. Despite the small size of the research sample, the sample was representative concerning all students of this field of study in the third to fifth year.

Table 01. Description of the research sample of university students

Year of study	Gender (male)	Gender (female)	Total
3rd (Bc.)	4	27	31
4th (1st NMgr.)	3	14	17
5th (2nd NMgr.)	1	16	17
Total	8	57	65

5.3. Optimization and description of the ATER questionnaire

Prior to the processing of the results, a control factor analysis of the scales of the ATER semantic differential (Chráska jr., 2014) was performed using the STATISTICA 12 programme. The analysis was used to select those scales that showed the best agreement with the anticipated factor structure. For the calculation of the evaluation of the concept, only scales 3 and 7 were used. For the calculation of the energy of the concept, only scales 2 and 8 were used.

The STATISTICA 12 programme was also used to determine measurement reliability by means of the internal consistency method. The calculated value (Cronbach's alpha = 0.76) suggests that the measurement of the attitudes using the semantic differential was sufficiently reliable.

6. Findings

The selected scales of the semantic differential (Chráska jr. & Chrásková, 2016) were used to calculate the average evaluation and energy values for the concepts associated with stress and healthy lifestyle. Specific values for individual groups of respondents by year of study and gender are shown in Table 2. These values were then used to develop a two-dimensional semantic space of the concepts for various groups of students (see Figures 2-4). These figures show the differences and similarities in the perception of the concepts by students of Health education at the Faculty of Education, Palacký University in Olomouc.

6.1. Attitudes of students of Health education by year of study

To determine whether the attitudes of students of Health education at the Faculty of Education differ by year of study, the data were compared by means of the ANOVA analysis of variance in the STATISTICA 12 programme. The comparison of the differences in evaluation and energy of the concepts is shown in Table 2. In overall terms, there are almost no differences in the perception of all concepts by year of study ($p=0.45$). Statistically significant differences in evaluation or energy were observed only in some concepts – indicated in Table 2 in bold.

Table 02. Comparison of evaluation and energy of the concepts for various groups of respondents

Concept	Study year 3	Study year 4	Study year 5	Sign. p	Male	Female	Sign. p
Colleagues – students (ev)	5.13	5.37	4.82	0.22	5.63	5.04	0.08
Colleagues – students (en)	3.50	3.60	3.59	0.88	3.75	3.51	0.38
University I study at (ev)	4.74	4.37	3.97	0.02	4.63	4.42	0.57
University I study at (en)	4.94	4.57	4.85	0.63	4.06	4.89	0.07
Personal computer (ev)	5.69	4.50	5.41	<0.01	5.44	5.32	0.78
Personal computer (en)	2.63	3.30	3.56	0.04	2.94	3.06	0.80
Future (ev)	4.92	5.13	4.65	0.48	4.50	4.92	0.33
Future (en)	4.95	4.93	4.97	0.99	4.88	4.93	0.87
Money (ev)	5.19	4.67	5.09	0.41	4.00	5.20	0.01
Money (en)	5.31	5.07	5.24	0.76	4.63	5.32	0.08
Diet (ev)	3.26	3.37	3.32	0.97	3.13	3.34	0.67
Diet (en)	5.47	5.10	5.24	0.57	4.50	5.44	0.03
Parents (ev)	5.55	6.03	5.47	0.37	4.88	5.78	0.05
Parents (en)	3.98	4.60	4.24	0.37	4.19	4.17	0.97
Education (ev)	5.16	4.80	4.82	0.49	4.69	5.02	0.45
Education (en)	5.40	5.67	5.44	0.71	4.63	5.53	0.02
I (ev)	4.89	5.00	5.03	0.91	3.50	5.19	<0.01
I (en)	4.94	5.07	4.12	0.03	4.56	4.77	0.64
My relationships with people (ev)	5.24	5.37	5.24	0.93	3.94	5.41	<0.01
My relationships with people (en)	3.73	3.87	3.62	0.86	4.44	3.64	0.10
Drugs (ev)	1.68	1.83	1.62	0.84	1.88	1.70	0.68
Drugs (en)	5.56	5.23	5.29	0.82	3.88	5.63	0.01
Interpersonal communication (ev)	4.77	4.87	5.21	0.46	4.81	4.89	0.85
Interpersonal communication (en)	4.50	4.00	4.09	0.39	3.69	4.34	0.18
Alcohol (ev)	3.95	3.47	3.38	0.24	3.44	3.75	0.50
Alcohol (en)	4.60	4.63	4.62	1.00	4.38	4.60	0.69
Smoking (ev)	1.84	2.17	1.74	0.61	2.25	1.86	0.42
Smoking (en)	4.77	5.23	5.06	0.73	4.50	5.04	0.45
My future success at work (ev)	4.84	4.60	4.47	0.55	4.00	4.75	0.08
My future success at work (en)	4.60	4.10	5.03	0.08	4.44	4.60	0.72
Physical health (ev)	5.53	5.00	5.21	0.37	4.50	5.47	0.04
Physical health (en)	4.60	4.57	4.26	0.73	4.38	4.50	0.82
Mental health (ev)	5.00	4.90	4.68	0.80	4.50	4.91	0.49
Mental health (en)	4.90	4.13	4.38	0.26	3.81	4.67	0.15
Risky sexual behaviour (ev)	2.79	2.57	2.41	0.70	3.75	2.58	0.05
Risky sexual behaviour (en)	3.97	4.40	4.18	0.78	3.31	4.29	0.19
Physical activity (ev)	5.55	5.20	5.65	0.62	4.94	5.60	0.20
Physical activity (en)	4.65	4.20	3.82	0.16	3.63	4.42	0.14
Dependence on technologies (ev)	3.50	3.50	3.15	0.70	4.25	3.25	0.07
Dependence on technologies (en)	4.34	3.60	4.53	0.27	3.44	4.34	0.16
Balanced diet (ev)	5.60	5.17	5.38	0.58	4.44	5.60	0.02
Balanced diet (en)	4.48	4.93	4.44	0.50	4.25	4.65	0.43
My professional preparation (ev)	4.11	4.50	4.18	0.55	4.13	4.26	0.75
My professional preparation (en)	5.00	4.93	4.74	0.73	4.31	5.01	0.09
Friendship (ev)	5.85	6.03	6.09	0.80	4.44	6.11	<0.01
Friendship (en)	4.27	4.73	3.71	0.17	4.44	4.19	0.68
Disease (ev)	1.74	1.60	1.79	0.85	2.69	1.68	0.01
Disease (en)	6.15	5.80	5.88	0.63	5.13	6.02	0.08

Love (ev)	5.90	6.43	6.15	0.47	5.25	6.21	0.06
Love (en)	4.84	5.40	4.21	0.04	4.88	4.82	0.92
Healthy lifestyle (ev)	5.92	5.23	5.68	0.17	4.38	5.91	<0.01
Healthy lifestyle (en)	4.84	5.33	4.44	0.12	4.19	4.88	0.15
Lifestyle diseases (ev)	1.87	1.93	1.79	0.94	2.56	1.87	0.14
Lifestyle diseases (en)	5.66	5.23	5.94	0.37	4.88	5.67	0.15
Mental stress (ev)	1.87	2.23	2.06	0.59	3.50	1.85	<0.01
Mental stress (en)	6.32	5.43	6.06	0.01	5.13	6.11	0.01
Obesity (ev)	1.74	1.83	1.97	0.76	2.56	1.78	0.07
Obesity (en)	5.39	5.30	5.47	0.96	4.31	5.49	0.06

Statistically significant differences were not observed in concepts included in the content of Health education, such as Drugs, Alcohol, Smoking, Physical health, Mental health, Risky sexual behaviour, Physical activity, Balanced diet, Disease, Healthy lifestyle, Lifestyle diseases, and Obesity. Significant differences in the changes in attitudes during the course of study were identified in relation to the following concepts: University I study at (ev), Personal computer (ev + en), I (en), Love (en), Mental stress (en). This statistically significant shift in time is illustrated by the semantic space in Fig. 2.

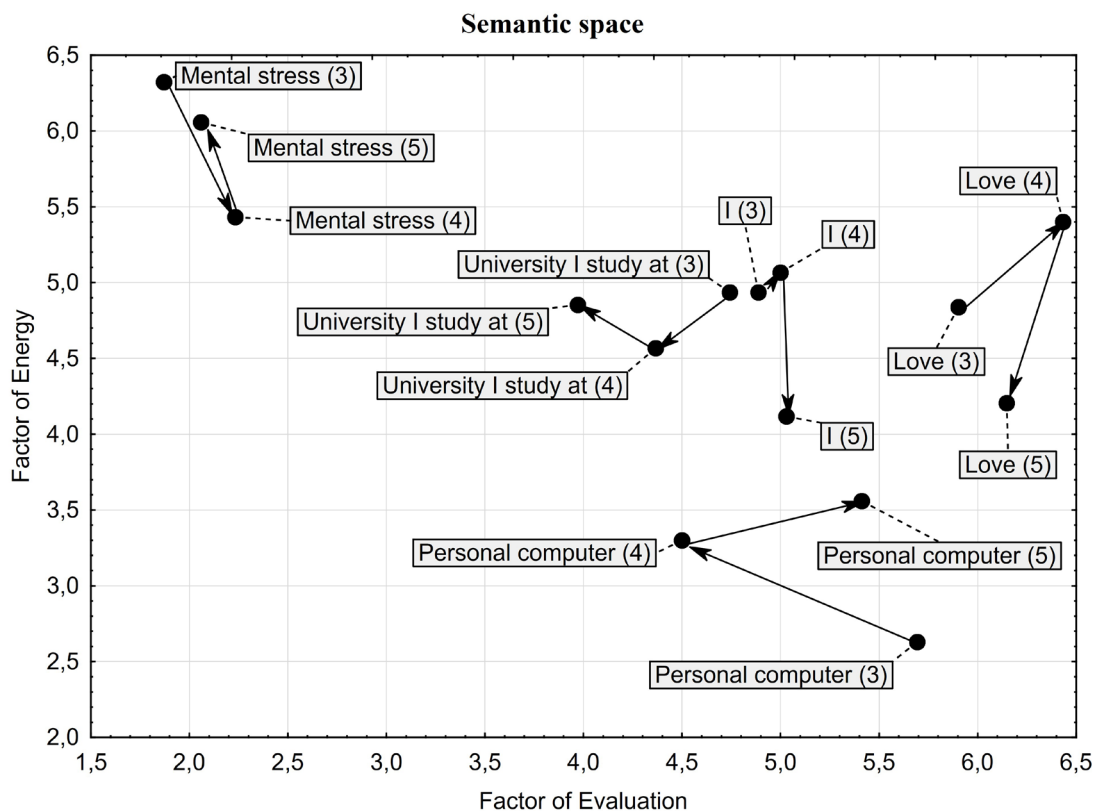


Figure 02. Semantic space of the concepts with significant differences in the perception by students in third to fifth year of study

6.2. Students' attitudes by gender

A comparison of the concepts by the respondents' gender was made by means of the t-test in the STATISTICA 12 programme. Precise values of the comparison of evaluation and energy of the concepts are shown in Table 2.

Statistically significant differences between the perception by men and women were observed only in some concepts (again indicated in bold in Table 2). The comparison of these concepts is shown in semantic spaces for the area of healthy lifestyle and social area – see Fig. 3 and 4. The figures clearly show that the most difficult concepts in the area of healthy lifestyle for both men and women are Disease and Stress, but for women these concepts are more energy demanding. Moreover, in the case of the concept Stress, a statistically significant difference was observed between the attitudes of men and women, both in energy and evaluation.

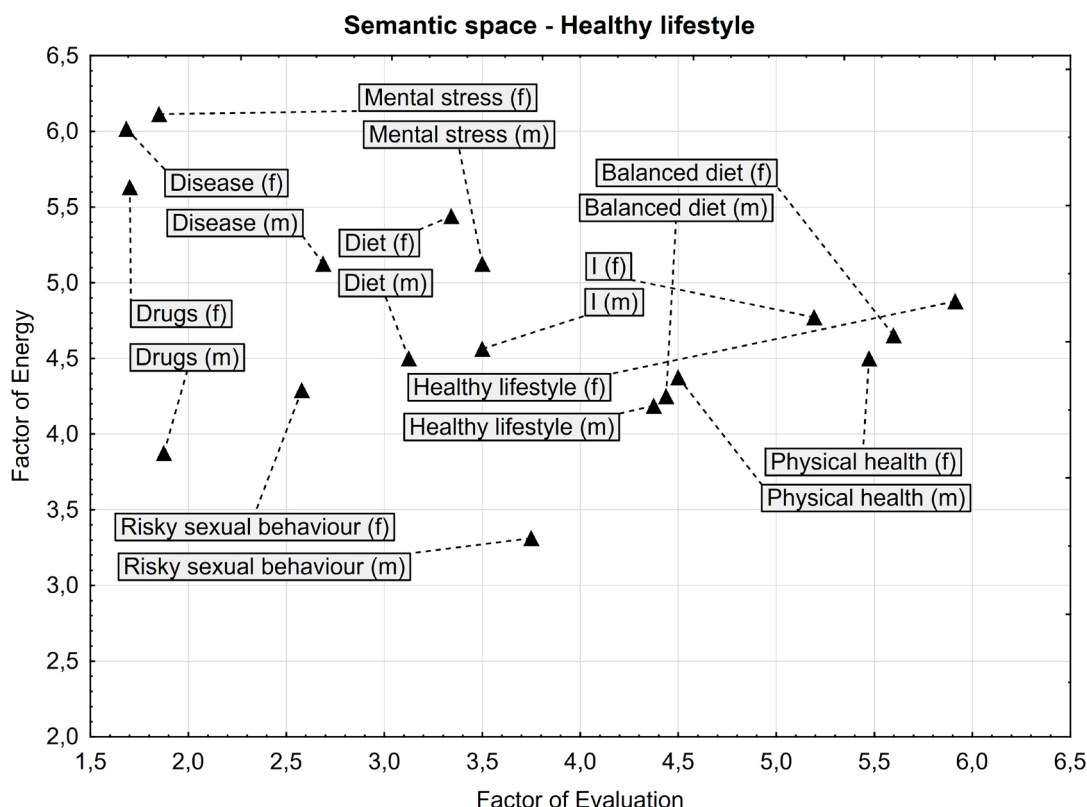


Figure 03. Semantic space of concepts in the area of healthy lifestyle, where significant differences in their perception were observed between men and women

As is shown in Fig. 4, the concepts from the social area, where statistically significant differences were observed in their perception and which are considered most difficult by both men and women, include education and money. In overall terms however, for men the following concepts are most difficult: Future, Love, Money and Education. For women the following concepts are most difficult: Education, Money, My professional preparation and Future.

The results of the study suggest that students of Health education have positive attitudes to the concepts relating to optimum lifestyle, such as: Healthy lifestyle, Physical health, Balanced diet, Physical activity. These concepts received the best evaluation, which corresponds with the fact that they know the concepts from classes, use them and analyse them in terms of didactic approaches. A similar situation was observed in the area of concepts that have a negative effect on lifestyle. Students of Health education indicated the worst evaluation for the following concepts: Disease, Mental stress, Lifestyle diseases, Obesity, Drugs and Smoking. These concepts are also associated with a high degree of energy

expenditure. Regarding the specific field of study, such negative evaluation of these concepts was expected. The high degree of energy expenditure may be associated with the students' effort to get to the heart of the associations concerning negative effects on lifestyle.

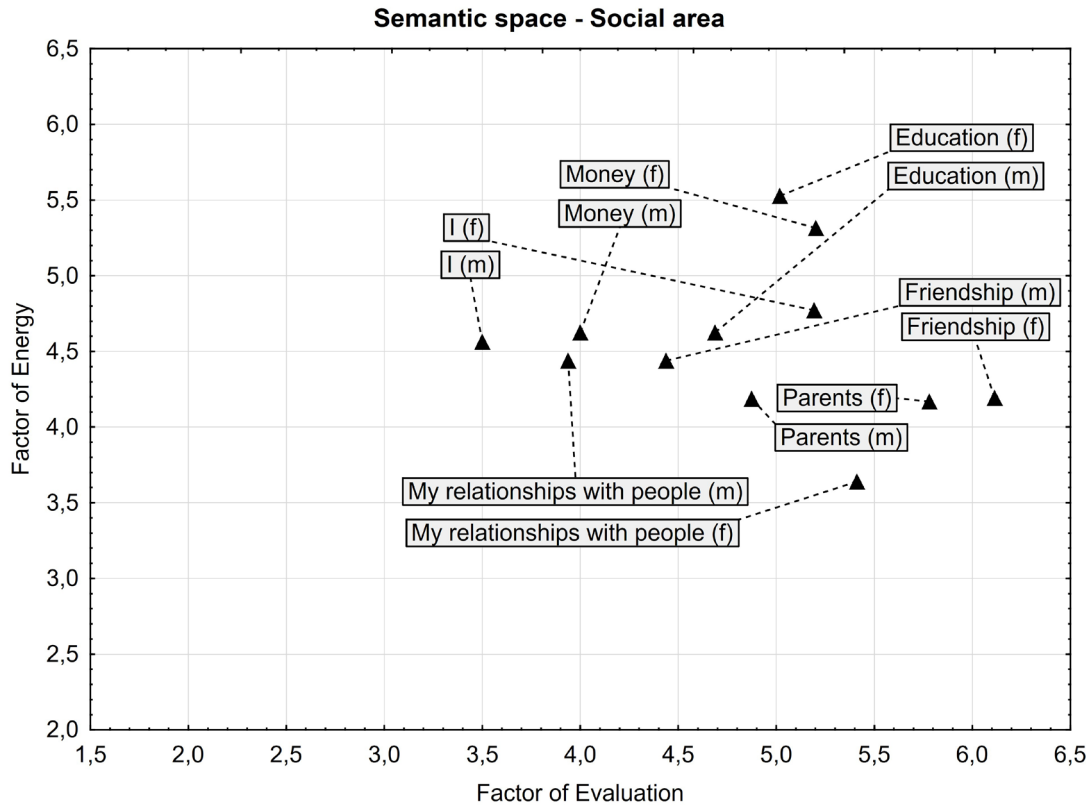


Figure 04. Semantic space of concepts in the social area, where significant differences in their perception were observed between men and women

7. Conclusion

The answer to the research question of whether there is a shift in the attitudes of students of Health education by year of study is that among students of the third, fourth and fifth year of Health education, statistically significant shifts were observed only in the following concepts: University I study at (ev), Personal computer (ev + en), I (en), Love (en) and Mental stress (en). The evaluation of the concept University I study at decreases; the energy intensity apparently depends on the State final examination in the third and fifth year. Similarly, the energy intensity of the concept Stress increases in years in which the State final examination takes place. The higher evaluation of the concept Personal computer and increase in its energy intensity again corresponds with the years of the State final examination. These changes reflect the attitudes of students concerning the use of the computer not only for study but also as an accessible leisure activity. Opposite trends in terms of the development of the attitudes by year of study were observed in the concepts I and Love. Their energy intensity increases in the first year of the follow-up degree (fourth year), which is the only year (of the three monitored years) without the State final examination and is thus least demanding and stressful. As a result, students have more space for themselves.

In terms of gender differences in the attitudes of students, the method of the semantic differential revealed statistically significant differences in the perception between men and women were confirmed only in some concepts. Statistically significant differences were observed in the following concepts: Money, Parents, I, My relationships with people, Physical health, Balanced diet, Friendship, Disease, Healthy lifestyle, Mental stress. In the perception of the energy intensity, statistically significant differences were observed in the following concepts: Diet, Education, Drugs, and Mental stress.

Women reported better evaluation of the concept Healthy lifestyle than men. As reported in relevant resources, women are more interested in a healthy lifestyle. Women also spend more energy in relation to the concept Drugs and perceive it as more energy demanding than men. The degree of energy expenditure may be associated with the specific field of study. Only in the concept Mental stress, a statistically significant difference was observed both in the evaluation and energy of the concept. In the case of this concept, women indicated worse evaluation; at the same time the concept was more energy demanding for women. It may be due to the fact that women pay more attention to the issue of stress and attach more importance to it than men.

Women shows a higher preference of strategies such as deviation and substitute satisfaction (Kvintová & Sigmund, 2012; Sigmund, Kvintová & Dostálová, 2013). Men significantly prefer the strategy of undervaluation, a higher degree of rejection of guilt, the strategies of control over reactions, and positive self-instruction. The need of control over situation is almost identical in men and women. The biggest difference in comparing the preferences of individual stress coping strategies between the sample of men and the sample of women was revealed in the strategy of need of social support that is higher in women as well as strategy of avoidance. An analysis of negative stress coping strategies revealed that overall negative strategies are significantly higher in women.

The results of the present study demonstrated that the attitudes of students of Health education were based on the aspects of an optimum lifestyle and were consistent with the theoretical knowledge and the profile of a graduate from this field of study. The results also correspond with the content of the curriculum for elementary and secondary school students defined by the Czech curricular documents (Hřivnová, 2016). Therefore, a positive effect of the personality of pre-service teachers on their future students is expected.

Acknowledgments

[The paper was supported by project Palacký University Olomouc IGA_PdF_2017_020 “Coping strategies and meaning of life among adolescents connected with education”.]

References

- [Chou, H. T. G. & N. Edge (2012). They are happier and having better lives than I am: The impact of using Facebook on perceptions of others' lives. *Cyberpsychology, Behavior, and Social Networking*. 15(2). pp. 117-121.
- Chráska, M. jr. & M. Chrásková (2016). Semantic Differential and its Risks in the Measurement of Students' Attitudes. *Procedia - Social and Behavioral Sciences*. Amsterdam: Elsevier. pp. 820-829.
- Chráska, M. jr. (2014). The Application of a Factor Analysis to Verify the Factor Structure of Modified Semantic Differentials for Measuring Students' Attitudes. *Albena: International Multidisciplinary Scientific Conferences on Social Sciences & Arts. SGEM*. Volume 1. pp. 429-440.

- Chráska, M. sr. (2016). *Metody pedagogického výzkumu*. 2. aktual. vyd. Praha: Grada.
- Chrásková, M. & J. Kvintová (2016a). Attitudes of Czech University Students to a Healthy Lifestyle. *The European Proceedings of Social & Behavioural Sciences EpSBS*. London: Elsevier Ltd. pp. 84-95. DOI 10.15405/epsbs.2016.11.10
- Chrásková, M. & J. Kvintová (2016b). A Reflection of the Attitudes of Future Teachers to the Psychosocial Aspects of Health in Relation to their Coping Strategies. *ICERI2016 Proceedings*. Madrid: IATED. pp. 4606-4617. DOI 10.21125/iceri.2016.2092
- Doom, J. R. & G. J. Haefel. (2013). Teasing apart the effects of cognition, stress, and depression on health. *Am. J. Health Behav.* 37. pp. 610-619.
- Goswami, S. et al. (2012). Body image satisfaction among female college students. *Ind. Psychiatry J.* 21. pp. 168-172.
- Hegedúšová, P. (2014). Životní styl vysokoškolských studentů. [online]. [cit. 2017-01-26]. Dostupné na: <http://pres.upmedia.cz/samostatne-projekty/psana-zurnalis-tika/zivotni-styl-vysokoskolskych-studentu>
- Hershner, S. & R. Chervin (2014). Causes and consequences of sleepiness among college students. *Nature and Science of Sleep*. 6. DOI 10.2147/NSS.S62907
- Hewstone, M. & W. Stroebe (2006). *Sociální psychologie*. Praha: Portál.
- Hřivnová, M. (2016). Health Literacy in Pupils in the Context of Research of Resulting Curriculum of Health Education. *The Anthropologist – International Journal of Contemporary and Applied Studies of Man*. 24(1). pp. 277-283.
- Jelenchick, L. A., Eickhoff, J. C. & M. A. Moreno (2013). Facebook depression? Social networking site use and depression in older adolescents. *Journal of Adolescent Health*, 52(1). pp. 128-130.
- Josífková, J. (2013). Úspěšnost a spokojenost vysokoškolského studenta a jejich souvislost s osobnostními faktory a zvládacími strategiemi. [online]. Olomouc: UP v Olomouci [cit. 2017-01-26]. Dostupné na: https://theses.cz/id/0lsyl2/Disertan_prce_PhDr._Jitka_Josfkov.pdf
- Kastnerová, M. (2012). *Poradce zdravého životního stylu*. České Budějovice: Nová Forma.
- Kohoutek, R. (2008). Postoje a vztahy, sociální motivovanost. [online]. 10.11.2008. [cit. 2015-02-13]. Dostupné z: <http://rudolfkohoutek.blog.cz/0811/postoje-a-vztahy>
- Kumaraswamy. N. (2013). Academic stress, anxiety and depression among college students - a brief review. *Int. Rev. Soc. Sci. Humanit.* 5. pp. 135-143.
- Kvintová, J. & M. Sigmund (2012). Psychosocial aspects of stress in current university students. *e-Pedagogium*. 4. pp. 59-69.
- Lieskovská, V., Grulingová, M., Marcinová, M. & D. Bilohuščinová (2013). Stravovanie ako predpoklad eliminácie civilizačných ochorení. [online]. Praha: Sborník z XLIII. konference České demografické společnosti. [cit. 2017-03-08]. Dostupné na: https://docs.google.com/file/d/0B6CgDbB_iVN-b1FCSW1iY0c5UWc/edit
- Machová, J. & D. Kubátová (2016). *Výchova ke zdraví*. 2. aktualiz. vyd. Praha: Grada.
- Mahmoud, J. S. R., Staten, R.T., Hall, L. A. & T. A. Lennie (2012). The relationship among young adult college students' depression, anxiety, stress, demographics, life satisfaction, and coping styles. *Issues in Mental Health Nursing*, 33(3), pp. 149-156.
- Moreno, M. A., Jelenchick, L. A., Koff, R. & J. C. Eickhoff (2012). Depression and internet use among older adolescents: An experience sampling approach. *Psychology*, 3, pp. 743-748. DOI 10.4236/psych.2012.329112
- Osgood, Ch. E. (1964). Semantic differential technique in the comparative study of cultures, *American Anthropologist*. 66(3). pp. 171-200, Part 2.
- Papier, K. et al. (2015). Stress and dietary behaviour among first-year university students in Australia: Sex differences. *Nutrition*. 31(2), pp. 324-330. <https://doi.org/10.1016/j.nut.2014.08.004>
- Pedrelli, P. et al. (2015). College Students: Mental Health Problems and Treatment Considerations. *Academic Psychiatry*. 5(39). 503.
- Plotnikoff, R. C. et al. (2015). Effectiveness of interventions targeting physical activity, nutrition and healthy weight for university and college students: a systematic review and meta-analysis. *International Journal Of Behavioral Nutrition And Physical Activity*, 12(1).

- Sigmund, M., Kvintová, J., & I. Dostálová (2013). Selected Personality Traits and Stress Management in Current University Students of Education, Physical Culture and Natural Science. *e-Pedagogium. An independent scientific journal for interdisciplinary research in pedagogy*. 4. pp. 43-60.
- Thurber, C. A. & E. A. Walton (2012). Homesickness and adjustment in university students. *J. Am. Coll. Health*, 60, pp. 415-419.
- White, A. W., Buboltz, W. & F. IGOU (2013). Mobile Phone Use and Sleep Quality and Length in College Students. *International Journal of Humanities and Social Science*. 1(18).
- Wright, K. B. et al. (2012). Communication competence, social support, and depression among college students: A model of Facebook and face-to-face support network influence. *Journal of Health Communication*, 18(1), pp. 41-57. DOI 10.1080/10810730.2012.688250
- Zeleníková, R. (2012). *Zdravý životní styl*. Opava: Slezská univerzita v Opavě.