

THE PROFILING OF UNIVERSITY OF LJUBLJANA STUDENTS ACCORDING TO THEIR MOTIVES FOR EXERCISE PARTICIPATION

PROFILIRANJE ŠTUDENTOV UNIVERZE V LJUBLJANI GLEDE NA NJIHOV MOTIV ZA SODELOVANJE PRI ŠPORTNI VADBI

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ABSTRACT

Keywords:

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Introduction. The main research objective is the analysis of the grouping of the students of the University of Ljubljana, with respect to the intensity of different types of exercise participation motives, their gender, discipline and year of study, level of physical activity, status of physical education class, organization of physical activities during study, and place of residence.

Methods. Data were collected using personal data sheets during enrolling students at the University of Ljubljana. Students completed The Exercise Motivations Inventory (EMI-2), with additional data about socio-demographic parameters.

Results. The results reveal that the students could be grouped in three distinctive clusters, which can be very clearly explained in terms of the prevalence of exercise participation motives in general. The students grouped in the first cluster have the lowest average values (means) in all exercise participation motives. The students grouped in the second cluster have the profile with moderate means in all exercise participation motives, while the students grouped in the third cluster have the profile with the highest means in all exercise participation motives.

Conclusion. The results indicate overall higher motivation for physical activity in men. All the sub-samples are different in their relevant features used in clustering (e.g., male students are dominant in life sciences, etc.), which provide a guide both for the explanation of the results obtained and for practical implications.

IZVLEČEK

Ključne besede:

analiza skupin,
motivacija, študenti,
Slovenija

Uvod. Glavni cilj raziskave je analiza razvrstitve udeležencev (študentov Univerze v Ljubljani) v skupine glede na intenzivnost njihovih motivov za sodelovanje pri športni vadbi na podlagi spola, vrste študija, letnika študija, stopnje telesne dejavnosti, statusa predmeta športne vzgoje med študijem, organizacije športnih dejavnosti med študijem in kraja bivališča.

Metode. Podatki so bili zbrani na podlagi obrazcev, ki so vključevali osebne podatke. Le-ti so bili izpolnjeni ob študentovem vpisu na Univerzo v Ljubljani. Študenti so izpolnili vprašalnik o motivih za vadbo "Exercise Motivations Inventory" (EMI-2) z dodatnimi vprašanji, ki so obsegala 12 socio-demografskih parametrov.

Rezultati. Rezultati kažejo, da lahko študente razvrstimo v tri skupine, ki jih je mogoče zelo jasno ločiti glede na prevladujoč motiv za sodelovanje pri vadbi na splošno (močno, srednje in šibko izraženi motivi). Študenti, uvrščeni v prvo skupino, imajo najnižje povprečne vrednosti pri vseh motivih za vadbo. Študenti, uvrščeni v drugo skupino, imajo profil s srednjimi vrednostmi, medtem ko imajo študenti, uvrščeni v tretjo skupino, najvišje motive za vadbo.

Zaključek. Rezultati v splošnem kažejo na večjo skupno motivacijo fantov za športno dejavnost. Vendar pa se vsi pod-vzorci statistično razlikujejo glede na osebne lastnosti, ki smo jih uporabili pri razvrščanju v skupine (npr. moški študenti prevladujejo v naravoslovnih znanostih itn.). Ta podatek nas usmerja pri razlagi rezultatov in tudi pri njihovi praktični uporabi.

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1 INTRODUCTION

Sports activity, regularly practiced, protects people against diseases and contributes to a better quality of life in the lifespan. In the curriculum of Physical Education (PE), children and young people could learn about the importance of movement, sport, fitness activities and a healthy lifestyle (1, 2). The course PE in higher education in Slovenia differs from the conceptions of those courses in primary and secondary schools, where PE is more clearly defined in belonging curriculums.

The basic motives are supposed to be unconscious and they are hard to be recognized by the individual (3). Thus, weak motivation or lack of motivation appear when the individual is unaware of what drives and motivates him/her (4, 5). The lack of enjoyment in sports activities in an individual is often influenced by selecting activities unsystematically, following trends and without setting goals (6).

The motivational factors of each individual in physical education and organized sports activities should be strengthened, in order to ensure that the effects of these activities would be transferred to a student's life after graduation (7). However, the involvement in a sports activity during studies and later depends both on an individual's motivational structure (interests, attitudes, motives), and on the available conditions and opportunities in a certain environment (8).

The main motivational factors for students to engage in sports activities are health pressures, enjoyment, physical fitness, stress management and well-being (9-13). Gender differences in the motives for participating in sports activities are evident in several studies. Males and females differ in motives for participating in certain sports activities, having different interests in sport, training methods and unorganized sports activities (14). Gender differences are obvious in five motivational factors (affiliation, competition, weight management, rehabilitation and social recognition) (10). Primary factors which motivate men's participation in sport are competition, social interaction and health, while for women, the most important motives are: social contacts, competition and health (15). Men are more often motivated by internal factors (power, competition, challenge, fitness), while women are more frequently motivated by external factors (weight management, appearance) (16, 17). In all age groups, men show higher levels of general motivation and participation in sports than women do. For both genders, negative factors observed for non-engaging in sports activities are the lack of interest and limited time (15).

A current offer of sports activities at the University comprises of different sets of programmes, which differ in scope and in terms of quality, standards and purpose. The offer includes programmes of the Centre for University Sports (CUS), elective subjects of some members at the University of Ljubljana, programmes of competitive sports that take place under the auspices of the Sports Association of the University of Ljubljana (ŠZUL) and the Slovenian University Sports Association (SUSA), and programmes carried out under the auspices of the Institute for student sports at the Student Organisation of the University of Ljubljana (SOU sport). However, there is a strong negative trend in the proportion of students enrolled in regularly organized sports activities, since the start of the Bologna reform and the reorganization of sports activities at the University of Ljubljana. In other words, the abolition of compulsory Physical Education and the introduction of extracurricular sports activities at the University of Ljubljana have resulted in the drop in the share of students involved in organized sports activities on a regular basis (18). The University of Ljubljana offers organized sport activities that promote participation and socialization between groups and individuals, enhance physical fitness, and foster a spirit of fair play and sportsmanship. Each year, the content of activities varies according to the interests of students.

In this study, Slovenian high school and university students are grouped according to the prevalence of their motives in exercise participation, in relation to several socio-demographic features, engagement in physical activities, and relevant factors linked with institutional forms of organizing students' physical exercise. This taxonomisation should provide a platform for considering differences between educational programmes, adjusted to the characteristics of participants in certain taxa.

The profiling of students according to their motives for exercise participation is in line with their own and institutional efforts to enhance them. The insight in those profiles should provide the guidelines for a better and individually adjusted engagement of students in various physical exercise activities. The scope of this article is to offer a comprehensive description of those profiles.

The goal of this study is the analysis of the grouping of the participants according to the intensity of different types of motives for exercise participation, in relation to their gender, discipline of study, year of study, level of physical activity, status of physical education class during study, and organization of physical activities during study. The initial hypothesis was that students could be clearly categorized into several clusters (characteristic profiles) in terms of motives for exercise participation, according to abovementioned characteristics.

2 METHODS

2.1 Participants

The sample of participants included 5,271 students of the University of Ljubljana, which represents a 9.8 percent sample of the University of Ljubljana students in the 2010/2011 academic year. The age of the participants was between 19 and 42 years. Most students (25.6%) were enrolled in the first year of study. The data were collected by questionnaires distributed by e-mail to respondents. The data were collected on the basis of personal data sheets, completed when students were enrolling at the University of Ljubljana.

2.2 Procedure

We have disseminated questionnaires to 43,751 students of the University of Ljubljana (81.6% of all enrolled students). According to the instructions provided, 5,486 of them returned the questionnaires. In the study we considered the responses of 5,271 students - 2,033 male (38.5%) and 3,238 females (61.5%). Improperly completed questionnaires (215) were excluded from further processing. An email open rate of 15-20% is considered 'good', because we have expected the percentage of participants who respond to the survey to be even less than that. In other words, we emphasized that the participation in this research is voluntarily, and that drop out is acceptable even after a participant starts to fill in the questionnaire.

2.3 Instruments

In the study, we use the EMI-2 questionnaire (Exercise Motivations Inventory; Markland and Hardy) (19), which is widely employed in several studies of motivation. The EMI-2 was developed for assessing participation motives, in order to examine issues, such as the influence of motives on exercise participation, their influence on the choice of activities undertaken, how affective responses to exercise may be influenced by reasons for exercising, and how involvement in sports activities might have a reciprocal influence on participation motives. The authors developed an instrument to examine questions concerning functional significance of exercise motives from the perspective of Deci and Ryan's (20) self-determination theory. The EMI-2 comprises of 51 items that describe motives for participating in sports activities. A six-point Likert scale was used, in range from 0 ('not true at all') to 6 ('very true'). Moreover, we added 10 socio-demographic parameters to the EMI-2 (faculty, year of study, gender, age, engagement in sports activities, etc.). Factors that represent all scales of EMI-2 explained together 69.4% of the total variance (19).

2.4 Data Analysis

The data were analysed with the IBM SPSS Statistics (20.0) software. The basic descriptive characteristics were calculated (mean, standard deviation, the frequency of answers). Then, basic metric characteristics of the measuring instruments were determined (reliability and factor validity). The internal consistency of the 12 subscales was generally acceptable, with Cronbach's alpha reliability coefficients ranging from 0.63 to 0.90, while test-retest reliability coefficients over a 4-5-week period were ranged from 0.59 to 0.88 (19). In our research, reliability type internal consistency for the entire EMI-2 was 0.80, while the reliabilities for certain scales were: Stress Management (4 items; $\alpha=0.84$); Revitalization (3 items; $\alpha=0.84$); Enjoyment (4 items; $\alpha=0.93$); Challenge (4 items; $\alpha=0.81$); Social Recognition (4 items; $\alpha=0.85$); Affiliation (4 items; $\alpha=0.88$); Competition (4 items; $\alpha=0.94$); Health Pressures (4 items; $\alpha=0.58$); Ill-Health Avoidance (3 items; $\alpha=0.86$); Positive Health (3 items; $\alpha=0.87$); Weight Management (4 items; $\alpha=0.87$); Appearance (4 items; $\alpha=0.93$); Strength & Endurance (4 items; $\alpha=0.82$); Nimbleness (3 items; $\alpha=0.83$). Chi-square test is used to test the differences between students according to gender and discipline of study (life and social sciences), with all other relevant factors in research (label criteria for classification according to clusters obtained in research). K-means - i.e., non-hierarchical clustering method - is applied using quantitative (ratio-type) variables only, which represent types of exercise participation motives. Initial cluster centres are automatically determined, while three-cluster solution is estimated the most suitable. After clustering, with respect to the abovementioned quantitative variables (exercise participation motives), cases are classified in relation to: gender (male/female), discipline of study, year of study (1st, 2nd,...year), the level of physical activity (according to time used for physical activity, in the range from <30 minutes to >1000 minutes), status of physical education class during study (the status of PE program at the faculties: YES/NO) and organization of physical activities during study (available programmes of activities: YES/NO).

3 RESULTS

3.1 Differences in Socio-Demographic Characteristics

We analysed the differences among students according to two socio-demographic areas (gender and discipline of study).

According to the **discipline of study** (life/social sciences), more (n=2202, or 76%) female students are studying social sciences, while more (n=1341, or 56%) male students study life sciences (Chi square=581.95; df=1; $p<0.001$). More students in the first years of study are studying

social sciences (n=1761 or 61%) (Chi square=220.18; df=11; p<0.001). Students who are studying life sciences are more physically active (n=1316 or 55%) (Chi square=31.36; df=1; p<0.001). Students who are studying life sciences attended more classes of physical exercise (n=1442 or 61%) (Chi square=32.39; df=1; p<0.001), while students who are studying social sciences attended organised physical activities for longer periods of time (with median 360-420 minutes per week) (Chi square=27.88; df=11; p<0.01). Students who are studying life sciences and who have a stronger need for mandatory physical activities (n=1290, or 54%) (Chi square=7.77; df=1; p<0.01) spend longer periods of time participating in unorganised physical activities (with median 180-240 minutes per week) (Chi square=50.11; df=11; p<0.01).

When analysing **gender differences** among students, according to the discipline of study (all faculties), the results revealed that more female students (n=2202, or 76%) are engaged in social sciences (e.g., the Academy of music, the Academy of fine arts and design, the Biotechnical faculty, the Faculty of economics, the Faculty of architecture, the Faculty of social sciences, etc.) (Chi square=1419.34; df=22; p<0.001). Male students are prevalent at the Faculty of electrical engineering, the Faculty of civil and geodetic engineering, the Faculty of maritime studies and transport, the Faculty of computer and information science, and the Faculty of mechanical engineering (n=1341, or 56%). Female students are more often students (n=2367, or 74%) of lower years of study (Chi=36.66; df=11; p<0.001) and they are less physically active (n=1713, or 66%) during their studies than male students (Chi square=54.10; df=1; p<0.001). Male students attended more classes of physical exercise (n=1181, or 58%) (Chi square=4.10; df=1; p<0.05) and spent longer periods of time in organised physical activities (with median 300-360 minutes per week) (Chi square=101.03; df=11; p<0.001). Male students with a greater need for mandatory physical activities (n=1097 or 54%) (Chi square=4.33; df=1; p<0.05) spent longer periods of time performing unorganised physical activities (with median 180-240 minutes per week) (Chi square=215.01; df=11; p<0.001).

3.2 The Grouping of Students by their Motivations

The results of cluster analyses reveal that the students could be grouped into three distinctive clusters, which can be very clearly explained in terms of the prevalence of motives for exercise participation in general, namely: strongly, moderately and weakly expressed motives (Table 1). Students grouped in the first cluster have the lowest average values (means) in all exercise participation motives. The students grouped in the second cluster have the profile with moderate means in all exercise participation motives, while the students grouped in the third cluster have the profile with the highest means

in all exercise participation motives (Table 1). The majority of students are classified into the second cluster (moderate motivation), while the minority of students are classified into the first cluster (weak motivation). Women are prevailing in the second cluster, while men are dominant in the third cluster (Table 1). Both male and female students are rarely represented in the first cluster. This grouping shows that male students in general have strongly emphasised all exercise participation motives, while both male and female students have moderately emphasised exercise participation motives (Table 1).

Table 1. Taxonomisation of Slovenian students' motives for sport and exercise by gender (K-means clustering).

Variables	Clusters		
	1	2	3
	weak motivation	moderate motivation	strong motivation
stress management	8.60	15.19	16.56
revitalisation	8.04	12.77	13.40
enjoyment	9.16	15.94	17.88
challenge	5.76	11.84	15.98
social recognition	2.25	4.31	11.77
affiliation	5.86	8.93	14.49
competition	2.58	3.11	13.34
health pressures	1.65	2.81	4.80
ill health avoidance	5.76	10.34	10.86
positive health	8.01	12.96	13.27
weight management	7.12	12.88	13.21
appearance	8.18	14.99	15.68
strength & endurance	8.62	15.09	16.86
nimbleness	7.46	11.97	12.85
<i>Overall number of cases in each cluster</i>	1084	2319	1868
Males	432	579	1022
Females	652	1740	846

According to their discipline of study, the results indicate that students of life sciences are prevailing in the second (almost equally) and in the third cluster, while students of social sciences are dominant in the second cluster (Table 2). Students of life and social sciences are very rarely represented in the first cluster. Students of life sciences in general have higher means in all exercise participation motives than students of social sciences, but all students are at least moderately physically active (Table 2). The most physically active students are found at the Faculty of economics, the Faculty of electrical engineering, the Faculty of civil and geodetic engineering, the Faculty of

Table 2. Taxonomisation of Slovenian students' motives for sport and exercise by the discipline of study (K-means clustering).

Variables	Clusters		
	1	2	3
	weak motivation	moderate motivation	strong motivation
<i>Overall number of cases in each cluster</i>	<i>1084</i>	<i>2319</i>	<i>1868</i>
Academy of theatre, film, radio and television	6	4	3
Academy of music	5	9	1
Academy of fine arts and design	5	23	6
Biotechnical faculty	45	100	73
Faculty of economics	133	339	354
Faculty of architecture	27	65	36
Faculty of social sciences	97	244	125
Faculty of electrical engineering	66	83	147
Faculty of pharmacy	25	92	50
Faculty of civil and geodetic engineering	36	72	95
Faculty of chemistry and chemical technology	32	62	68
Faculty of mathematics and physics	35	67	74
Faculty of maritime studies and transport	8	21	16
Faculty of computer and information science	64	75	84
Faculty of social work	33	52	10
Faculty of mechanical engineering	70	92	168
Faculty of sport	7	38	105
Faculty of administration	49	111	97
Faculty of arts	234	495	185
Faculty of medicine	27	115	71
Faculty of natural sciences and engineering	52	81	57
Faculty of education	23	61	40
Faculty of health sciences	5	18	3
Life sciences	492	943	942
Social sciences	592	1376	926

chemistry and chemical technology (the third cluster), while only the students from the Academy of theatre, film, radio and television are dominant in the first cluster.

When analysing the grouping of participants according to their year of study, the results indicate that only students in the 1st year, on the 1st level are prevailing in the third cluster, while students from all other years of study are relatively and absolutely dominant in the second cluster (Table 3).

Table 3. Taxonomisation of Slovenian students' motives for sport and exercise by the year of study (K-means clustering).

Variables	Clusters		
	1	2	3
	weak motivation	moderate motivation	strong motivation
<i>Overall number of cases in each cluster</i>	<i>1084</i>	<i>2319</i>	<i>1868</i>
1 st year, 1 st level	268	467	476
2 nd year, 1 st level	193	356	321
3 rd year, 1 st level	139	314	299
4 th year, 1 st level	93	218	136
5 th year, 1 st level	10	39	15
6 th year, 1 st level	2	18	6
1 st year, 2 nd level	60	159	102
2 nd year, 2 nd level	42	98	83
1 st year, 3 rd level	19	40	21
2 nd year, 3 rd level	24	48	26
3 rd year, 3 rd level	15	33	30
advanced university student	219	529	353

Students who do sports during their studies are prevailing in the third (and almost equally in the second) cluster, while students who do not do sports during their studies are dominant in the second cluster (Table 4). Students who have and those who do not have physical education classes during their studies are prevailing in the second cluster (but those who have physical education as a class have relatively more cases grouped in the third cluster). Students who have mandatory physical education classes are dominant in the third cluster, while those who do not have them are prevailing in the second cluster. Both students who have and those who do not have organised physical activities during their studies are prevailing in the second cluster (but those who do not have organised physical activities have fewer cases grouped in the third cluster).

4 DISCUSSION

The main finding of the research is the fact that students from Slovenian universities could be grouped into three distinctive clusters, which can be explained in terms of the prevalence of motives for exercise participation in general, namely: Strongly, moderately and weakly expressed motives for physical exercise. The minority of students have weak motivation (the first cluster), while the majority of students have moderate motivation (grouped in the second cluster). In the third cluster (the strongest all exercise participation motives) are grouped students who are mostly male, students of life sciences, very physically active during their studies and who have mandatory physical education classes during the studies. Stronger motivation in males is argued in the majority of previous studies (21). However, there are just a few opposite results: Women showed stronger motivation for participation in sports activities, comparing to men in the study of Gill et al. (22), while in some studies, gender appears as non-important for the type of motivation in males and females (23). The analysis of the differences in their important socio-demographic characteristics (gender and the discipline of study) revealed that students who study social sciences are more often females, students from lower years of study, who are less physically active, have fewer classes of physical exercise, and lower need for mandatory physical activity. Students who study life sciences showed the opposite trend. Gender differences are statistically significant in the discipline of study (the choice of universities). Relatively more female students are in lower years of the study, less physically active, have less classes of physical exercise, attend organised and unorganised physical activities for shorter periods of time, and demonstrate lower need for mandatory physical activity. Trends in male students for same variables are just opposite. The results of grouping of the participants could be mostly explained in terms of a higher level of general motivation and a higher level of participation in sports activities in men than in women, while the lack of interest in sports compared to other activities that request less effort and time could be reasons for non-engaging in sports activities (15). For example, younger generations probably prefer other types of fun and spending free time differently. On the other hand, women can be described as expressive, socially sensitive, and genuinely interested in other people (24, 25); they demonstrated greater perceptiveness, empathy, and adaptability than men (26), showing higher social and emotional intelligence (27). This could be reflected in reported higher motivation in women to stay in good shape than men (28), and women also prefer team sports to individual ones (29).

In fact, the analysis of the differences in both socio-demographic characteristics (gender and the discipline of study) indicated that the interaction between gender and

higher (in men) or lower (in women) interest in physical activity in general, is also reflected in the choice of study (men more often choose life sciences, women social sciences). The most reasonable explanation could be that male students have higher level of general motivation and higher level of participation in sports activities than female students (30). However, the intensity of certain types of motivational factors depends on gender, the availability of physical exercise (i.e., specific programmes at certain universities), types of sports, and the level of sport engagement (in terms of sports excellence). In other words, there are differences in motivational factors between athletes who participate in competitive sports and those participating in all types of sports (31). The results of several studies reflect gender differences in the motives for participating in sports activities, found in motives for participating in certain sports activities, interest in sports, training methods (14), in five motivational factors (10, 15), internal factors and external factors (16, 17, 32). Hence, stimulating the students of social studies to be more engaged in sports could be 'translated' into stimulating female students to be more physically active (women are dominant in social studies). In the study conducted in Croatia (33), one of suggested ways to stimulate women's participation in sports is to hire women in various positions in sports as a solution (coaches, judges, tournament officials, members of sports club management, etc.). Adequate educational courses for with abovementioned positions of women and better media coverage of women in sport are prerequisites for a better inclusion of women in sport (33).

The advantage of the research is the examination of a current (actual), large and representative sample of students at the University of Ljubljana, with selected socio-demographic features, relevant for the purpose of this research. The limitations of the research arise from differences according to gender and discipline of study, which are reflected in groupings of participants. Moreover, in spite of a large sample of participants, only students from the University of Ljubljana were included in the research. Differences in students' relevant features used in clustering (e.g., male students are dominant in life sciences, etc.), provide a guide for practical implications. Information about the groupings of participants according to their exercise participation motives, offer a framework for planning educational programmes at the universities, as well as for health prevention programmes. It has to be pointed out that in Ljubljana, more and more sports events and sports activities are organised, even for free, and that in the last years, also many students participate in such events and activities. Moreover, many people are in the parks, running, skating or biking on the tracks, which gives more credit to the daily physical activity of students. In a wider

framework, as for the Ljubljana citizens, exercises (such as aerobics, Pilates and other recreational activities) are offered for very acceptable costs, out of PE contents and offers. Therefore, it is possible that this study does not reflect the 'real' situation about sports engagement amongst the University of Ljubljana students (including only PE lessons at the faculties).

The recommendation for future research can involve using more sophisticated statistical methods (for example, general linear model, with two-factorial or three-factorial MANOVA), as well as extending this investigation to students of different universities and faculties in different cities in Slovenia, or to the international level.

5 CONCLUSION

Slovenian university students could be grouped into three distinctive clusters. These clusters could be explained in terms of the prevalence of motives for exercise participation in general (strongly, moderately and weakly expressed motives). Male students, students who are studying life sciences, who are sport active during their studies, and those who have mandatory physical education classes during their studies are grouped in the third cluster, with the highest level of all exercise participation motives. To use the results obtained for practical purposes (designing particular programmes), it is important to consider the differences in socio-demographic variables. From a social standpoint, sports are a powerful tool that brings students together and creates a sense of community. They develop connections that bond together students from all the faculties. These relationships are essential for emotional and physical health throughout the entire period of the study.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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ETHICAL APPROVAL

The study was conducted in accordance with the code of Ethics of the World Medical Association (Declaration of Helsinki).

REFERENCES

1. Afsanepurak SA, Seyyed Hossini RN, Seyfari MK, Fathi H. Analysis of motivation for participation in sport for all. *Inte Res J Applied Basic Sci* 2012; 3: 790-5.
2. Škof B. Get in motion - for health and happiness: how to improve exercise capacity of Slovenian youth. Ljubljana: Faculty of Sport, Institute for Sport, 2010.
3. Tušak M. Motivation and sport: key to success. Ljubljana: Faculty of Arts, University of Ljubljana, Psychology Department, 1999.
4. Peralta M, Martins J, Marques A, Correia C. Correlates of motivation to practice physical activity among students from Portuguese military college. *Brit J Sport Med* 2013; 47: e4.
5. Turkmen M. Investigation of the relationship between academic and sport motivation orientations. *Middle-East J Sci Res* 2013; 16: 1008-14.
6. Fortes PC, Rodrigues G, Tchanchane A. Investigation of academic and athletic motivation on academic performance among university students. *IAC S IT Press* 2011; 2: 181-5.
7. Buckworth J, Nigg C. Physical activity, exercise, and sedentary behavior in college students. *J Am Coll Health* 2004; 53: 28-34.
8. Sindik J, Furjan Mandič G, Schiefler B, Kondrič M. Differences in the structure of motivation for participation in sport activities among sport students in three countries. *Kinesiologia Slovenica* 2013; 19: 14-31.
9. Kondrič M, Sindik J, Furjan-Mandič G, Schiefler B. Participation motivation and student's physical activity among sport students in three countries. *J Sport Sci Med* 2013; 12: 10-8.
10. Santos Legnani RF, Guedes DP, Legnani E, Cordeiro Barbosa Filho V, de Campos W. Motivational factors associated with physical exercise in college students. *Revista Brasileira Ciências Esporte* 2011; 33: 3.
11. Ebben W, Brudzynski L. Motivations and barriers to exercise among college students. *J Exercise Physiology* 2008; 11: 5.
12. Spray CM, Wang CKJ, Biddle SJH, Chatzisarantis NLD. Understanding motivation in sport: an experimental test of achievement goal and self determination theories. *Eur J Sport Sci* 2006; 6: 43-51.
13. Wang CKJ, Stuart JH, Biddle JHS. Intrinsic motivation towards sports in Singaporean students: the role of sport ability beliefs. *Health Psychol* 2003; 8: 515-23.
14. Shao-hua J, Mei-ting Q, Rui-guang C, Qiong-xia C. Research on gender difference of consciousness and behavior of physical exercise among college students in Hebei Province. *J Beijing Sport University* 2006; 13: 42-4.
15. Sirard JR, Pfeiffer KA, Pate RR. Motivational factors associated with sports program participation in middle school students. *J Adolescent Health* 2006; 38: 696-703.
16. Egli T, Bland HW, Melton BF, Czech DR. Influence of age, sex, and race on college students' exercise motivation of physical activity. *J Am Coll Health* 2011; 59: 399-406.
17. Guedes DP, Santos Legnani RF, Legnani E. Exercise motives in college students and associated factors. *Revista Brasileira Educação Física Esporte* 2012; 26: 4.
18. Kolar E, Cerar K, Piletič S, Svetlik I, Kugovnik O. Analysis of some aspects of the sports activity of University of Ljubljana students. *Šport* 2009; 57: 20-7.
19. Markland D, Hardy L. The Exercise motivations inventory: preliminary development and validity of a measure of individuals' reasons for participation in regular physical exercise. *Pers Indiv Differ* 1993; 15: 289-96.
20. Deci EL, Ryan RM. The general causality orientations scale: self-determination in personality. *J Res Pers* 1985; 19: 109-34.
21. Chen W. Chinese and American college students' motives for participation in physical activities. *Percept Motor Skill* 1998; 87: 1463-70.

22. Gill DL. Gender differences in competitive orientation and sport participation, *Int J Sport Psychol* 1988; 19: 145-59.
23. Gernigon C, Bars HL. Achievement goals in aikido and judo, comparative study among beginner and experienced practitioners. *J Appl Sport Psychol* 2000; 12: 168-79.
24. Eagly AH. Sex differences in social behavior: a social-role interpretation. Hillsdale, NJ: Erlbaum, 1987.
25. Eagly AH, Johnson BT. Gender and leadership style: a meta-analysis. *Psychological Bulletin* 1990; 108: 233-56.
26. Argyle M. The psychology of interpersonal behavior. Harmondsworth, UK: Penguin, 1990.
27. Schutte N, Malouff J, Hall E, Haggerty D, Cooper J, Golden D, Dornheim I. Development and validation of a measure of emotional intelligence. *Pers Indiv Differ* 1998; 25: 167-77.
28. Smith BL, Handley P, Eldredge DA. Sex differences in exercise motivation and body-image satisfaction among college students. *Percept Motor Skill* 1998; 86: 723-32.
29. Bowman M, Flower N, Machuga J, Morris M, Pasternak A, Raudenbush B. Motivation differences between group and individual athletic teams participation in intercollegiate and intramural sport. *J Sport Exercise Psy* 2001; 23: S29.
30. Winberg R, Gershon T, Alex M, Susa J, Mark A, Robert G, Gerald F. Motivation for youth participation in sport and physical activity: relationships to culture, self-reported activity levels, and gender. *J Sport Psychol* 2000; 31: 321-46.
31. Cindy H, Linder K. Situational state balances and participation motivation in youth sport. *Brit J Educ Psychol* 2006; 76: 369-84.
32. Guedes DP, Santos Legnani RF, Legnani E. Reasons for physical exercise practice in university students according to body mass index. *Rev Bras Ativ Fis Saúde* 2012; 17: 270-4.
33. Sindik J, Kozjak Mikić Z, Dodigović L, Čorak S. Analysis of the relevant factors for the engaging women in various sports in Croatia. *Monten J Sports Sci Med* 2016; 5: 17-28.