Gender differences in social cognitive factors and physical activity of Kosovo college students

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Abstract

Aim: Despite the numerous physical and psychological benefits of physical activity, the prevalence of achieving physical activity recommendations decreases in college students. Therefore, this study was conducted to identify the factors that influence physical activity in male and female college students. **Methods:** A quantitative, transversal research design was used to examine the factors that affect physical activity in male and female Kosovo students. The research was conducted on a sample of 973 (459 males and 514 females) students randomly selected from several faculties of the State University of Kosovo. Participants completed measures of physical activity, perceived benefits/barriers to PA, PA self-efficacy, parental support, peer support, and PA enjoyment. **Results:** Based on the obtained data, male students perceive a higher level of PA self-efficacy and social support from friends, they perceive more benefits from exercising, less barriers, and enjoy physical activity more. A higher percentage of male students have the recommended physical activity level as compared to female students. With the male students, it is the predictor variables that have statistically significant influences on the physical activity PA self-efficacy (OR = 1.61, 95% CI = 1.22–2.13, $p = 0.001$) and perceived benefits (OR = 1.03, 95% CI = 1.01–1.05, $p = 0.003$). For female students, a statistically significant influence on the physical activity was presented with the predictor variables of PA self-efficacy (OR = 1.54, 95% CI = 1.17–2.04, $p = 0.002$), perceived barriers (OR = 0.96, 95% CI = 0.93–0.99, $p = 0.010$), and perceived benefits (OR = 1.03, 95% CI = 1.01–1.05, $p = 0.001$). **Conclusions:** Our study results suggest that future studies should develop a school-based program that focus on PA self-efficacy, given that this has the largest influence on college students' PA, because colleges and universities are an appropriate setting to promote sports activities.

Keywords: self-efficacy, peer support, parental support, gender

Introduction

The impact of physical activity on human health has been confirmed in a number of studies; but, unfortunately, a large part of the population is still not sufficiently physically active. Diseases caused by hypokinesia are a major problem in modern medicine. Sport and recreational physical activities are vital for compensating for the lack of movement and prevention of diseases, such as stroke and cardiovascular disease, while promoting mental health and quality of life (U.S. Department of Health and Human Services, 2018).

Students are part of the young population who are getting ready for an important role in social life, and as persons with academic education, they are going to implement their knowledge and experience and influence future generations of children and the young. The rapid decline of physical activity is especially noticeable during the adolescence period (19–25 years) and with young adults (20–25 years), which places students in a risk group (Wallace et al., 2000). The transition from a secondary school to university is identified as a critical period in establishing healthy behavior because young people often begin to live away from their parents and experience greater freedom and independence (Van Dyck, De Bourdeaudhuij, Deliens, & Deforche, 2015). Students have greater opportunities to establish health-promoting behavior; however, they can possibly adopt a wrong lifestyle by neglecting their healthy routines.

Gender differences exist in physical activity participation, which is generally higher among male compared to female college students (Towne et al., 2017). Among the factors affecting the level of physical activity, there are psycho-social factors, such as self-efficacy, social support, physical activity enjoyment, and motivation. These are used in explaining the differences in physical activity between male and female students. For example, the motivation for performing exercises involves gender differences. Male students tend to perform exercises owing to their intrinsic motivation, including enjoyment and the challenge, while female students tend to be motivated by extrinsic motivations, such as body weight control (Choi, Chang, & Choi, 2015; Egli, Bland, Melton, & Czech, 2011). Therefore, when investigating predictors of PA, it is necessary to consider gender differences among college students related to the psychological and social factors affecting PA.

A growing body of research indicates that cognitive and affective factors, such as perceived benefits/barriers to action and perceived self-efficacy, are closely related to PA (Choi et al., 2015; Laird, Fawcner, Kelly, McNamee, & Niven, 2016; Mohamadian & Arani, 2014). In addition, several systematic reviews have shown that there are significant positive associations between peer support and PA, and that peer support could impact physical activity levels (Laird et al., 2016; Verloigne, Cardon, De Craemer, D'Haese, & De Bourdeaudhuij, 2016). For example, a systematic review of the influence of social support on physical activity found that social support provided by parents usually takes the form of buying sports equipment and providing transportation to sport venues, whereas friends tend to provide support by engaging in more vigorous activities and sports with each other (Mendonça et al., 2014).

Few studies from the Republic of Kosovo have examined the factors influencing physical activity with students who cherish their specific socio-cultural, religious, and others traditions (Kastrati & Georgiev, 2020). However numerous studies in the world on this topic (of different geographical regions) are available, but there arises the question of whether the data obtained from these research studies can be generalized to the Albanian student population (McKenzie et al., 2002; Schmitz et al., 2002; Seo & Ha, 2019; Xiong et al., 2017; Mirzaei-Alavijeh et al., 2018; Saller & Khaled, 2019). Therefore, based on SCT and previous studies (Rovniak et al., 2002), this study identified differences in physical activity levels and social cognitive factors to predict physical activity in terms of genders among Kosovo college students.

Methods

Participants

The study was conducted on a sample of 973 randomly selected respondents from several faculties within the university. The sample consisted of 459 (47.2%) male respondents (male students) and 514 (52.8%) female respondents (female students). The average age of the respondents of both genders was 20.2 years. The respondents were treated according to the Declaration of Helsinki

Measures

Physical Activity

To assess the physical activity, the short version of standardized International Physical Activity Questionnaire (IPAQ) was applied. Based on standard instruction and standardized algorithms for analyzing the total volume and the number of days, the students were classified into two categories: students having a high level and moderate and low level of physical activity (IPAQ Research committee, 2005).

Exercise Self-Efficacy

The perceived self-efficacy from exercising was assessed using the 8-items of physical activity self-efficacy instrument developed by Garcia et al. (1998). Items included, for example, "I could exercise even if I were tired" and "I could exercise even if I were not very good at it". Responses ranged from "very true" to "not at all true" and the mean score, ranging from 1–5, was computed by averaging the responses to the eight items. Higher values represent higher levels of self-efficacy from physical activity. The Cronbach's alpha for this study was 0.86.

Parental Support

Levels of paternal and maternal support for being active were measured by using an adapted version of a scale from the Amherst Health and Activity Study (Sallis et al., 2002; Prochaska, et al., 2002). Five items assessed different aspects of parental support, including encouragement, participation in joint activities, provision of transport, observation, and praise. Responses ranged from "a lot" to "not at all". A mean score, ranging from 1–5, was computed by averaging the responses to the five items.

Peer Support

Peer support for being active was measured using an abridged version of the parental support scales. The two items assessed were how often friends provided encouragement to be active and how often they took part in joint activities. Responses ranged from "a lot" to "not at all". The mean score, ranging from 1–5, was computed by averaging the responses to the five items. The question "How much do you enjoy doing physical activity?" was asked as well as about their enjoyment of physical education at school and how many of their friends are physically active (Inchley, Kirby, & Currie, 2008).

Exercise Benefits/Barriers Scale

The original version of EBBS (Sechrist, Walker & Pender, 1987) consisted of 43 items, 29 items under the construct of benefits, and 14 items under the construct of barriers. The benefit scales are composed of five subscales: life enhancement, physical performance, psychological outlook, social interaction, and preventative health. The barrier scales are composed of four subscales: exercise milieu, time expenditure, physical exertion, and family discouragement. The scales were designed based on a four-point Likert scale: strongly agree (4), agree (3), disagree (2), and strongly disagree (1). When the barriers and benefits are added together for a total benefits/barriers score, the items on the barrier scale have an inversed score. The barrier items are not inversely scored when only the barrier items are used. The benefit subscales can have a score ranging from 29 to 116, and the barrier subscales can have a score ranging from 14 to 56. Altogether, they result in a total score between 43 and 172. In this scoring system, the higher score represents the greater perception of a subscale.

Enjoyment

The enjoyment of PA was assessed using the revised PACES, which was originally designed to measure the positive effects associated with involvement in physical activities in college students (Kendzierski & DeCarlo, 1991). It has since demonstrated internal consistency in 12–16-year-old children with a coefficient of $\alpha=0.90$, and item-total correlations of 0.38–0.76 (Crocker, Bailey, Faulkner, Kowalski, & McGrath 1997). The original PACES consisted of 18 bipolar statements on a seven-point continuum (I enjoy it–I hate it), which were totaled to produce a total enjoyment score. The revised PACES consists of 16 statements that begin with the stem “When I am physically active...”. Motl, Dishman, Saunders, Dowda, and Pate (2007) modified the PACES for use with young adolescent females. In doing so, two items were removed, and others were rewritten to improve comprehension and reduce redundancy. A five-point Likert-type scale (1=“Disagree a lot” to 5=“Agree a lot”) which was considered more comprehensible to younger children replaced the 7-item bipolar continuum (Motl et al., 2007). The score was computed by calculating the average of the 16 items.

Statistical Analysis

The data were analyzed using SPSS version 26.0 (SPSS, Chicago, IL, USA). Differences in general characteristics, social cognitive factors, and physical activity status between female and male college students were analyzed using t-tests and χ^2 tests. The χ^2 test was used to examine differences in physical activity according to gender. Independent t-tests and χ^2 tests were used to examine differences in personal characteristics and social cognitive factors with respect to the physical activity category. Finally, logistic regression analysis was used to determine predictors of physical activity among college students according to gender.

Results

The general characteristics of male and female college students are presented in Table 1. Inspection of Table 1, where we show the results of the applied analysis, shows that statistically significant differences between male and female college students were established for the variables: age ($p = 0.001$), BMI ($p < 0.001$), PA self-efficacy ($p < 0.001$), PA peer support ($p < 0.001$), perceived barriers ($p = 0.002$), perceived benefits ($p = 0.011$), enjoyment ($p = 0.003$), academic year ($p < 0.001$) and residence ($p = 0.019$). The arithmetic means and level of statistical significance show that the body mass index (BMI) was higher with the males as compared to the female college students (23.11 vs. 20.99). In addition, the male students perceived a higher level of PA self-efficacy, social support from friends, more benefits from exercising, fewer barriers, and a greater pleasure in physical activities. A greater percentage of the male college students live in rural areas compared to the female college students.

The level of physical activity with male and female college students over the past week is shown in Table 2. Inspection of the table shows that a statistically significantly greater percentage of male students performed the recommended physical activity compared with that of female students (57.9% for males vs. 42.1% for females, $p < 0.001$).

The characteristics of physical activity according to the gender are presented in Table 3. The table shows that statistically significant differences between the male students with sufficient and insufficient physical activity were established in the variables: PA self-efficacy ($p < 0.001$), PA parent support ($p = 0.008$), PA peer support ($p = 0.001$), perceived barriers ($p = 0.006$), and perceived benefits ($p < 0.001$). There were significant differences between female students with sufficient and insufficient physical activity. The female students with sufficient physical activity had statistically significant higher scores in the variables of PA self-efficacy ($p < 0.001$), PA peer support ($p < 0.001$), perceived barriers ($p < 0.001$) and perceived benefits ($p < 0.001$).

The predictors of physical activity in the male and female college students are shown in Table 4. Logistic regression analysis, including all variables significantly associated with physical activity in univariate analysis, was performed. The table shows that for the male students, the predictor variables have a statistically significant influence on the physical activity: PA self-efficacy (OR = 1.61, 95% CI = 1.22–2.13, $p = 0.001$) and perceived benefits (OR = 1.03, 95% CI = 1.01–1.05, $p = 0.003$). For the female students, a statistically significant influence on the physical activity is presented with the predictor variables of PA self-efficacy (OR = 1.54, 95% CI = 1.17–2.04, $p = 0.002$), perceived barriers (OR = 0.96, 95% CI = 0.93–0.99, $p = 0.010$), and perceived benefits (OR = 1.03, 95% CI = 1.01–1.05, $p = 0.001$).

Table 1. General characteristics of the male and female college students

Characteristics	Male		Female		Sig.
	Mean	SD	Mean	SD	
Age (years)	20.54	3.49	19.96	1.79	0.001
BMI	23.11	2.79	20.99	2.33	0.000
PA self-efficacy	3.01	0.77	2.81	0.72	0.000
Parent Support	3.20	1.13	3.14	1.12	0.401
Peer Support	3.74	1.07	3.47	1.19	0.000
Perceived barriers	31.92	6.79	30.64	6.30	0.002

Perceived benefits	92.31	11.67	90.49	10.73	0.011
Enjoyment	3.25	0.35	3.19	0.33	0.003
	n	%	n	%	χ^2
Academic year					
I year	217	61.00%	139	39.00%	0.000
II year	79	35.60%	143	64.40%	
III year	163	41.30%	232	58.70%	
Residence					
Urban	253	44.30%	318	55.70%	0.019
Rural	206	51.20%	196	48.80%	

PA: physical activity. $p < 0.05$

Table 2. Physical activity levels of male and female college students

PA category	Male		Female		χ^2
	n	%	n	%	
Insufficient PA	170	35.90%	304	64.10%	0.000
Sufficient PA	289	57.90%	210	42.10%	

PA: physical activity. $p < 0.05$

Table 3. Associations between general characteristics and physical activity level in male and female college students

Characteristics	Male (n = 459)					Female (n = 514)				
	Insufficient PA		Sufficient PA		Sig.	Insufficient PA		Sufficient PA		Sig.
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Age (years)	20.23	2.71	20.72	3.87	0.149	20.06	1.86	19.81	1.69	0.123
BMI	23.14	2.92	23.09	2.71	0.856	20.90	2.28	21.11	2.41	0.328
PA self-efficacy	2.80	0.76	3.14	0.74	0.000	2.68	0.64	3.00	0.78	0.000
Parent Support	3.02	1.07	3.31	1.15	0.008	3.08	1.06	3.23	1.20	0.124
Peer Support	3.53	1.09	3.86	1.04	0.001	3.31	1.18	3.70	1.18	0.000
Perceived barriers	33.06	6.46	31.24	6.91	0.006	31.57	6.41	29.29	5.88	0.000
Perceived benefits	89.21	11.91	94.14	11.15	0.000	88.35	9.29	93.59	11.88	0.000
Enjoyment	3.21	0.33	3.27	0.36	0.069	3.17	0.34	3.21	0.30	0.228
	n	%	n	%	χ^2	n	%	n	%	χ^2
Year of study										
I year	77	35.50%	140	64.50%	0.158	77	35.50%	140	64.50%	0.936
II year	24	30.40%	55	69.60%		24	30.40%	55	69.60%	
III year	69	42.30%	94	57.70%						
Residence										
Urban	93	36.80%	160	63.20%	0.484	182	57.20%	136	42.80%	0.151
Rural	77	37.40%	129	62.60%		122	62.20%	74	37.80%	

PA: physical activity. $p < 0.05$

Table 4. Predictors of physical activity in male and female college students

	β	S.E.	Wald χ^2	Odds ratio	Sig.	95% CI	
Male							
PA self-efficacy	0.479	0.142	11.372	1.615	0.001	1.222	2.134
Peer Support	0.088	0.104	0.718	1.092	0.397	0.891	1.339
Parent Support	0.134	0.096	1.935	1.143	0.164	0.947	1.380
Perceived barriers	-0.022	0.016	1.941	0.978	0.164	0.949	1.009
Perceived benefits	0.028	0.009	9.045	1.028	0.003	1.010	1.047
Female							
PA self-efficacy	0.435	0.143	9.293	1.545	0.002	1.168	2.044
Peer Support	0.158	0.085	3.411	1.171	0.065	0.990	1.384
Perceived barriers	-0.040	0.016	6.642	0.961	0.010	0.932	0.990
Perceived benefits	0.033	0.010	12.086	1.034	0.001	1.015	1.054

PA: physical activity; CI: confidence interval

Discussion

Many prior research studies point at the reduction of physical activity during adolescence and the further decrease in early mature years. However, less information is available regarding what constitutes these changes and patterns of determinants for population subgroups. In fact, it is the understanding of the socio-cognitive factors influencing the physical activity of college students that plays an essential role for development of effective programs and strategies for promoting health and encouraging students to be more physically active. Previous studies confirm the level of physical activity differs with regard to gender. The results of these studies almost also present higher values among males than females (Suchomel et al., 2008; Mynarski et al., 2014; Frömel et al., 1999; Wojciechowski & Bergier, 2016). Such a comparison conducted among university students with the use of IPAQ also showed a benefit for males (Biernat, 2010; Bergier et al., 2012; Bergier, et al., 2016; Bergier et al., 2017). Our research results also suggest that male students display a higher level of physical activity compared with female students. Additionally, male students perceive a higher level of PA self-efficacy, social support from friends, more benefits from exercising, have fewer barriers, and take greater enjoyment in physical activities than the female students.

The results of our study show that PA self-efficacy is the strongest predictor of physical activity for both male and female students. A systematic review to identify factors influencing physical activity found that self-efficacy was the strongest factor impacting participation in physical activity (Choi, Lee, Lee, Kang, & Choi, 2017; Wu & Pender, 2005).

Additionally, several former studies have shown that self-efficacy is closely related to physical activity, which confirms the results of the present study (Choi et al., 2015; Mohamadian & Arani, 2014; Wu & Pender, 2005; Seo & Ha, 2019; Xiong et al., 2017; Magoc et al., 2016).

According to Bandura (1997), self-efficacy is the state of believing in personal abilities when attempting to successfully perform the behaviour required to obtain certain outcomes and function directly and indirectly with the processes of changing to a healthy behavior. Namely, the efficacy alone is important not only for starting exercises but also for exercise maintenance and habituation (Bandura, 1997). Because efficacy can provide motivation for physical activity, which leads to a true activity, people with a high level of self-efficacy have confidence in their ability to continue physical activity under any circumstances; thus, promoting PA self-efficacy in college students is very important. The research results suggest that kinesiologists working with student populations as well as professionals in public health institutions have to develop programs for improving self-efficacy for exercising to provide motivation for physical activity. To achieve this, professionals should learn an individual's level of ability, attempt to produce a sense of accomplishment by providing specific and timely feedback, and use student role models to offer secondhand experiences (Gao, Lee, & Harrison, 2008; Gao, Xiang, Lee, & Harrison, 2008). Furthermore, researchers and professionals should positively reinforce task completion and assist students in successfully completing specific tasks because mastery experience is crucial for enhancing self-efficacy.

There are two cognitive variables that can assess the level of a physical activity: the perceived barriers and perceived benefits of exercising (and their correlation). Perceived benefits have a positive influence, whereas perceived barriers have a negative influence on the level of physical activity (Buckworth & Dishman 1999). Our research results suggest that the level of perceived benefits influences the physical activity in both male and female students, whereas the perceived barriers for exercising influence the physical activity of female respondents only. Many studies completed in other countries evaluated the perceived benefits and barriers to physical activity among young people (Brown, 2005; Cheng et al., 2003; Grubbs and Carter, 2002; Gyuresik et al., 2004; Kenneth et al., 1999; Winters et al., 2003). Health education initiatives and promotion of physical activity at universities can result in a greater efficacy if such efforts are directed toward education of the respondents (especially females) who do not participate in exercises to enlarge the correlation of benefits/barriers that could stimulate them to maintain a physically active lifestyle, which will improve health. Interventions could help in reducing the perceived barriers by "removing the attention" or "separation" of the students from any perceived "annoyance" of the physical effort during physical activity (for example, by using cognitive strategies or music, the attention of the respondents is shifted from the inner physiological signs that are related to the physical effort). In addition, the interventions should be adapted to the students so that they can overcome physical effort by providing education, by setting positive goals and focusing on the potential benefits of exercising. Interventions that are directed to these one or (if possible) two directions can contribute to increasing the possibility of engaging this population group in physical activity. In addition, the research results suggest that gender specificities of the respondents should be considered when attempting to gain insight into the attitudes toward exercising and physical activity.

The peers' support had a significant influence on the univariant level but not on the multivariant level of physical activity for the students of both genders, which is similar to the results of previous studies (Dowda et al., 2003). According to our studies and some other research reports, despite the fact that there is a positive correlation between social support and physical activity, social support cannot directly influence physical activity because it influences physical activity through self-efficacy. Therefore, social support can indirectly predict the physical activity of a student population. Thus, further studies are required to identify the direct and indirect effects of social support on PA.

The enjoyment concept is defined as a multidimensional constructor, which consists of factors that are correlated with affect, competence, attitude, and cognition (Crocker, Bouffard & Gessaroli, 1995; Според Scanlan and Simons (1992). Enjoyment is an important factor for engaging in physical and sports activity and can contribute to greater involvement in the activity. Rowland and Freedson (1994) mentioned that providing a pleasant experience is one potential strategy for increasing the level of physical activity in young people. Wallhead and Buckworth (2004) established that enjoyment in a physical education class related to motivational factors, which are related to the formation of habits for an active life out of school. The results of the present study are not in accordance with the mentioned studies, namely, the enjoyment in physical activity did not influence the level of physical activity within our population. Perhaps, enjoyment of physical activity as a determinant is more significant with children and young adolescents than with this student population.

The strength of the present study was the assessment of the determinants and how they influence the level of physical activity for students in terms of gender. This allows us to provide most accurate information regarding influences on male and female college students' physical activity. Despite this strength, there are certain limits that should be mentioned. The research had a transversal character, which made it impossible to extract some casual correlation between physical activity and criteria variables. Therefore, it will be necessary to provide additional longitudinal or experimental data to identify the casual correlation between social cognitive factors and physical activity. Another limit was the use of questionnaires for self-reporting physical activity within the student population. Because subjective measurements of physical activity may decrease the reliability of study results, assessments using objective measurement indices are needed in the future along with a clear definition of physical activity. Additionally, one limit could be the fact that the results of this study may not be generally applicable to other student populations due to our use of a convenience sample. Furthermore, selection bias cannot be ruled out because with health problems may have been less likely to be present at college when the data were collected.

Conclusions

This study provides timely insights into behavior-specific social-cognitive variables that influence physical activity of male and female college students. Based on the obtained results, the factors that influence physical activity among male students are self-efficacy and the perceived benefits from exercising, whereas determinants of physical activity for female students were self-efficacy and perceived benefits and barriers to exercising. The results of this study suggest that it is necessary for future studies to develop a school-based program that focuses on PA self-efficacy, given that this has the largest influence on college students' PA and because colleges and universities are an appropriate setting to promote sports activities.

Additionally, this study examined the physical activity psycho-social processing among college students from a developing country. Research focused on promoting college students' physical activity levels and health is warranted. Our results broaden our understanding of the implementation and maintenance of a physically active lifestyle and can assist in the creation of a holistic program that addresses a broad range of psychosocial factors that will assist college students in adopting a physically active lifestyle. Undoubtedly, the conclusions of this study can be used to inform researchers and educators on effective promotion of Kosovo college student physical activity with the ultimate goal of improving health and preventing chronic diseases. The authors would like to thank Falcon Scientific Editing (<https://falconediting.com>) for proofreading the English language in this paper."

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