Original investigation

Relationship Between Physical Activity and Healthy Lifestyle Behaviors in College Students

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Abstract

Purpose: The aim of this study was to examine the relationship between healthy lifestyle behaviors and physical activity level of college students.

Methods: The sample of the study consisted of 261 students. Healthy Lifestyle Behaviors Scale-II (HLBS-II) was used to evaluate the lifestyle behaviors, and the International Physical Activity Questionnaire Short Form (IPAQ-SF) was used to determine the level of physical activity. Demographic information was recorded. Statistical analysis of the study was performed with the IBM SPSS Statistics version 22.0 program.

Results: The total score of the HLBS-II of the students was found 131.01±19.17. In order of physical activity level of students; 135 (51.7%) were very active, 85 (32.6%) were active, and 41 (15.7%) were inactive. There was a negative statistically significant correlation between physical activity levels and body weights of the students (r=-0.194, p=0.002) and a positive correlation between the mean MET values obtained by IPAQ-SF calculations and the total score of the HLBS-II (r=0.294, p=0.001).

Conclusions: The outcome of our study showed a positive correlation between the healthy lifestyle behaviors and physical activity levels of the physiotherapy students. Primary aim of the education of health science must emphasize the recognition of students' responsibility as a healthcare provider and consider themselves as examples to society for encouraging the adoptation of healthy lifestyle behaviors.

Keywords: Physical Activity, Healthy Lifestyle Behaviors, College Students.

INTRODUCTION

The college period is an important time in the adoption to the sedentary lifestyle or the acquisition of healthy lifestyle behaviors (1). Being physically active during this period has an important effect on the way that people build healthy living bases in the coming years. The active lifestyle is one of the main determinants of health-related quality of life and is shown by health professionals as one of the main components of both preventive and curative health care (2, 3). On the basis of risk factors such as developing technology, the lack of understanding the importance of physical activity for health and the adoption of an increasingly sedentary lifestyle, have been reported in studies that have increased the incidence of chronic diseases such as obesity, cardiovascular diseases, hypertension, diabetes, osteoporosis in the society (3–5). The impact of physical activity and lifestyle behavior, on health outcomes, is a common research question in current research perspective. According to Teixeira et al. exercise and physical activity play an important role in personal development theories (6). Physical activity, beginning from young ages and continuing towards middle and advanced ages, has been supported by studies that have produced positive results in all of the body's mechanisms (3, 7). The life of students in this process is important for the study of healthy lifestyle behaviors and for the development of effective and specific examinations aiming at developing at the same time to establish healthy aging and healthy community bases. In this process; it is important to conduct effective and specific studies aiming at the study and development of healthy life behaviors of students in order to establish healthy aging and healthy community bases.

Healthy lifestyle; to control all behaviors that may affect the health of the individual, and to select and implement behaviors to improve their health in their daily activities (1, 8, 9). Besides, healthy lifestyle behaviors are defined as 'behaviors that serve to protect and enhance individual well-being levels' (1, 8). Healthy lifestyle behaviors; including adequate and balanced nutrition, stress management, regular exercise, spiritual development,

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interpersonal relationships, and the protection and development of the individual's health (10). Assessment materials used in this context should be able to analyze health impact factors. The department of physiotherapy and rehabilitation students who are educated in the Faculty of Health Sciences, it is important to take responsibility for their own health. It is a necessary step towards the improved health of the community that students who study in the health education field of universities recognize the importance of a healthy lifestyle and decide to adopt a conscious life idea. It is thought that health professionals of the future who adopt healthy lifestyle behaviors can play an effective role in 'public health' studies as long as they make this attitude a part of life and can maintain goodness. In the direction of the reported reasons the purpose of our study was that, the determination of healthy lifestyle behaviors, and physical activity levels of college students. Secondary purpose of our study was to examine the relationship between healthy lifestyle behaviors and physical activity level.

METHODS

Study Design
The present study was carried out as descriptive and relational. This study was approved by local ethics committe (no: 10840098–604.01.01-E. 5162, date: 24.12.2015) and conducted according to Helsinki Declaration Rules (11).

Participants
The inclusion criteria of the study were to be a college student, the aged between 18–25 years and studied in physiotherapy and rehabilitation department in the faculty. The target population of this study was full-time university students who can read Turkish. G-Power 3.1 statistical power analysis software was conducted to assess the minimum sample size requirement (12). The required power was set at 1-β: 0.95 and the level of significance were kept at α: 0.05 in point bi-serial model with two tails. Effect size was kept at 0.27 according to reference study of IPAQ (13). Total sample size found 168 with calculation. Initially 297 students were included in the study. All of the participants were given an informed consent. They were asked to sign this paper, indicating that they were participating voluntarily. All subjects were screened using a self-reported, socio-demographic questionnaire, and functional scales. 36 participants who were found to have filled in missing information in the study were excluded from the study. Analysis of the study was done with 261 students. The sample of the study consisted of students trained at two foundation universities. The socio-demographic features of participants were evaluated by questionnaire. The questionnaire was included; age, body weight, body height, Body Mass Index (BMI), and gender. BMI is categorized with classification of normal and abnormal weights (14).

Assessment of Physical Activity Level: The International Physical Activity Questionnaire Short Form (IPAQ-SF) was used to determine the level of physical activity of the participants. The survey is a standardized tool for measuring physical activity, developed by researchers from various countries with support from the World Health Organization and the United States Disease Control Center (CDC) (15). The Turkish validity and reliability of the questionnaire were made by Sağlam et al (16). The IPAQ-SF was filled out by asking participants individually. The questionnaire consists of 4 sections and a total of 7 questions, and questioned the last seven days in the evaluation of the level of physical activity (15, 16). Information on sitting, walking, moderate intensity activities, and day and time spent in violent activities are available. Metabolic Equivalent (MET) calculation is done to determine the level of physical activity. Physical activity levels are classified in the survey as physically inactive <600 MET-min/week, lower levels of physical activity 600–3000 MET-min/week and physical activity which is useful for health >3000 MET-min/week (15–17).

Assessment of Healthy Life Style Behavior
Assessment of healthy lifestyle behaviors of students was done using HLBS-II. In our study, the form contents were explained in detail to the students. They were asked to fill the form completely. The validity and reliability study of the HLBS-II developed by Walker was conducted by Bahar in 2008 (18, 19). HLBS-II consists of 52 items in the sub-headings of health responsibility, exercise, nutrition, self-actualization, interpersonal relations and stress management (20). Since the scale rating is a 4-point Likert-type scale, the lowest possible score is 52 and the highest score is 208. Taking a high score is a good result (18, 20).

Statistical analysis
Statistical analysis was performed using the SPSS software package (version 20.0; SPSS, Inc., Chicago, IL, USA) for Windows. Before the statistical analysis, Kolmogorov-Smirnov test was used to test for normal distribution of data. Descriptive statistics were used to determine differences of subjects' demographic and clinical features. Intercorrelations between parameters were computed through the Pearson's correlation analysis. Statistical significance level was set as 0.05.

RESULTS

The demographic and physical characteristics of participants were shown in Table 1.

According to physical activity level of students; 135 (51.7%) were very active, 85 (32.6%) were active, and 41 (15.7%) were inactive (Table 1).

The total score of the HLBS-II of the students was found to be 131.01±19.17 (min: 59 – max: 186). The highest sub-heading belonged to the self-actualization (26.98±4.56). The lowest subtitle average was 17.17±5.30 in exercise. The results of the correlation analysis between IPAQ-SF and HLBS-II were shown in Table 2.

The correlation between the mean MET values obtained by IPAQ-SF calculations was r=0.294, p=0.001. There was a negative correlation between physical activity levels and body weights of the students (r=-0.194, p=0.002).

Table 1. Demographic and physical characteristics of students

	N	%
Sex		
Female	199	76.2
Male	62	23.8
Body Mass Index		
Underweight	31	11.9
Healthy weight	198	75.5
Overweight	27	10.3
Obese class I	5	1.9
Obese class II	1	0.4
Physical Activity Level		
Inactive	41	15.7
Active	85	32.6
More active	135	51.7
	X ± SD	**Min-Max**
Age (years)	19.96±1.86	17–25
Height (cm)	167.43±8.12	150–193
Weight (kg)	61.40±11.46	42–110
Body Mass Index (BMI)	21.79±3.07	16–35
IPAQ-SF	2426.10±248.81	0–14207
HLBS-II		
Health Responsibility	20.61±4.59	9–36
Exercise	17.17±5.30	8–55
Nutrition	20.28±4.61	9–57
Self-Actualisation	26.98±4.56	10–36
Interpersonal Relations	26.61±4.71	10–58
Stress Management	19.35±3.56	9–30
HLBS-II (Total Score)	131.01±19.17	59–186

X: mean; **SD:** standart deviation; **N:** number; **%:** percentage; **IPAQ-SF:** international physical activity questionnaire short form; **HLBS:** healthy lifestyle behaviors scale.

DISCUSSION

Initial outcome of our study was a positive correlation between physical activity levels and healthy lifestyle behaviors. According to IPAQ Research Group Guideline and our study outcomes, students' physical activity levels fell in to the beneficial activity level related to health. BMI outcome showed that the 75.5% of students were in the healthy weight ranges. Additionally the relationship between physical activity levels and body weight was negatively correlated and statistically significant (p<0.05). In our study, the result of demographics assessment related to mean age and BMI of students was close to the demographic assessment results on the research about obesity and weight perception among college students (21).

Developing of healthy lifestyle behaviors that serve individuals to protect and promote their own goodness levels are the main factors in public health. Research shows that healthy lifestyle behaviors, physical environment, genetic factors and quality of treatment services have impact on healthy and long lifespan (2, 6, 7, 22). HLBS-II questionnaire's use for assessing healthy lifestyle behaviors is recommended. Top score can be 208 and lowest score can be 52 in HLBS-II (8, 20, 22–24). According to HLBS-II results students had healthy lifestyle behaviors on an average level. Most research investigates healthy lifestyle behaviors has been conducted on students who studies in health sciences however non of them were on physiotherapy students. In other

Table 2. The relationship between physical activity, body weight and healty life style behaviors

	IPAQ-SF	
	r	p*
Body Weight (kg)	-0.194	0.002
HLBS-II	r	p*
Health Responsibility	0.214	0.001*
Exercise	0.470	0.001*
Nutrition	0.151	0.015*
Self-Actualisation	0.118	0.057
Interpersonal Relations	0.055	0.373
Stress Management	0.187	0.002*
Total Score	0.294	0.001*

r: Pearson's correlation coeffient; **p*:** statistical significance level; **IPAQ-SF:** international physical activity questionnaire short form; **HLBS:** healthy lifestyle behaviors scale.

studies the results of HLBS-II were 136.12 for nursing students (23), 134.4 for medical school students (25) and 127.05 for health services students (26). HLBS-II used to investigate healthy lifestyle behaviors in college students studying non health related faculties. Lee et al. found mean value of the questionnaire 119.78 for students studying in non health related faculties (8). Karadeniz et al. used the same questionnaire in students study at faculty of education and found mean result as 125.9 (27).

According to these information we can say that the students of health related faculties have higher levels of healthy lifestyle behaviors when compared to those who study in non health related faculties. Physiotherapy students have similar results to nursing and medical school students and better results than health services students. These results also shows the impact of fundamental health education included in the curriculum on healthy lifestyle behaviors of the students. HLBS-II questionnaire subscale results were in this order from lower to higher; exercise, interpersonal relations, nutrition, stress management, health responsibility. It was interesting to see that the highest result belongs to self-actualization and the lowest result belongs to exercise. However, the strongest correlation was between students' physical activity levels and exercise subscale of HLBS-II. Considering the average value of the results of our research, similar studies conducted were examined; it was seen that the levels of healthy lifestyle behaviors were similar to other studies performed in the literature (8, 19, 22, 24).

Obesity as a result of physical inactivity is listed as a risk factor for many chronic metabolic disease (3, 15, 28). Physical activity is the first line approach in the struggle against chronic conditions and for decreasing morbidity. Cardiovascular health research shows that healthy lifestyle behaviors include exercise programs has positive impact on overall health (3, 6, 7, 29). Active lifestyle is fundamental in both preventive and therapeutic medicine (2, 3).

We assessed physical activity with IPAQ-SF in our research. The questionnaire is a valid instrument for assessing physical activity in adults (2, 15, 16). In our study physical activity levels of most students were found to be in the range of beneficial for health level. There has been an increase in physical activity levels among

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young population according to Centers for Disease Control and Prevention (CDC) guidelines published from 2008 to 2016 (29). Physical activity levels of students in our study found similar to the outcome of Sağlam et. al. (16). Observation of health professional candidates with high physical activity level shows that they will be role models and that health consciousness will develop with young population. In contrary to research suggesting sedentary lifestyle was increasing, our study showed that young population had high levels of physical activity and students of health sciences tends toward to adopt an active lifestyle.

In our study the negative correlation between physical activity levels and body weight was another outcome that points out the positive impact of physical activity on health. Physical activity is listed in primary prevention methods. High levels of physical activity among physiotherapy students indicates the positive impacts of health education. As the importance of physical activity increased for conservation of health we can suggest this caused the increase in physical activity levels (5). Our study is strong by showing the consideration of avoiding behaviors that dangers health and recognize their vocational responsibility and consider themselves as examples to society for encouraging the adoptation of healthy lifestyle behaviors as the primary aim of the education of physiotherapy students. And also this study was the first to investigate the relationship physical activity level and healthy lifestyle behaviors of the physiotherapy students. Our study is limited to its conduction students from only one major in university. We suggest to investigate the physical activity levels and healthy lifestyle behaviors in the different physiotherapy students of other faculty.

CONCLUSION

Our study outcome showed a positive correlation between physical activity levels and healthy lifestyle behaviors. Primary aim of the education of health science students must emphasize the recognition of students' responsibility as a healthcare provider and consider themselves as examples to society for encouraging the adoptation of healthy lifestyle behaviors. In the framework of healthy lifestyle and physical activity levels research strategies; among students from health sciences there must be strategy based on scientific proof to increase physical activity levels in every aspect of public.

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