

ORIGINAL ARTICLE

Assessment of physical activity and academic success levels in physiotherapy and rehabilitation students

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Purpose: To evaluate the level of physical activity and academic success of all students who continued to Physiotherapy and Rehabilitation department and investigate the relationships between them.

Methods: While the level of physical activity of the students was evaluated with the International Physical Activity Questionnaire (IPAQ), the level of their academic success was obtained by their grade point average (GPA).

Results: Four hundred and thirty-five students were included in the study. Significant difference was found when the GPAs of the second, third and fourth classes were compared ($p<0.05$). Physically inactive students formed 24.4% of the first class students, 17.3% of second year students, 20.6% of third year students, and 21.9% of fourth year students. No significant relationship was found between level of physical activity and success level as the results of analysis ($p>0.05$).

Conclusion: It is considered that university lectures, which are more difficult than the previous education life, could lead to change in the physical activity level of the students. The results will guide the educators of physiotherapy and rehabilitation department and future studies conducted in this area.

Keywords: Students; physiotherapy, Physical activity, Academic success.

Fizyoterapi ve rehabilitasyon öğrencilerinde fiziksel aktivite ve akademik başarı düzeylerinin değerlendirilmesi

Amaç: Fizyoterapi ve rehabilitasyon bölümünde öğretim gören tüm üniversite öğrencilerinin fiziksel aktivite düzeylerini ve akademik başarı düzeylerini değerlendirmek ve birbirleriyle olan ilişkilerini araştırmaktır.

Yöntem: Öğrencilerin fiziksel aktivite düzeyleri Uluslararası Fiziksel Aktivite Anketi (UFAA) ile değerlendirilirken, başarı düzeyleri genel akademik ortalamalarından (GAO) elde edildi.

Bulgular: Çalışmaya 436 öğrenci dahil edildi. İkinci, üçüncü ve dördüncü sınıfların GAO'ları karşılaştırıldığında sınıflar arasında fark bulundu ($p<0,05$). UFAA sonuçlarına göre fiziksel olarak aktif olmayan öğrenciler birinci sınıfların %24,4'ünü, ikinci sınıfların % 17,3'ünü, üçüncü sınıfların % 20,6'sını ve dördüncü sınıfların % 21,9'unu oluşturdu. Analizin sonuçlarına göre fiziksel aktivite seviyeleri ile başarı seviyelerinde anlamlı bir ilişki bulunmadı ($p>0,05$).

Tartışma: Önceki eğitim hayatına göre daha zor olan üniversite derslerinin öğrencilerin fiziksel aktivite seviyelerinin değişmesine yol açabileceği düşünülmektedir. Elde edilen sonuçlar fizyoterapi ve rehabilitasyon bölümündeki eğitimcilere ve bu alanda yapılan çalışmalara yol gösterici olacaktır.

Anahtar kelimeler: Öğrenciler; fizyoterapi, Fiziksel aktivite, Akademik başarı.

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Physiotherapy is an occupation, which was developed to treat injured cases in wars and people with poliomyelitis who had a dramatically increasing number at the beginning of the 20th century. It is one of professions attending to positive science, which is found in primary health team. Clinical treatments and health promoter programs are practiced by using basic behaviors and principles of social sciences in this profession.¹ Physiotherapy practices clinical treatments and health promoter programs and rehabilitation is a 4-year undergraduate program which covers theoretical and practical information. In this department, problem-solving skills, various treatment approaches, analytical thinking skills and communication skills propose to be gained to students so they are prepared for their professional life.²

Health was described as having no disease symptom before 1940s. World Health Organization developed a new description for health as “a state of physical, mental, and social well-being, and not merely the absence of disease and infirmity” in 1947. Health is an essential key of quality life and success. Although technological improvements facilitate people’s life in various ways, it causes an increase in inactive people and negatively affects health.³

Physical activity is described as any body movement including the contractions of skeletal muscles and resulting in energy expenditure. Regular physical activity has been known as it prevents diseases and their symptoms. In addition, people who have high level of physical activity were stated to have more creative and productive personal characteristics.⁴ Today inactive lifestyle increases due to technology decreasing the energy required for daily life activities and due to economic reasons so this lifestyle has been a public problem having negative effects on health.⁵ Physical activity required to sustain healthy life helps to increase muscle strength, endurance, and flexibility so risks for various chronic diseases and early mortality decreases.⁶ While regular exercise decreases cardiovascular problems, hypertension, type II diabetes, colon and breast cancers, obesity, depression and anxiety, gall bladder diseases, and risk of osteoporosis, absence of physical activity in adolescent period may cause the

occurrence of these health problems in further ages.^{6,7} For this reason, investigating the levels of physical activity of university populations reflecting the most of young adult population becomes important.

Investigating the levels of physical activity and academic achievement of all students of Physiotherapy and Rehabilitation Department in the Eastern Mediterranean University was aimed in our study. Comparisons among the classes were then conducted to reveal the possible differences during their university life.

METHODS

Study sample

All first, second, third, and fourth class students who continued Physiotherapy and Rehabilitation Department of The Eastern Mediterranean University generated study sample (N=436). All participants who were between 18 and 25 years old, signed informed consent forms, which were approved by the Eastern Mediterranean University Ethical Committee (ETK00-2017-0083).

Level of academic performance

Grade point averages (GPAs) of the participants were recorded as the level of their academic performance.

Level of physical activity

International Physical Activity Questionnaire (IPAQ) was used to determine the level of the physical activity of the students. Sağlam et al. performed the Turkish reliability and validity of this questionnaire in 2010.⁸ The participants were asked to fill the short form of this questionnaire which has 7 questions for the last 7 days. The time spent for sitting, walking, medium level physical activity and high level physical activity was asked. The total duration (minutes) and total frequency (days) of all asked activities formed the total score of the IPAQ. Sitting score was separately calculated as a sedentary behaviour. Minute, day, and Metabolic Equivalent (MET) value were multiplied and a score “MET-minute/day” was obtained. 3.3 MET multiplied walking duration, 4 MET multiplied medium level physical activity, and 8 MET multiplied high-level physical activity. Total score of IPAQ was classified as “inactive” for <600 MET-min/week, “minimal” for 600-3000 MET-min/week, and

“sufficiently active” for >3000 MET-min/week.^{9,10}

Statistical analysis

SPSS 19 statistical software package (IBM SPSS Statistics 19, SPSS inc., an IBM Co., Somers, NY) was used for statistical analysis. Difference at $p < 0.05$ level was considered to be statistically significant. Age, gender, grade point averages of the participants were analysed by descriptive statistics. Kruskal-Wallis and Mann-Whitney U tests were used to determine the differences among the classes. Pearson correlation analysis was used to investigate the relationship between the IPAQ results and GPAs. Chi-square was used for the differences among the nominal data of the classes.

RESULTS

Information about the age, study duration, use of smoking, and use of alcohol of 436 students were shown in Table 1. 436 students as 45.2% of them were male and rest was female participated in the study. 10.3% of them was at the first class, 29.1% at the second class, 31.2% at the third class, and 29.4% at the fourth class. Significant difference was found when the GPAs of the second, third and fourth classes were compared ($p = 0.001$) (Table 2).

24.4% of the first class students had low level IPAQ score, 51.1% of them had medium level. 17.3% of second year students were inactive, 55.1% of them were medium level active, and rest was very active. 50% of third year students had medium level and 19.4% of them had high-level physical activity. 48.4% of the last year students had medium and 29.7% of them had high-level physical activity (Table 3). There are no significant difference in the sitting and walking durations of the IPAQ among classes (Table 4). No significant difference was found among classes ($p = 0.906$). No relationship was revealed between total IPAQ scores and GPAs of the participants ($p = 0.458$).

DISCUSSION

Physical activity is described as the activities occurred by energy consumption using muscle and joints in daily life, increasing

Table 1. Age, study duration, use of smoking, and use of alcohol of the participants.

	Mean±SD
Age (years)	21.0±1.8
Frequency of study (day/week)	3.4±2.0
Use of smoking (year)	4.0±2.6
Cigarette number per day	13.0±7.2
Alcohol glass number per week	3.7±4.8
Alcohol glass number per month	10.9±15.3

Table 2. Comparison of grade point averages among classes.

	Mean±SD	p
Class 2	2.05±0.76	0.001*
Class 3	2.3±0.52	
Class 4	2.53±0.46	
Total	376	

* $p < 0.05$, Kruskal-Wallis Test

heart and respiration rate, and concluded with different levels of fatigue. Physical activity behaviors take important roles among the behaviors, which positively affect people's lives and health status. In the study by Savcı et al., the levels of physical activity of 1097 students were assessed by the IPAQ and the level of their physical activity was determined as low.¹⁰ El-Gilany et al. investigated the level of physical activity of 1708 students by using IPAQ and found that 11.3% of them were inactive, 52% were minimally active, and 36.77% were sufficiently active.¹¹ Similarly, according to this study, 20.9% of the students were inactive, 51.1% were minimally active, and 28.4% were sufficiently active.

Although academic performance significantly increased every year, the differences among the levels of physical activity of the classes were not significant. There are various papers which indicate relationship between physical activity level and academic achievement of the students of secondary and high schools and also showed that while level of physical activity increases, academic achievement increases.^{12, 13} Excessive course load and the need to study at home were the

Table 3. Classification of the International Physical Activity Questionnaire (IPAQ) scores according to the classes.

	Levels of physical activity			Total n (%)
	Inactive n (%)	Minimal n (%)	Sufficiently active n (%)	
Class 1	11 (24.4)	23 (51.1)	11 (24.4)	45 (100)
Class 2	22 (17.3)	70 (55.1)	35 (27.6)	127 (100)
Class 3	28 (20.6)	68 (50.0)	40 (19.4)	136 (100)
Class 4	28 (21.9)	62 (48.4)	38 (29.7)	128 (100)
Total	89 (20.9)	223 (51.1)	124 (28.4)	436 (100)

Table 4. Sitting and walking parameters of the International Physical Activity Questionnaire (IPAQ).

	Sitting duration (min)		Walking duration (min)	
	Mean±SD	p value*	Mean±SD	p value*
Class 1	19.35±26.99	0.084	20.05±17.58	0.730
Class 2	31.4±34.94		22.89±21.43	
Class 3	34.88±65.33		27.05±32.73	
Class 4	29.16±45.85		28.22±34.52	

* Kruskal Wallis Test.

primary reasons of the students who did not do exercise.¹⁴ The other reasons were the difficulties to access sport and exercise facilities and high prices of sport centers. Similarly, the literature showed that the absence of exercise and sport facilities caused tendency to physical inactivity.¹⁵ However, as the courses of universities are more challenging than the previous schools, students may change the order of the importance of physical activity and they may give priority their courses for their academic performance so this can explain the reason of no significant difference between the physical activity level of the classes in this paper. Mull and Tietjen-Smith¹⁶ also investigated the correlation between physical activity and academic success by using GPA of university students and similarly they found no relationship. Students should be motivated to do physical activity in their leisure time by explaining the importance of physical activity as much as their academic achievement. A recent paper by Casebolt et al.¹⁷ supported this suggestion as they stated that physical

activity programs for university students increased the academic success.

Limitations

GPA of the students were recorded as the level of their academic performance and this value covered all years, while IPAQ that was used to assess level of physical activity questioned the activities of people during last week. However, it is known that physical activity is affected by season and time so this is the limitation of this paper. On the other hand, no adequate assessment tool has been found to indicate the physical activity level of a longer period such as three months or a year. In the literature, Mull and Tietjen-Smith¹⁶ recorded the physical activity of the students as they regularly participated in physical activity or not so they did not use any scale to determine the level of physical activity. Further papers, which design the methods by considering this limitation, are required.

Conclusion

This study is essential to determine the level of physical activity and academic

performance of the students continued in the physiotherapy and rehabilitation department. Moreover, students were compared among the classes in order to reveal possible effects of health education on these parameters. Our results will guide both educators and investigators of physiotherapy for further studies.

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