RESEARCH ARTICLE

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Examination of the relationship between physical activity levels and healthy lifestyle behaviors of university students†

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ABSTRACT

Objectives: This study was conducted to determine and correlate physical activity levels and healthy lifestyle behaviors of university students. **Materials and Methods:** The sample of the research consisted of 155 students who could be reached during the period of the research and was willing to participate in the research based on volunteering principle. "Student presentation form," "international physical activity assessment questionnaire short form," and "healthy lifestyle behavior scale" were used in the collection of research data. In the evaluation of the data, number, percentage, mean and standard deviation, independent *t*-test, and Pearson correlation analysis were used. **Results:** The mean score of healthy lifestyle behaviors scale of the students was found to be 123.83 ± 18.23 (minimum: 86, maximum: 177), scale sub-dimension mean scores were calculated, respectively, as self-realization sub-dimension was 37.31 ± 6.38, health responsibility subscale was 21.60 ± 5.58, exercise sub-dimension was 10.14 ± 3.28, interpersonal support subscale was 20.65 ± 3.69, and stress management sub-dimension was 18.79 ± 4.20. The total score average of the physical activity level of the students included in the survey was 2474.34 metabolic equivalent task-min/hf, and it was determined that the students were in the minimum active group in terms of total physical activity level. A statistically significant correlation was found between the total mean score of the healthy lifestyle behavior scale and international physical activity evaluation questionnaire short form total mean score ($P < 0.05$). **Conclusion:** As a result of this research, university students were found to be in the minimum active group in terms of physical activity level, and healthy lifestyle behaviors were found to be moderate.

Key words: Healthy life style behaviors, physical activity level, university students

INTRODUCTION

In the vast of the majority of society, physical activity is perceived as synonymous with the words "sport" and "exercise." However, these concepts are often used interchangeably.[1] Physical activity is defined as body movements produced by skeletal muscles that provide a significant increase in energy expenditure in addition to rest energy expenditure.[2] According to Rowland and Freedson,[3] physical activity is energy expenditure as a result of the movement of the body through the skeletal muscles, the amount of movement an individual makes on a daily basis. In short, physical activity is a consequence of skeletal activity and is directly related to energy consumption.[4] Besides, the fact that regular physical activity can prevent or delay different chronic diseases is now well understood.[5] Physical activity increases energy expenditure and protects against fat loss as well as loss of fat-free fluid, improves cardiorespiratory stability, reduces obesity-related cardiac risk factors, and accelerates the healing process.[6]

With the developing technology, it is known that individuals lead a sedater lifestyle, and in another word, they live a still life. Industrialization and technological developments brought by urbanization are increasing physical inactivity, causes teenagers and children to spend more time in sedentary activities such as watching television, sitting at the computer, and playing games at the internet cafe.[7-9]

On the other hand, healthy lifestyle behaviors are defined as the totality of behaviors that an individual believes and applies to stay healthy and to protect from illnesses. Healthy lifestyle behaviors are known as socioeconomic status, education, sports habits, eating habits, and environmental factors, especially ability to cope with stress factors.[10] Health behaviors are examined under two groups as positive and negative health behaviors. Positive health behavior refers to the conscious efforts of individuals to protect and improve their own health and the well-being of others. Properly balanced nutrition, regular sleeping, doing sports, passing health checks at least once a year, and communicating positively with other individuals are examples of positive health behaviors.[11]

The university life has been a year in which significant changes have taken place in youth life. This change is especially important in terms of attitudes and behaviors in the health field. For this

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reason, quality of life can be enhanced by making university students conscious, increasing their physical activity, being healthy, and exhibiting healthy lifestyle behaviors. In the student's life, making physical activity habit in the life of the person will create a healthy life base in the future. In this sense, the healthy life and physical activity of the students will give them great advantages in terms of their quality of life. Based on these reasons, it was aimed to determine and correlate the physical activity levels and healthy lifestyle behaviors of the university students in this research.

MATERIALS AND METHODS

This research is planned descriptively and cross-sectional. The study was carried out in different departments at Uludag University during the spring semester of 2016-2017 academic years. The sample of the research was composed of 155 students who were willing to participate in the research based on volunteerism, which can be reached during the course of the research. "Student presentation form," "International physical activity evaluation questionnaire short form," and "Healthy lifestyle behavior scale" were used to collect research data.

Student Presentation Form

This form, which was prepared by the researchers in the light of the literature, includes some descriptive characteristics related to age, gender, where they live, regular sports habits, and which sports they play regularly.

International Physical Activity Evaluation Questionnaire Short Form

The ınternational physical activity assessment questionnaire (IPAQ) was developed to determine the physical activity levels of participants aged 15-65.[12] IPAQ has been developed to obtain valid and comparable information on the level of physical activity based on individual reports on daily basis in the international arena. The study of validity and reliability in Turkey was carried out by Öztürk in 2005.[13] The questionnaire consists of 4 sections and a total of 7 questions. The questionnaire contains questions about physical activity that have been done for at least 10 min in the last 7 days. In the questionnaire, how many days in the last week and how long for each day and (a) Severe physical activity, (b) moderate physical activity, and (c) walking. In the last question, the time spent without moving daily (sitting, lying, etc.) is determined. The metabolic equivalent task (MET) method is used to determine the level of physical activity. MET = 3.5 ml/kg/min.

1st category: Inactive: <600 MET-min/hf,

2nd category: Minimal active:>600 - 3000 MET-min/hf,

3rd category: HEPA active: >3000 MET-min/hf.[14,15]

Healthy Lifestyle Behavior Scale

Developed in 1987 by Walker *et al.,*[16] it was revised again in 1996. The study of validity and reliability in Turkey was carried out by Esin in 1997.[17] The scale measures health-promoting behaviors associated with the individual's healthy lifestyle. The scale consists of 52 items and has 6 sub-factors. Sub-dimensions, self-fulfillment, health responsibility, exercise, nutrition, interpersonal support, and stress management. Each sub-dimension can be used independently. The total score in the scale gives the score of healthy lifestyle behaviors. All the items in the scale are positive. The rating type is 4-point Likert. It is scored as never (1), sometimes (2), often (3), and regularly (4). For the entire scale, the lowest score is 52 and the highest score is 208.[18]

Students were informed about the purpose of the research, data collection forms were distributed to the students who voluntarily participated in the study, and the questionnaires were collected from the students who completed their answers. The necessary ethical and legal permissions have been obtained for the conduct of the research. In addition, the students who were included in the research were informed about the research and received their consent for voluntary participation in the research.

In evaluation of the data, number, percentage, mean and standard deviation, independent *t*–test, and Pearson correlation analysis were used.

RESULTS

The average age of the participants was 19.61 ± 2.27 years, the mean body mass index was 21.93 ± 2.86 kg/m^2, 71% of them were girls, 58.7% of them were staying in the dormitory, and 12.3% were taking riding lessons.

Table 1 shows the physical activity levels of students participating in the survey by the MET method. According to this, IPAQ total point average of students was calculated as 2474.34 MET-min/hf, and students were found to be in the minimum active group in terms of total physical activity level.

The scores of the healthy lifestyle behaviors scale (HLBS) of the students were found to be as 123.93 ± 18.23 (minimum: 86, maximum: 177), and the subscale score means were, respectively, self-actualization subscale was 37.31 ± 6.38, health responsibility subscale was 21.60 ± 5.58, exercise subscale was 10.14 ± 3.28, the nutrition subscale was 15.32 ± 3.23, the interpersonal support subscale was 20.65 ± 3.69, and the stress management subscale was 18.79 ± 4.20 [Table 2].

As a result of the analyzes, a statistically significant correlation was found between the mean score of the HLBS total score and the average score of the international physical activity evaluation questionnaire short form total score (P = 0.003). In addition, it was determined that the students who took riding lessons had a higher level of healthy lifestyle behaviors and physical activity levels than the students who did not take this course and the difference between them was statistically significant (P = 0.003, P = 0.045, respectively). Male students were found to have significantly higher levels of physical activity than girls (P = 0.011). There was no significant relationship between gender and healthy lifestyle behaviors (P = 0.341), where they lived, and healthy lifestyle behaviors and physical activity levels (P = 0.150; P = 0.284, respectively).

DISCUSSION

This study was conducted to determine and correlate physical activity levels and healthy lifestyle behaviors of university

Table 1: Determination of physical activity levels of students by MET method

Type of physical activity	Level of physical activity
Walking (3.3 MET)	1592.68 MET-min/hf
Medium density physical activity(4.0 MET)	200.99 MET-min/hf
Heavy physical activity (8.0 MET)	312.82 MET-min/hf
Seating (1.5 MET)	367.83 MET-min/hf
Total	2474.34 MET-min/hf, minimum active: >600-3000 MET-min/hf

MET: Metabolic equivalent task

Table 2: Distribution of student's HLBS and scale points for lower dimensions

Sub groups	Mean±SD	Minimum–maximum
Self-actualization	37.31±6.38	21-65
Health responsibility	21.60±5.58	12-39
Exercise	10.14±3.28	5-19
Nutrition	15.32±3.23	8-24
Interpersonal support	20.65±3.69	12-28
Stress management	18.79±4.20	12-46
HLBS total score	123.83±18.23	86-177

SD: Standard deviation, HLBS: Healthy lifestyle behavior scale

students and found that they were in the minimum active group in terms of total physical activity level [Table 1]. It is observed that physical activity level of students from these findings is low. In a study conducted by Murathan *et al*.,[19] in a university in Turkey, it was determined that the students were in the minimum active group in terms of physical activity level. In a study conducted in Brasil, 41.1% of individuals over 20 years of age were found to be inactive.[20] The results of this study are parallel to our study results. However, a similar study by Bozkuş *et al*.[21] on students attending physical education and sports college reached the conclusion that students were involved in the active group in terms of physical activity level. The reason for this study is different from our study findings; we think that it is because we do not include the physical education and sports college students who are engaged in sports with intensive study.

As a result of this study, the mean score of HLBS was found to be 123.83 ± 18.23 [Table 2]. The highest score that can be taken from HLBS is 208. In the light of these results, we can say that students have a moderate level of total HLBS score. In the studies carried out in Turkey on the subject, healthy lifestyle behaviors of students were found to be moderate.[22-24] The results of the studies on this subject in Turkey are similar to our study results. Studies conducted in other countries have achieved lower well-being behaviors.[25-27] There is an interpretation that this may be the result of intercultural differences.

Depending on the close relationship between daily activity levels and health, it is recognized that the intensity of physical daily life activities is very important in determining healthy lifestyle behaviors.[28] Adapting these behaviors to the lives of people is an important process to create a healthy future as well as to increase the quality of life. As is known, the fact that regular physical activity can prevent or delay different chronic diseases is an irrefutable fact.[21,29] In addition, physical activity and exercise enhance the physical fitness of individuals and thus support a healthy lifestyle. As a result of this study, a statistically significant relationship was found between the mean score of the HLBS and the average score of the international physical activity evaluation questionnaire short form total score. Murathan *et al*.[19] and Özkan *et al*.[18] have also achieved the same results. Our study results were found to be consistent with the literature.

As a result of this study, it was seen that healthy lifestyle behaviors and physical activity levels of students who took riding lessons were significantly higher than those who did not take this course. Equestrianism is a sporting event, becoming a popular event especially in the USA and abroad.[30] Therefore, it is possible that the students who are riding sports have a healthier lifestyle than the students who do not play this sport due to their positive health behaviors.

In the studies done about the subject in the literature, male students were reported to have higher levels of physical activity than female students.[20,31-33] We conclude that the study is compatible with the literature. On the other hand, in this research, the gender variables of the students did not affect the healthy lifestyle behaviors. In some studies, it was found that the gender factor did not affect individuals' healthy lifestyle behaviors[19,34,35] but not in some studies.[27,36] According to these results, our study findings are similar with some study results, but they are also different with some study results. This may be due to the sampling group included in the research and the diversity of environmental and cultural conditions.

CONCLUSION

As a result of this research, university students were found to be in the minimum active group in terms of physical activity level and healthy lifestyle behaviors were found to be moderate. It was also determined that equestrian sport contributes positively to physical activity levels and healthy lifestyle behaviors of the students. In line with these results, it is proposed to organize promotional and enhancing programs for the participation of university students in physical activity, placement of elective courses encouraging students to course curricula, and larger sample of research at different universities.

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