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DOES PHYSICAL ACTIVITY LEVEL DEPEND ON EXERCISE PERCEPTION AND BODY AWARENESS?

ORIGINAL ARTICLE

ABSTRACT

Purpose: In this study, it was aimed to investigate whether physical activity level depends on exercise perception and body awareness.

Methods: A total of 116 people between the ages of 18-25 years who did not have any disease-preventing physical activity participated in the study. Using a face-to-face questionnaire and inquiry methods, participants were evaluated with Body Awareness Questionnaire (BAQ), Exercise Benefits/Barriers Scale (EBBS), and International Physical Activity Questionnaire-Short Form (IPAQ-SF).

Results: The mean age and body mass index of the participants were 20.38 years and 21.86 kg / m^2. In IPAQ-SF scores, 28.4% of the participants were at the low activity level, 40.5% were at the medium activity level and 31% were at the high activity level. There was a weak correlation (r <0.400) between body awareness and IPAQ-SF score and a negative correlation between BAQ and EBBS benefits score (r <0.400). There was a weak correlation between IPAQ-SF scores and BAQ scores (r <0.400).

Conclusions: According to the results from the present study, the level of physical activity was found to be depend on body awareness and perceived exercise barriers. To increase the level of evidence in our study, there is a need for studies with more groups of participants and students living in different conditions.

Key Words: Body Awareness, Exercise, Physical Activity, University Students

FİZİKSEL AKTİVİTE DÜZEYİ EGZERSİZ ALGISINA VE VÜCUT FARKINDALIĞINA BAĞLI MIDIR?

ARAŞTIRMA MAKALESİ

ÖZ

Amaç: Bu çalışmada, fiziksel aktivite düzeyinin egzersiz algısı ve beden farkındalığına bağlı olup olmadığının araştırılması amaçlandı.

Yöntem: Çalışmaya 18-25 yaş arasında fiziksel aktiviteye engel olacak herhangi bir hastalığı bulunmayan 116 sağlıklı birey dahil edildi. Katılımcılar Beden Farkındalığı Anketi (BAQ), Egzersiz Faydaları / Engeller Ölçeği (EBBS) ve Uluslararası Fiziksel Aktivite Anketi-Kısa Formu (IPAQ-SF) ile yüz yüze değerlendirildi.

Sonuçlar: Katılımcıların yaş ortalaması ve vücut kitle indeksi 20,38 yıl ve 21,86 kg/m^2 idi. IPAQ-SF skorlarında katılımcıların %28,4'ü düşük aktivite seviyesinde, %40,5'i orta aktivite seviyesinde ve %31'i yüksek aktivite seviyesindeydi. BAQ ile IPAQ-SF puanı arasında zayıf korelasyon (r <0,400) ve BAQ ile EBBS fayda puanı arasında negatif korelasyon (r <0,400) vardı. IPAQ-SF puanları ile BAQ puanları arasında da zayıf bir korelasyon (r<0,400) bulundu.

Tartışma: Çalışmanın sonucuna göre fiziksel aktivite düzeyinin, beden farkındalığına ve algılanan egzersiz engellerine bağlı olduğu bulunmuştur. Çalışmamızın kanıt düzeyini artırmak için daha fazla katılımcı grubu ve farklı koşullarda yaşayan öğrencilerle yapılacak çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Egzersiz, Fiziksel Aktivite, Üniversite Öğrencileri, Vücut Farkındalığı

INTRODUCTION

Physical activity is defined as any movement that requires skeletal muscles to expend energy (1). Although lack of physical activity is shown as a risk factor for non-communicable diseases such as stroke, diabetes, and cancer, physical activity is gradually decreasing in most countries. Globally, 23% of adults and 81% of adolescents going to school are not sufficiently active (2). Many factors affect physical activity levels such as demographic variables, awareness, beliefs, positive benefits affecting the physical activity level and perceived barriers that affect negatively (3).

Perceived barriers create intra and inter personality levels known as an important determinant of physical activity (4,5,6). Internal-personal or external-environmental barriers have been described in various studies. Internal barriers are related to the motivation of individuals, while external barriers depend on the environment and the structure of societies. (7,8).

Body awareness is a complex concept in which one's bodily and emotional functions take place together. Accordingly, it consists of many parameters such as position perception, movement sense and cognitive thoughts (9). Increasing this awareness, in which physiological and psychological processes are intertwined, is possible with mind-body approaches. This increase plays an important role in increasing the control of breathing, mind, emotional processes and also in increasing postural control with the improvement in balance, coordination, and muscle-joint movements (10,11).

Although many studies on exercise perception assessed the perceived usefulness and obstacles of exercise among young people, there was no study among university students that examined body awareness, exercise perception, and physical activity level. This study aims to investigate whether the level of physical activity is linked to exercise perception and body awareness.

METHODS

This study was conducted at the University of Health Science, Faculty of Hamidiye Health Sciences, Department of Physiotherapy and Rehabilitation in Istanbul, Turkey, between January 2020 and July 2020. Students who did not have a problem preventing physical activity between the ages of 18-25 years were included in the study. All participants were healthy students at the University of Health Science.

The study was carried out under the supervision of both the University of Health Science, Hamidiye Scientific Research Ethics Committee (Protocol Number: 19/167, Date: 27.12.2019) and registered on the ClinicalTrial.gov website (registration number: NCT04270227). The study was conducted in accordance with the Helsinki Declaration. Written informed consent was obtained from each patient.

Demographic data form, which includes demographic information such as age, gender, and height, international physical activity questionnaire short form (IPAQ-SF), consisting of 7 questions, the body awareness questionnaire (BAQ) consisting of 18 questions, the exercise benefits/barriers scale (EBBS), which has 14 questions on exercise barriers, 29 questions on exercise benefits, were used in the study. The survey was presented to participants in a single document. In the usual course routines, all volunteers were informed about the evaluations and written approvals were obtained by getting prior approval from the teacher of the course. Information was taken from the participants at a time away from the exam periods as the emotional state may have an impact on the results.

Outcome Measurements

Body Awareness Questionnaire (BAQ): It is a questionnaire consisting of four subgroups (changes in the body process, sleep-wake cycle, prediction at the onset of the disease, prediction of body responses) and a total of 18 statements aimed at determining the normal or abnormal sensitivity level of the body composition. BAQ is widely used in research for various populations; measuring beliefs about the individual's sensitivity to normal, abnormal, sensitive, or non-sensitive body processes. It is a self-report scale based on the concept. The participant is asked to score between one and seven numbers for each statement. In the survey, the ratings are made as total points. The high score shows that body sensitivity is better (12,13,14).

Exercise Benefits/Barriers Scale (EBBS): It is a 43-item questionnaire that uses the 4-item Likert

scale. Three different scores are obtained from this scale: exercise benefits scale score, exercise barriers scale score, and total score. Questions on the benefits scale are grouped into 5 categories: (1) life development, (2) physical performance, (3) psychological appearance, (4) social interaction, and (5) preventive health. Questions on the disability scale are grouped into 4 categories: (1) work environment, (2) time-wasting, (3) physical exertion, and (4) family encouragement. The score ranges from 43 to 172. High scores on the benefits scale indicate that the perceived benefits of physical activity are high, while high scores on the barriers scale indicate that the perceived barriers to physical activity are low. The survey was developed by Sechrist et al. The Turkish validity and reliability survey of the survey was conducted in 2017 (15-17).

International Physical Activity Questionnaire-Short Form (IPAQ-SF): The short form of the international physical activity questionnaire, which consists of seven questions, was used to determine the levels of physical activity. The validity and reliability studies of this survey in Turkey were conducted by Öztürk (18) on university students. The criterion for the activity evaluation is that each activity is performed at least 10 minutes at a time. The "MET-min/week" score is obtained by multiplying the time in minutes, the number of days, and the MET value corresponding to the basal metabolic rate (multiples of oxygen consumption at rest). Accordingly, the total score is classified as; low physical activity level (if not moderate or vigorous), moderate physical activity level (600-3000 MET-min/week), and high physical activity level (>3000 MET-min/week) (18,19).

Statistical Analysis

Statistical analysis was conducted using SPSS version 15 (SPSS Inc., Chicago, IL, USA). In addition to descriptive methods, Pearson correlation analysis was used. In addition, independent sample testing was used to compare gender data. Descriptive and clinical features of patients were defined as mean (frequency) and rate (%) for categorical variables, and standard deviation for continuous variables. The normalizations of the test data were examined using the Shapiro Wilk test. Mann Whitney U test was used for intergroup changes in the data with no normal distribution. Variables were expressed as median, minimum and maximum, $p < 0.05$ was considered statistically significant. Considering the IPAQ-SF total values, which is the primary outcome measurement parameter (20), which is one of the evaluation parameters in our study, 58 women and 58 males in the power analysis conducted with the G * power 3.1.9.4 program according to the 0.05 alpha level. It was calculated that 116 people should be recruited.

RESULTS

The average age and body mass index of the participants was 20.38 years and 21.86 kg/m^2. While smoking was 23%, 18% of this rate was composed of men, 56% of the students were staying in a dormitory (Table 1).

EBBS barriers score mean value was 28.59, EBBS benefits score mean value was 53.19, EBBS total score value was 81.78, and BAQ mean score was 87.86. In IPAQ scores, 28.4% of the participants were at a low activity level, 40.5% were at the medium activity level and 31% were at high activity level (Table 2).

Table 1. Characteristics of Group Participants

Parameter	Total (n=116)	Male (n=58)	Female (n=58)
Age, year mean (min-max)	20.38 (18-25)	21.00 (18-25)	19.76 (18-25)
BMI, kg/m^2 mean (min-max)	21.86(15.94-30.85)	23.01(17.51-30.09)	20.72(15.94-30.85)
Smoking, n (%)	23 (19.8)	18 (31.0)	5 (8.6)
Environment, n (%)			
Home	60 (51.7)	32 (55.2)	28 (48.3)
Dormitory	56 (48.3)	26 (44.8)	30 (51.7)

BMI: Body Mass Index

Table 2. IPAQ, BAQ, EBBS Barriers, EBBS Benefits, EBBS Total Survey Score by Genders

Parameter	Total (n=116)	Male (n=58)	Female (n=58)	P
Physical Activity Levels n (%)				
Low	33 (28.4)	15 (25.9)	18 (31)	
Moderate	47 (40.5)	18 (31.0)	29 (50)	.039
High	36 (31)	25 (43.1)	11(19)	
Total	116 (100)	58 (100)	58 (100)	
EBBS Barriers mean(min-max)	28.59(16-48)	28.86 (16-48)	29.03 (19-61)	.591
EBBS Benefits mean(min-max)	53.19(30-82)	51.67(30-82)	54.71(30-73)	.177
EBBS Total mean(min-max)	81.78(49-109)	80.48(53-109)	83.07(49-106)	.369
BAQ mean (min-max)	87.86(50-121)	87.93 (50-121)	87.79 (65-113)	.699

EBBS: Exercise Benefits/Barriers Scale, BAQ: Body Awareness Questionnaire , *p<0.05

There was a weak correlation between body awareness and IPAQ score (r <0.400). A weak negative correlation was found between body awareness and the EBBS benefits score (r <0.400). In addition, a weak negative correlation was found between EBBS total scores and IPAQ scores (r <0.400). While there was a weak correlation between IPAQ-SF scores and BAQ scores (r <0.400). There was a negative weak correlation between IPAQ-SF and EBBS benefits and barriers (r <0.400) (Table 3).

The EBBS total score was weakly correlated (r <0.400). Body awareness was found to be very weak negative correlations in smokers (r <0.200). When the authors looked at the correlation of IPAQ-SF scores with BAQ by gender in the scores, there was no significant difference in any parameters among women, and a weak correlation was found among men (r<0.400). While the benefits and total values of IPAQ-SF and EBBS by gender were moderately correlated in males (r<0.600), the EBBS barriers scores were negatively correlated in males with IPAQ-SF scores (r<0.400).

DISCUSSION

Many studies examine physical activity with parameters such as nutrition, stress, academic success, and mental health among university students. In addition to these, it has been researched in parameters such as motivations, obstacles, benefits against physical activity in university students. The

Table 3. IPAQ, BAQ, EBBS Barriers, EBBS Benefits, EBBS Total Survey Score Correlation Analysis Results

	IPAQ-SF	BAQ	EBBS Barriers	EBBS Benefits	EBBS Total
IPAQ-SF					
r		,242*	-,214*	-,349*	-,383*
P		,009	,021	,000	,000
BAQ					
r	,242*		,082	-,240*	-,164
P	,009		,380	,010	,079
EBBS Barriers					
r	-,214*	,082		,186*	,576**
P	,021	,380		,045	,000
EBBS Benefits					
r	-,349*	-,240**	,186*		,910***
P	,000	,010	,045		,000
EBBS Total					
r	-,383*	-,164	,576**	,910***	
P	,000	,079	,000	,000	

EBBS: Exercise Benefits/Barriers Scale, BAQ:Body Awareness Questionnaire, IPAQ: International Physical Activity Questionnaire *: Weak Correlation **: Moderate Correlation ***: Very High Correlation

originality of our study is that it is the first study to examine the level of physical activity, perceived exercise benefits/barriers and its relationship with body awareness. The information obtained from our study will contribute to minimizing or eliminating the problems that may arise with inactivity at an advanced age by encouraging the active lifestyle before the students participate in the working life and by creating healthy lifestyle behaviors. At the same time, according to the determined barriers, data will be obtained for universities to remove the barriers of physical activity in front of young people. Thus, chronic diseases that can be prevented by changing the physical activity level from an early age and applying these gains throughout life can be prevented.

Although many factors are included in the concept of body awareness (changes in body process, sleep-wake cycle, prediction at the onset of disease, prediction of body responses), each parameter is important in terms of functioning in life. Body awareness is evaluated by various questionnaires created today (13). In a study linking exercise and eating habits with body awareness, they concluded that body awareness did not affect these parameters (21). The fact that body mass index was not associated with physical activity in our study supports this previous study. In another study on chronic kidney patients, individuals who knew the benefits of exercise were shown to be higher than those who did not know the benefits of disease awareness and body awareness scores (22).

The fact that no difference was observed between the genders in the studies conducted supports the lack of a significant difference between the body awareness in our study (23,24). When the level of physical activity was evaluated by gender, women are more active at medium severity (50%) while men are more active at higher severity (43%). As the physical activity level of men increased, BAQ scores increased and EBBS Barriers scores decreased, whereas women did not find such a correlation.

In our study, there was no chronic disease among the students. In the studies conducted previously, it is emphasized that being physically active in the university period and providing good mental and physical health in later life (25). According to a study conducted on Japanese university students, they concluded that students with high physical activity were more successful in solving social problems (26). In our study, 31% were highly active when the researchers evaluated the physical activity levels of those people who did not have a physical disability, and 40% were moderately active, 28.4% were inactive. Another study on university students found that students were not active and did not match our results (27).

Non-smoker students had higher body awareness. No studies on smoking and body awareness have been found in the literature. This may be another study topic. Individuals who smoke constitute 23% of our study. Although this is not a low rate, when it was compared between genders, men make up 18% of this rate. The prevalence of the smoking habit among men was found to be compatible with another study on university students (28).

There are too many parameters that affect the level of physical activity. The perceived barriers scores were low in individuals with high levels of physical activity. At the same time, the perceived benefits scores of inactive individuals are high. This shows that people are aware of exercise, but they tend to avoid exercise due to environmental factors such as distance to exercise, time, economic, family and friends, or personal factors like fatigue, personality, as well as the items in the obstacle scores. Although these parameters have been evaluated with the questions included in the exercise benefits and barriers scale, a more detailed investigation should be carried out in future studies to determine the exact causes. Since our study was carried out in the city center and the largest city of our country, while these students are expected to be individuals with less difficulty in accessing various opportunities, perceived barriers scores were found to be high. The absence of a significant difference in parameters for students living at home compared to students living in the dormitory at University suggests that cohabitation with peers does not affect the level of physical activity.

Our study has some limitations. The researchers used a questionnaire, which is a subjective method for evaluating the level of physical activity. In future studies, more objective results can be achieved by evaluating with methods such as pedometer, accel-

erometer, direct observation. In addition, sampling selection from a relatively narrow and single university may be another limitation of the study.

According to the results of our study, physical activity level depends on body awareness and perceived exercise barriers. To increase the level of evidence in our study, further studies are needed in students studying in different conditions with a greater number of groups of participants. Simple body awareness exercises should also be added to the exercises, as increased body awareness will contribute to the level of physical activity. In addition, universities must ensure that students participate collectively in physical activity by organizing activities that can be implemented in conjunction with the group. Free outdoor and indoor gyms should be added to maximize access to exercise on campuses and dorms. In these gyms, not only types of exercise such as fitness, aerobics, swimming, but also exercises that will increase body awareness and are relatively non-strenuous, such as pilates, yoga, tai-chi, should be performed. Thus the perceived barriers can be minimized.

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Informed Consent: The students included in the study were informed about the study's methodology, and written informed consent was obtained for participation in the study.

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