The Effects of Exercise on Health Belief and Health Anxiety

Egzersizin Sağlıklı Olma İnancı ve Sağlık Anksiyetesi Üzerindeki Etkileri

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ABSTRACT

Aim: The aim of this study is to examine the effects of exercise on the beliefs of being healthy and anxiety for their health.

Materials and Methods: This study was planned as a single-center, cross-sectional study. The population of the study consisted of patients who applied to the Family Medicine Polyclinic. The study was conducted with 331 healthy volunteers and the sociodemographic data and health status of each participant were questioned by face-to-face interview technique using the Demographic Information Form prepared by us. Participants' Exercise Health Belief Model Scale (EHBMS) and Health Anxiety Scale to measure the presence of anxiety were applied and recorded.

Results: In the study conducted with a total of 339 subjects, 175 (51.6%) of whom were women, 67.3% of the subjects were exercising. While 23.9% of those who were exercising were doing it every day, 28.9% were doing 1-2 times a week. Participants' EHBMS mean score was 76.88±12.45, and Health Anxiety Scale mean score was 22.11±11.97. It was found that regular exercise was positively correlated with general health perception and negatively correlated with health anxiety.

Conclusion: In our study, it was concluded that individuals who exercised had lower anxiety levels and felt healthier. All individuals should be advised to engage in physical activity considering their ages.

Keywords: Exercise, health anxiety inventory, Exercise Health Belief Model Scale

ÖZ

Amaç: Bu çalışmanın amacı egzersizin bireylerin sağlık ve anksiyete durumları üzerindeki etkisini incelemektir.

Gereç ve Yöntem: Bu çalışma tek merkezli, kesitsel bir araştırma olarak planlandı. Araştırmanın evrenini Aile Hekimliği Polikliniği'ne başvuran hastalar oluşturdu. Çalışma 331 sağlıklı gönüllü ile yapıldı ve her katılımcının sosyodemografik verileri, sağlık durumları tarafımızca hazırlanan Demografik Bilgiler Formu kullanılarak yüz yüze görüşme tekniği ile sorgulandı. Katılımcıların Egzersiz Sağlık İnanç Modeli Ölçeği (ESİMÖ), anksiyete varlığını ölçmek için Sağlık Anksiyetesi Ölçeği uygulandı ve kayıt altına alındı.

Bulgular: Yüz yetmiş beşi (%51,6) kadın olmak üzere toplam 339 olgu ile yapılan çalışmada, olguların %67,3'ü egzersiz yapmaktaydı. Bu ogulardan %23,9'u her gün egzersiz yaparken, %28,9'u haftada 1-2 kez egzersiz yapıyordu. Katılımcıların ESİMÖ puan ortalaması 76,88±12,45 idi ve Sağlık Anksiyetesi Ölçeği puanı ortalaması 22,11±11,97 idi. Düzenli egzersizin, genel sağlık algısı ile pozitif yönde, sağlık anksiyetesi ile negatif yönde anlamlı ilişkisi bulundu.

Sonuç: Çalışmamızda; egzersiz yapan bireylerin, anksiyete düzeylerinin daha düşük olduğu ve kendilerini daha sağlıklı hissettikleri sonucu ortaya çıkmıştır. Tüm bireylere yaşına uygun fiziksel aktivitede bulunmaları önerilmelidir.

Anahtar Kelimeler: Egzersiz, sağlık anksiyetesi envanteri, Egzersiz Sağlık İnanç Modeli Ölçeği

INTRODUCTION

Physical activity is one of the essential elements of a healthy life. Age-appropriate and regular physical activity provides physical, mental and social benefits to all individuals. Regular exercise both protects physical health and provides benefits for the individual in areas such as weight control, substance abuse, social cohesion and socialization, which are important for a healthy life[1].

As a result of increasing transportation opportunities, accelerating technological developments and increasing urbanization, physical mobility has decreased to 20% in some societies. According to the data of the World Health Organization, lack of physical activity, also defined as physical inactivity, ranks 4th among the "Global Mortality Risk Factors". It has been observed that physical inactivity is the basis of many chronic diseases[2,3].

Regular physical activity significantly reduces the risk of developing cardiovascular diseases such as cerebrovascular accident, myocardial infarction and heart failure. In addition, it has been found to have positive effects on the prognosis of hypertension, dyslipidemia and muscle and joint diseases[4].

It has been reported that regular walking programs significantly reduce depression, anxiety and stress in patients with generalized anxiety disorder, panic disorder and social phobia[5].

Sleep and circadian rhythm are also regulated by exercise[6]. It has been shown that regular exercise increases sleep quality along with melatonin secretion[7].

It is recommended that children aged 6-17 do 60 minutes of moderate physical activity per day, and that individuals aged 18-64 should do at least 150 minutes of moderate-paced physical activity or at least 75 minutes of vigorous physical activity throughout the week[8].

It is inevitable for individuals to seek health when they are sick. It is very important to protect and improve the health of the individual before he becomes ill. In addition to environmental factors, the individual's own attitudes and behaviors are also important in the health status of individuals. Behaviors and attitudes of individuals have an important place in protecting and reinforcing their health, and in their belief and desire for treatment[9].

Educational status, economic status and awareness level of individuals are the determining factors for health seeking. In addition, they must have a healthy psychology.

Regular physical activity not only contributes to significant reductions in mortality and morbidity rates, but also contributes to individuals' mood, general well-being, and the formation of a healthy society[10,11].

This study aims to examine the relationship between exercise status and belief in being healthy and health anxiety level.

MATERIALS AND METHODS

Technical Information

This study was planned as a single-center, cross-sectional study. The sample size was calculated using the simple random sampling method from the study population, and the number of volunteers required to participate in the study was calculated as 331, when 2400 people over the age of 18 without chronic diseases were accepted as the population. This study was conducted with 331 healthy volunteers who applied to the Family Medicine outpatient clinic between 01 December 2020 and 01 February 2021, meeting the inclusion criteria and willing to participate in the study. Informed consent was obtained from the participants, and then the demographic information form including age, gender, marital status, education level, income level and exercise frequency of each participant was applied by face-to-face interview technique. Participants' Exercise Health Belief Model Scale (EHBMS) and Health Anxiety Scale to measure the presence of anxiety were applied and recorded. Ethics committee approval of the study was given by the Ministry of Health Istanbul Provincial Health Directorate Gaziosmanpaşa Training and Research Hospital Clinical Research Ethics Committee (decision no: 161, date: 23.09.2020).

Statistical Analysis

For the purpose of evaluating the findings obtained in the study, IBM Statistical Package for the Social Sciences (SPSS) statistics 22 (IBM SPSS, Turkey) program was used for statistical analysis. In the analysis of the study data, the conformity of the parameters to the normal distribution was evaluated with the Shapiro-Wilks test. In addition to descriptive statistical methods (mean, standard deviation, frequency), the Kruskal-Wallis test was used for the comparison of the parameters that did not show normal distribution in the comparison of quantitative data, and the Dunn's test was used to determine the group that caused the difference. The Mann-Whitney U test was used for the comparison between two groups of parameters that did not show normal distribution. The Spearman's rho correlation analysis was used to examine the relationships between parameters that did not conform to the normal distribution.

RESULTS

The ages of the participants in our study ranged from 18 to 74 years, with a mean age of 36.99±11.28 years and a median of 34 years. 51.6% of the cases were female. It was determined that 78.8% of the participants had high school or higher

education, and 51.3% of them had a working period of 3-5 years. The sociodemographic data of the participants in the study are given in Table 1.

When the ages of the participants are evaluated; it was determined that there was a 13.7% significant relationship between exercise and reducing individual health expenses as the age increased. There was a significant positive correlation of 22.9% between the age of the participants and the level of anxiety they felt for their health (p=0.000). The relationship between the ages of the participants and their anxiety levels is given in Table 2.

When the working time was compared, a significant relationship was found between the exercise they did and the expectation that it would contribute positively to their health in those who had a working period of 1-3 years (p_1=0.031, p_2=0.027, respectively). The correlation between the working time and the sub-dimensions of the scales is given in Table 3.

The level of anxiety about health status of individuals with only primary education was found to be significantly higher than those with high school or higher education (p=0.040). The correlation between the education level of the participants and the scales is given in Table 4.

67.3% of the participants were exercisers. Of the group that exercised, 23.9% exercised every day, 28.9% exercised 1-2 times a week, and 16.2% at irregular intervals (Table 5).

The well-being of those who exercised regularly every day was found to be significantly higher than those who exercised at other frequencies (p=0.000). It was determined that those who exercised at least 2 days a week had less anxiety about their health compared to the other groups (p=0.000). It was observed that there was a negative significant relationship between the anxiety levels of individuals and their health status (p=0.000).

It was determined that individuals who did not exercise were hypersensitive to changes in their bodies and their anxiety levels were significantly higher than the other groups. This situation was found to be similar in those who exercised irregularly (p_1=0.000, p_2=0.000, p_3=0.000 respectively). The correlation between the frequency of exercise and the scales is given in Table 6.

DISCUSSION

In this study, which examined the relationship between the effects of physical activity on health and the anxiety levels of individuals, it was seen that those who exercised evaluated their own health more positively. It was also found that their anxiety levels were low. Since the results obtained with the EHBMS, which is a quick and practical test to be administered

Table 1. Information on sociodemographic data

		Min–Max	Mean±SD (median)
Age (year)		18–74	36.99±11.28 (34)
		n	%
Gender	Female	175	51.6
	Male	164	48.4
Marital status	Married	256	75.5
	Single	83	24.5
Educational status	Primary school	72	21.2
	High school or higher education level	267	78.8
Duration of work life	1–3 years	81	23.9
	3–5 years	174	51.3
	5–10 years	1	0.3
	Over 10 years	83	24.5
Income status	Normal	125	36.9
	High income	214	63.1
Exercise status	Yes	228	67.3
	No	111	32.7
Frequency of exercise	Regular-every day	81	23.9
	1–2 times a week	98	28.9
	Irregular	55	16.2
	Other	105	31

EHBMS: Exercise Health Belief Model Scale, SD: Standard deviation, Min-Max: Minimum-maximum

Table 2. Evaluation of the correlation between age and sub-dimensions of the scale

Age		
	r	p
EHBMS		
General health	–0.058	0.290
Severity	–0.077	0.157
Threat	–0.102	0.061
Benefit cost	**–0.137**	**0.012**
Drawbacks of not doing	**0.177**	**0.001**
Total EHBMS score	–0.053	0.329
Health Anxiety Score		
Hypersensitivity to physical symptoms and anxiety score	**0.210**	**0.000**
Disease adverse outcomes score	**0.253**	**0.000**
Health anxiety total score	**0.229**	**0.000**

EHBMS: Exercise Health Belief Model Scale

Table 3. Evaluation of the sub-dimensions of the scale according to working duration				
		Working duration		
	1–3 years	3–5 years	Over 5 years	
	Mean±SD (median)	Mean±SD (median)	Mean±SD (median)	p
EHBMS				
General health	9.48±3.16 (9)	8.87±2.58 (9)	8.89±2.85 (9)	**0.285**
Severity	10.23±3.16 (10)	9.75±2.98 (10)	9.61±3.38 (10)	**0.428**
Threat	24.28±6.01 (25)	22.51±5.47 (23)	22.79±5.82 (23)	**0.061**
Benefit cost	21.46±4.01 (21)	20.33±4.31 (21)	19.92±5.08 (20)	**0.079**
Drawbacks of not doing	14.44±5.24 (14)	14.67±5.53 (14)	14.29±5.8 (13)	**0.735**
Total EHBMS score	79.9±12.84 (79)	76.14±12.03 (76)	75.49±12.6 (75)	**0.049**
Health Anxiety Score				
Hypersensitivity to physical symptoms and anxiety score	17.54±9.28 (15)	16.91±9.7 (14)	18.71±10.68 (15.5)	**0.356**
Disease adverse outcomes score	4.62±2.83 (4)	4.47±2.67 (4)	4.86±3.09 (4)	**0.783**
Health anxiety total score	22.16±11.5 (20)	21.37±11.62 (17)	23.57±13.1 (22)	**0.438**
EHBMS: Exercise Health Belief Model Scale, SD: Standard deviation				

Table 4. Evaluation of scale sub-dimensions according to education level			
Education level	Primary education	High school and higher education	p
	Mean±SD (median)	Mean±SD (median)	
EHBMS			
General health	9.24±2.89 (9)	8.97±2.78 (9)	**0.303**
Severity	10.25±3.05 (10.5)	9.72±3.14 (10)	**0.193**
Threat	24±5.83 (25)	22.73±5.67 (23)	**0.069**
Benefit cost	20.71±5.31 (21.5)	20.44±4.22 (21)	**0.402**
Drawbacks of not doing	15.81±6.26 (15.5)	14.18±5.26 (13)	**0.075**
Total EHBMS score	80±13.37 (81.5)	76.03±12.08 (76)	**0.006**
Health Anxiety Score			
Hypersensitivity to physical symptoms and anxiety score	19.44±10.29 (18)	16.99±9.69 (14)	**0.064**
Disease adverse outcomes score	5.22±2.79 (5)	4.43±2.8 (4)	**0.024**
Health anxiety total score	24.67±12.57 (23)	21.42±11.73 (18)	**0.040**
EHBMS: Exercise Health Belief Model Scale, SD: Standard deviation			

Table 5. Evaluation of sub-dimensions of the scale according to exercise status			
Status of doing exercise	Yes	No	p
	Mean±SD (median)	Mean±SD (median)	
EHBMS			
General health	9.47±2.88 (9)	8.11±2.38 (9)	**0.000**
Severity	10.36±3.11 (11)	8.74±2.88 (9)	**0.000**
Threat	23.39±6.08 (24)	22.22±4.82 (23)	**0.041**
Benefit cost	21.04±4.5 (21)	19.38±4.2 (20)	**0.003**
Drawbacks of not doing	12.09±3.89 (12)	19.51±5 (20)	**0.000**
Total EHBMS score	76.35±13.24 (76)	77.96±10.65 (78)	**0.255**
Health Anxiety Scale			
Hypersensitivity to physical symptoms and anxiety score	12.42±5.84 (11)	27.96±7.99 (31)	**0.000**
Disease adverse outcomes score	3.46±2.11 (3)	6.95±2.62 (7)	**0.000**
Health anxiety total score	15.87±6.94 (14)	34.91±9.74 (38)	**0.000**
EHBMS: Exercise Health Belief Model Scale, SD: Standard deviation			

Table 6. Evaluation of the sub-dimensions of the scale according to the frequency of exercise					
Exercise frequency	Everyday regular	1-2 times a week	Irregular	Other	p
	Mean±SD (median)	Mean±SD (median)	Mean±SD (median)	Mean±SD (median)	
EHBMS					
General Health	9.89±2.43 (9)	9.23±3.25 (9)	9.2±2.65 (9)	8.07±2.41 (9)	0.000
Severity	10.81±2.82 (11)	10.06±3.38 (10)	10.15±2.9 (11)	8.69±2.9 (8)	0.000
Threat	23.7±6.41 (25)	22.91±5.56 (23)	23.47±6.51 (24)	22.3±4.79 (23)	0.188
Benefit cost	21.64±4.59 (21)	20.37±4.12 (20)	21.09±5.02 (22)	19.43±4.17 (20)	0.007
Drawbacks of not doing	11.27±3.76 (10)	12.58±4.04 (12)	13.02±4.48 (12)	19.63±4.82 (20)	0.000
Total EHBMS score	77.32±13.77(78)	75.15±13.05(75)	76.93±12.24 (75)	78.11±10.81 (78)	0.229
Health Anxiety Scale					
Hypersensitivity to physical symptoms and anxiety score	11.23±5.31 (9)	12.11±5.53 (11)	15.78±7.77 (15)	28.29±7.55 (31)	0.000
Disease adverse outcomes score	3±1.8 (3)	3.41±2.05 (3)	4.49±2.74 (4)	7±2.5 (7)	0.000
Health anxiety total score	14.23±6.16 (13)	15.52±6.45 (14)	20.27±9.7 (19)	35.29±9.09 (38)	0.000
EHBMS: Exercise Health Belief Model Scale, SD: Standard deviation					

to individuals, were observed to be reliable, it was thought that it should be used more frequently in daily practice.

Increasing physical inactivity in society brings with it many health problems. Physical activity is one of the basic conditions of living a healthy life. In the study of Limaroon et al.[12], in which they used the Health Belief Model (HBM), 17.7% of the participants saw not exercising as a threat to catching a disease, and 75% of the participants stated that they were physically active at least 3 times a week. In our study, 67.3% of the participants engaged in physical activity. Those who did physical activity every day or twice a week were in the majority. Those who exercised were aware that if they did not do regular physical activity, it would pose a risk to their health.

In their cohort study, in which Sanchez-Villegas et al.[13] evaluated physical activity among university graduates, the level of anxiety for health status of individuals who sat for 42 hours a week was found to be 1.3 times higher than that of individuals who sat for 10 hours. In another study conducted in Austria, the Health Quality of Life Scale and the Workforce Sitting Questionnaire were used, and as a result, it was stated that as the duration of sitting at work increases and accordingly the duration of physical activity decreases, the anxiety level of the participants for their health increases[14]. In our study, it was determined that those who exercised were less worried about their health and showed less reaction to the changes in their bodies. It has been observed that a sedentary life both increases anxiety and has negative effects on a healthy body image.

In the study of Pham et al.[15] in Vietnam using the International Short Form of Physical Activity Questionnaire and the Patient Health Questionnaire-9, it was observed that the frequency of depression decreased with regular physical activity, although not at a significant level. In our study, it was determined that those who do regular physical activity every day worry less about their health and have more positive thoughts about their health than those who do it irregularly. At the same time, it was seen that those who exercised regularly knew the positive effects of this and exercised to create less health expenses throughout their lives.

In a study using the HBM in Thailand, the majority of those who exercise stated that it had positive effects on their social relationships with other people and their health[12]. Regular exercise has an important place in preventing many diseases. It is inevitable for individuals who want to lead a healthy life to exercise regularly. In our study, the main purpose of the exercisers was to be protected from diseases and to lead a healthy life. It was found that those who knew that exercise was beneficial were less concerned about their health.

In our study, it was observed that physical activity increased the perception of general health. It was determined that individuals had more positive thoughts about their own health as physical activity increased. With the increasing perception of health, it was concluded that individuals were less worried and faced less obstacles in their bodies.

It was observed that individuals had difficulty in allocating time for physical activity despite knowing the bad consequences of possible diseases when they led a sedentary life. Although people are aware of the negative consequences of a possible disease, it was determined that they could not spare time for physical activity, and this was statistically significant. A positive correlation was found between the reasons for avoiding physical activity and the level of anxiety they felt for their health.

In our study, the mean age was found to be 36.9 years. There is a negative relationship between age and the thought that physical activity provides benefits. Younger participants thought that physical activity would bring more benefits for their health and social purposes. However, in our study, a positive relationship was found between age and the reasons for preventing exercise. The risk of injury and falling while doing physical activity for elderly individuals is one of the main reasons that prevent them from doing physical activity. It was thought that it would be important to build more sheltered areas especially for the elderly and to review these existing areas for all kinds of fall and injury risks.

There are different results in the literature about the correlation between education level and physical activity. The Godin Physical Activity Questionnaire was also used in the study of Avluklu[16] there was no significant correlation between education level and physical activity. In the study of Gedik[17], the Self-Efficacy Questionnaire was used, and it was reported that the rate of doing physical activity increased with the increase in education level. In our study, a negative relationship was found between education level and physical activity. Although the education level was low, it was observed that individuals believed in the importance of exercise.

Health anxiety causes an increase in the severity of physical complaints, leading to repeated applications to health institutions[18]. In the study of Gül et al.[19] with the Short Form of Health Anxiety Inventory, the mean total health anxiety score was found to be 17.76±7.0119. In the study of Yılmaz et al.[20], in which they used the Health Anxiety Scale, the mean total health anxiety score of hospitalized patients was determined as 17.34±8.4520. In our study, it was found that the total mean score of the participants from the Health Anxiety Inventory was 22.11±11.97. The reason for the high anxiety score in our study was considered to be the socioeconomic levels and living standards of the participants.

There are many studies in the literature investigating the correlation between income status and physical activity. In the study of Farrell and Shields[21] with 6.467 people in England, a positive relationship was shown between the income level of individuals and their families and physical activity. In the study conducted by Rimal[22] with 2.880 families in the USA, a positive relationship was found between income level and spending time for physical activity. In our study, it was seen that the majority of the participants were individuals with a high income level. Individuals with normal income levels were aware that exercise was beneficial for their health, but their thoughts and anxiety about their health were higher than those with higher incomes. Even though individuals with normal incomes interpreted their health status negatively, they knew that they would turn this into a positive direction by engaging in physical activity.

In the literature, there are studies on the reasons that prevent physical activity. In the study of Lovell et al.[23] in which they used the Exercise Benefits/Barriers Scale, it was stated that the biggest obstacle to physical activity was families. In the study of Gyurcsik et al.[24], it was stated that reasons such as not having enough time, being associated with social activities, and having a high workload prevented the majority of the participants from doing physical activity. In the study of Kaushal et al.[25], using the Health Belief Model, it was shown that the main reasons hindering physical activity were difficulty in allocating time, and the perception of falling, injury and disability. In our study, it was observed that there were more reasons that prevented married individuals from doing physical activity. This was thought to be due to factors such as increased responsibilities and family.

In our study, we examined the level of anxiety about physical activity, belief in being healthy, and health status. In the literature, there is no study in which EHBMS and Health Anxiety Scale are used together. In this study, in which we used the EHBMS and the Health Anxiety Scale, we determined that the state of exercise was positively related to the general health perception and negatively related to the health anxiety. We are of the opinion that exercising has an important role in individuals to lead a healthier life. We think that doing physical activity at regular intervals will make individuals worry less about their health.

Study Limitations

The participants in our study consisted of healthy individuals without acute or chronic diseases. Results of physical activity may differ in studies involving other patient groups.

CONCLUSION

In our study, it was determined that individuals engaged in regular physical activity had a healthier body and had less anxiety. The benefits of physical activity have been demonstrated. Individuals should be encouraged to exercise in order to stay healthy and reduce their anxiety levels.

Ethics

Ethics Committee Approval: This study was approved by the Ministry of Health İstanbul Provincial Health Directorate Gaziosmanpaşa Training and Research Hospital Clinical Research Ethics Committee (decision no: 161, date: 23.09.2020).

Informed Consent: Consent form was filled out by all participants.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: R.A., Concept: R.A., Design: R.A., O.B., Data Collection or Processing: R.A., Analysis or Interpretation: R.A., Literature Search: R.A., O.B., Writing: R.A., O.B.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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