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The Effect of Recreational Step Aerobik Exercises on Perceived Stress and Happiness in Women

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Abstract

This study aimed to determine the effect of eight weeks of step aerobic exercises as a recreational activity on perceived stress and happiness in women. The model of the research was structured by the pretest-posttest control group model, one of the semi-experimental study designs. The study group of the research consisted of 56 sedentary women volunteers residing in Sakarya province in 2021-2022. The Perceived Stress Scale developed by Cohen, Kamarck, and Mermelstein (1983) and adapted into Turkish by Eskin et al. (2013), and the Perceived Stress Scale developed by Hills and Argyle (2002) and adapted into Turkish by Doğan and Akıncı Çötök (2011) were used as measurement tools. The research results showed that the body mass index of sedentary women who performed regular recreational activities for eight weeks decreased by 6.74%. Moreover, it was determined that the perceived stress level decreased by 21.96% and happiness level increased by 18.01% in the related sample group. Considering the results obtained, it should be aimed to expand the audience addressed by increasing the diversity of sportive recreation activities and studies should be performed to include activities that women can participate in with their children.

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Keywords: Recreation, Perceived stress, Happiness, Woman.

Rekreasyonel Step Aerobik Egzersizlerinin Kadınlarda Algılanan Stres ve Mutluluk üzerine Etkisi

Öz

Araştırmada, sekiz hafta boyunca bir rekreasyonel aktivite olarak uygulanan step aerobik egzersizlerinin kadınlarda algılanan stres ve mutluluk üzerine etkisini belirlemek amaçlanmıştır. Araştırmanın modelini, yarı deneysel çalışma desenlerinden ön test-son test kontrol gruplu model yapılandırmaktadır. Araştırmanın çalışma grubunu, 2021-2022 yılında Sakarya ilinde ikamet eden 56 sedanter kadın gönüllü oluşturmaktadır. Ölçme aracı olarak; Cohen, Kamarck ve Mermelstein'in (1983) geliştirdiği ve Türkçe geçerlik ve güvenirliği Eskin ve diğ., (2013) tarafından gerçekleştirilmiş Algılanan Stres Ölçeği ile Hills ve Argyle'nin (2002) geliştirdiği Doğan ve Akıncı Çötök (2011) tarafından Türkçeye uyarlanan Algılanan Stres Ölçeği kullanılmıştır. Araştırma bulguları, sekiz hafta boyunca düzenli rekreasyonel aktivite yapan sedanter kadınların vücut kitle indeksinin %6.74 oranında azaldığını göstermektedir. Buna ek olarak; ilgili örneklem grubunda algılanan stres düzeyinin %21.96 azaldığı ve mutluluk düzeylerinin ise %18.01 arttığı belirlenmiştir. Elde edilen sonuçlar ışığında, sportif rekreasyon etkinliklerinin çeşitliliği artırılarak hitap ettiği kitlenin genişletilmesi hedeflenmeli ve özellikle kadınların çocukları ile katılım gösterebilecekleri etkinliklere yer verilmesi adına çalışmalar yapılmalıdır.

Anahtar kelimeler: Rekreasyon, Algılanan stres, Mutluluk, Kadın.

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Introduction

In daily life, the individual participates in many activities in different periods. The time in which the individual is or will be involved in the activity can be expressed as a period. At the same time, the individual experiences sensory organs and cognitive, mental, and physical phenomena within the concept of time. In one aspect, it represents an abstract whole designed (Sucu, 1996). Leisure time, on the other hand, can be characterized as the time left over after meeting the primary needs that the individual is obliged to fulfill to sustain his/her life.

Today, when a modern society is considered, recreational activities appear as activities with a substantial impact overall (Köktaş, 2004). However, it is possible to discuss gender restrictions on participation in recreational activities (Alanoğlu et al., 2020). As a result of the research, a remarkable result was found. It is stated that a woman in business life works about eleven hours a day, spends an average of four hours on housework and different responsibilities, and ultimately has limited time to utilize (Aydoğan, 2016). Being able to use this limited time efficiently is a necessity for women in modern society.

It is a known fact that women's responsibilities impose a constraint on their participation in leisure time activities. Although women have difficulty in allocating time for themselves, they turn to recreational activities to improve their quality of life and to get away from the stress of daily life (Gümüş et al., 2014; Karakaş et al., 2015).

The choices made by individuals during their lives can be considered within the phenomenon of time evaluation. The way of life of individuals creates the character of societies and contributes to the emergence of recreational activities. Utilizing recreational activities is one of the methods to blend a society with a productive, fit, and joyful life. At this point, it is possible to state that recreational activities are related to the culture and welfare levels of societies (Özcan, 2022; Durhan et al., 2023). Recreational activities vary depending on the person's preferences and physical abilities. These activities can be used for different purposes, such as providing social interaction, reducing stress, and improving physical health. Recreational activities also have positive effects on health, social connections, stress management, and overall quality of life (Chen, 2001; Dettmer, 2010; Hung, 2012; Tinsley and Tinsley, 1986). Although there is a wide range of recreational activities, step aerobics is one of the most popular recreational activities among women. Step aerobic exercises offer many benefits to individuals in terms of cardiovascular health (Wen et al., 2017), mental health (Deshpande et al., 2021), stress (Biswas, 2012), and biomotor properties (Azeem and Varghese, 2015).

It can be stated that the difficulties encountered in business life, responsibilities arising at home, and exhausting factors such as the care of their children force women, and as a result, their

stress level increases. Individuals with increased stress levels are likely to feel inadequate and ultimately fail in their work. At this point, recreational activities are considered important to increase their quality of life and contribute to their mental, affective, and physical well-being. When the literature was examined, it can be said that the effects of recreational activities on women are tried to be described through various variables (McCrone, 2014; Mora et al., 2006; Osuji et al., 2006). In this context, this study aimed to determine the effect of eight weeks of step aerobic exercises as a recreational activity on perceived stress and happiness in women and the hypotheses of the research are as follows.

H1: Eight weeks of step aerobic exercises as a recreational activity reduces women's perceived stress levels.

H2: Eight weeks of step aerobic exercises as a recreational activity increases women's happiness level.

Materials and Methods

Model of the Research

In the study, the pretest-posttest control group model, one of the semi-experimental study designs, was used to examine the effect of recreational activity practices on perceived stress and happiness. In this research design, two groups were determined by random assignment at the beginning of the study as the exercise group and the the control group. Measurements were taken in both groups (for exercise and control groups) before and after the study (Karasar, 2012).

Study Group

The study group of the research was 56 sedentary women (age = 44.19 ± 4.66 years) living in Sakarya province in 2021-2022 who participated voluntarily. All participants had a medical check-up before starting the study and were non-menopausal women. Participants were selected as sedentary women who had not been treated with any chronic medication that could interfere with exercise activity in the last six months, had not been injured in the skeletal-muscular system, and were moderately healthy.

Experimental Design

The study was designed with a true experimental design and the participants were divided into two different groups as exercise (n=26) and control (n=26) groups. At the beginning of the study, the researchers determined and analyzed the participants' body weight with a Bioelectric Impedance Analyser, height with Precision Tape Measure, stress level perceptions with the Perceived Stress Scale, and happiness levels with the Oxford Happiness Scale. After the pre-test measurements, the

participants in the exercise group performed a total of 24 units of exercise protocol 3 days a week (Monday, Wednesday, and Friday) for 8 weeks. Within the eight-week period, the exercise groups performed their exercise programs. The control group was not included in any exercise protocol during this period. Participants were warned not to consume beverages such as alcohol or energy drinks during the tests. At the end of the eight-week exercise period, the post-test measurements were taken again and the process was terminated.

Exercise Plan

In the study, the participants participated in 90-minute step-aerobic exercise programs 3 days a week for 8 weeks (Monday, Wednesday, and Friday) between 10:00-12:00 a.m. (1 hour after breakfast) at the Sakarya university of applied sciences, faculty of sports sciences fitness center. The exercise consisted of 4 phases; in the first phase of the exercise, the participants were made to perform warm-up exercises including aerobic movements with pulse rate controls and aerobic movements with low rhythm exercises and music accompaniment (130-135 BPM) for about 15-20 minutes without using a stepper board. In the second phase of the exercise, 10 minutes of dynamic stretching exercises for basic muscle groups were performed. In the third and main phase of the exercise, exercises with the basic movements (Basic Step, Double Grapevine, Turn Mambo, Step Behind Toe Touch, Step Kick, Behind Mambo, Mambo Behind Mambo, Step Mambo Turn Behind Mambo, Step Chacha, Knee Lift, Side Cross Side Double Jump, Step Side to Side Jump Leg Curl (Left and Right), Basic Step, Back Turn Mambo, Step Flay Right, Step Fly Left) of step aerobic exercise were performed at a music speed of 140-145 BPM using a step board of 70 cm length, 30 cm width and 10 cm height. At the last stage of the exercise, static stretching exercises were performed for 10 minutes for recovery and cooling. The control group was not subjected to any physical activity for 8 weeks.

Data Collection Tools

Measurements of Height

The heights of the participants were measured with the help of a 7mm wide tape measure fixed to the wall with an accuracy of 0.1cm. While measuring the height of the participants, the participants were asked to stand barefoot against the wall with their heels together in an area where the ground was flat, and their heads and body were in an upright position. While taking the measurement, the participant was asked to breathe deeply and then the data determined at an angle of 90 degrees with the help of a ruler was recorded (Birat et al., 2020).

Measurement of Body Weight and Body Mass Index

The participants' height was entered into the bioelectrical impedance analyzer and body weight values were measured in the sedentary mode in the morning on an empty stomach in shorts and a T-shirt using a TANITA BC-418 (Tanita Corp., Tokyo, Japan) bioelectrical impedance analyzer (Park et al., 2017).

Perceived Stress

To determine the perceived stress levels of the participants, the Perceived Stress Scale developed by Cohen, Kamarck, and Mermelstein (1983) and adapted into Turkish by Eskin et al. (2013) was used. The Perceived Stress Scale, which consisted of a total of 14 items, was designed to measure how stressful certain situations in one's life were perceived. Participants evaluated each item on a 5-point Likert-type scale ranging from "Never (0)" to "Very often (4)". The 7 items with positive statements were reversed. The scores to be obtained from the perceived stress scale varied between 0 and 56. High scores indicated that the perceived stress level of the person was high.

Happiness

The Oxford Happiness Scale, developed by Hills and Argyle (2002) and adapted into Turkish by Doğan and Akıncı Çötök (2011) to measure the happiness levels of the participants was used. The scale consisted of 7 items, had a 5-point Likert type (1 - completely disagree, 5 - completely agree) and had a single factor structure. The scale had no cut-off point and high scores indicate a high level of happiness. The lowest score that can be obtained from the scale was 7 and the highest score was 35. The scores obtained aim to determine the happiness levels of individuals.

Analysis of Data

IBM SPSS Statistics 24 software was used to analyze the obtained data. Descriptive statistics of the obtained data were given as mean and standard deviation. Besides, a two-way repeated analysis of variance (2 groups x 2 measurement times) was used to determine the difference between the perceived stress and happiness of sedentary women in regular recreational activities for eight weeks. Moreover, percentage differences in perceived stress and happiness of groups were calculated with the formula " $\% \Delta = (\text{Pre-test} - \text{Post-test}) / \text{Pre-test} * 100$ " (Işık and Doğan, 2018). The confidence interval was chosen as 95% and values below $p < .05$ were considered statistically significant.

Ethics of Research

In this research, participants were given detailed information about the aim and content of the study and signed an informed consent form. Ethical approval for this study was obtained from Sakarya University of Applied Sciences (Protocol No: E-26428519-044-42056) and the research was

carried out within the framework of the Council of Higher Education Scientific Research and Publication Ethics Instruction.

Results

When table 1 was examined, it was found that the pre-test and post-test averages of the body mass index ($F= 102.165$) of sedentary women were statistically different according to the measurement times ($p< .01$). In addition, the body mass index of sedentary women was not found statistically different between groups ($p> .05$). Moreover, the interaction between groups and measurement times for body mass index ($F = 170.232$) of sedentary women was found to be statistically significant. According to this result, it was determined that the body mass index of sedentary women who performed regular recreational activities during eight weeks decreased by - 6.74%.

Table 1

Effect of regular recreational activities on body mass index of sedentary women

Variables	Group	N	Pre-test	Post-test	Total	%Δ	F	p
			$\overline{X} \pm S.D.$	$\overline{X} \pm S.D.$	$\overline{X} \pm S.D.$			
Body Mass Index	Exercise Group	52	28.03 ± 2.44	26.14 ± 2.15	27.09 ± 2.30	-6.74	3.367	.072
	Control Group	52	28.08 ± 2.04	28.32 ± 2.19	28.20 ± 2.12	.85		
	Total		28.06 ± 2.23	27.23 ± 2.41				
	F= 102.165; p= .001**						Interaction F= 170.232; p= .001**	

**p< .01

Table 2

Effect of regular recreational activities on perceived stress and happiness of sedentary women

Variables	Group	N	Pre-test	Post-test	Total	%Δ	F	p
			$\bar{X} \pm S.D.$	$\bar{X} \pm S.D.$	$\bar{X} \pm S.D.$			
Perceived Stress	Exercise Group	52	44.85 ± 3.73	35.00 ± 4.04	39.92 ± 3.89	-21.96	12.363	.001**
	Control Group	52	44.19 ± 4.12	40.69 ± 5.18	42.44 ± 4.65	-7.92		
	Total		44.52 ± 3.90	37.85 ± 5.42				
	F= 48.895; p= .001**					Interaction F= 11.055; p= .002**		
Happiness	Exercise Group	52	22.65 ± 1.81	26.73 ± 3.00	24.69 ± 2.41	18.01	13.474	.001**
	Control Group	52	23.50 ± 2.00	22.65 ± 1.87	23.08 ± 1.94	-3.61		
	Total		23.08 ± 1.94	24.69 ± 3.22				
	F= 13.925; p= .001**					Interaction F= 32.333; p= .001**		

**p< .01

When table 2 was examined, it was found that the pre-test and post-test averages of the perceived stress ($F=48.895$) and happiness ($F=13.925$) of sedentary women were statistically different according to the measurement times ($p< .01$). In addition, the perceived stress and happiness

of sedentary women were statistically different between groups ($p < .01$). Moreover, the interaction between groups and measurement times for perceived stress ($F = 11.055$) and happiness ($F = 32.333$) were found to be statistically significant. According to these results, it was determined that the perceived stress levels of sedentary women who performed regular recreational activities during eight weeks decreased by -21.96%, while their happiness levels increased by 18.01%.

Discussion and Conclusion

This study aimed to determine the effect of eight weeks of step aerobic exercises as a recreational activity on perceived stress and happiness in women. The first result obtained in the study was that the body mass index of women who participated in regular recreational activities for eight weeks decreased by 6.74%. When the relevant literature was examined, it was possible to find studies that supported the results of the research. Yiğit (2010) determined that sedentary women's body mass index decreased after twelve weeks of recreational activities. Yiğit, Kolukısa, and Aydoğan (2012) determined that there was a significant decrease in the body mass index of sedentary women who did aerobics for recreational purposes for twelve weeks. Kuiper et al., (2012) reported that recreational physical activities had a positive effect on body mass index in their research with women with various diseases. Similarly, Qiu et al. (2011) found that recreational activities had a positive effect on body mass index in women. It can be stated that it is important for women to participate in recreational activities in daily life. The low level of women's participation in sportive activities compared to men is considered as a problem (Kelly, 1990). Especially for women who are facing more responsibilities (home, work, family, etc.) than men, keeping their body mass index at a certain level through recreational activities offers a serious gain phenomenon considering both health parameters and psychological factors. In this way, it can be considered as an effective solution to reduce the negativities that daily responsibilities and business life may cause.

Another result determined in the study was that the perceived stress levels of women who participated in regular recreational activities for eight weeks decreased by 21.96% and happiness levels increased by 18.01%. When the related literature was analyzed, it was observed that there were similar research results. Henderson and Bialeschki (1994) stated that one of the purposes of women's participation in physical recreational activities was to protect psychosocial health. Li and Wang (2012) similarly stated that regular recreational activities provide physical and mental benefits as well as increasing social interactions. Moreover, Netz et al. (2008) found that regular physical activity was a factor that improved mental health in women. Başaran, Çolak, and Altuntaş (2022) determined that one of the positive effects of recreational activity participation was the decrease in stress levels. Alanoğlu, Işık, and Ayhan (2020) found that the perceived stress levels of women who participated

in ten-week recreational activities decreased by 38.46%, and happiness levels increased by 17.91%. Lee et al. (2014) also reported that recreational activities helped to reduce perceived stress and anxiety levels.

Based on the obtained results, it can be said that the hypotheses of the study are accepted and regular recreational activities have positive effects on women's body mass index, stress level, and happiness level when the relevant literature is considered. It is seen that these results are generalizable in the literature and that recreational activities have many positive effects, especially on women who are obliged to perform different responsibilities in daily life compared to men. Considering the health parameters, it is possible to talk about the serious gains of recreational activities for individuals (Kurtipek et al., 2022; Lee, 2020; Rosenberger et al., 2009; Street et al., 2007). Therefore, it is obvious that one of the effective ways to lead a healthy life is to participate in recreational activities. Feeling life satisfaction and being able to adapt its positive reflections to other areas of life is an important gain for individuals. For this reason, some responsibilities fall on to some collaborators to ensure the participation of women who are restricted from participating in leisure time activities due to their home, family, and work responsibilities. In this sense, to increase women's awareness of the benefits of participation in recreational activities; local municipalities, ministries, and mass media need to be used effectively. Besides, it should be aimed to expand the audience by increasing the diversity of sportive recreation activities and efforts should be directed to include activities in which especially women can participate with their children. In this way, it is predicted that the participation rate of women in recreational activities will increase.

Ethics Committee Permission Information

Ethics review board: Sakarya University of Applied Sciences Rectorate, ethics committee

Date of the ethical assessment document: 10.03.2022

Number of the ethical assessment document: E-26428519-044-42056

Declaration of Contribution Rates of Researchers

Both authors contributed equally to all stages of the study.

Conflict Statement

The authors do not have a conflict statement regarding the research.

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