



Science, Movement and Health, Vol. XVII, ISSUE 2 Supplement, 2017
September 2017, 17 (2, Supplement): 256-266
Original article

THE EFFECT OF PHYSICAL ACTIVITY PROGRAM ON TRAIT ANXIETY AND LIFE SATISFACTION LEVELS OF ADULTS

ESENTÜRK Oğuz Kaan¹, YILMAZ Aynur², YARIMKAYA Erkan³, İLHAN Ekrem Levent¹

Abstract*

Aim. This study aims to examine the effect of physical activity program on the trait anxiety and life satisfaction levels of adults.

Method. This study was designed in quasi-experimental way with pretest-posttest control group. The sample of study consists of 160 sedentary adults (control group: 80, experimental group: 80) aged between 18 and 36 years in Konya Province with convenience sampling method from purposeful sampling methods. The participants in the experimental group were applied a physical activity program including warm-up movements, fitness, pilates, step, fit dance, street dance and stretching-cooling exercises for 3 days and 2 hours per week for 12 weeks. Data were obtained by using "Trait Anxiety Inventory" developed by Spielberger and adapted to Turkish by Öner and Le Compre (1983), and "Life Satisfaction Scale" developed by Diener, Emmons, Larsen and Griffen (1985) and adapted to Turkish by Köker (1991) before and after the 12 week physical activity program. SPSS 22 Package Program was used for the analysis of the obtained data. Since the data showed normal distribution, Independent Sample t-test was used to determine the intergroup difference and Paired Sample t test was used to determine intra-group differences. The effect size was calculated by Cohen "d".

Results. According to the findings of the research, it was determined that compared to the pre-activity situation, there is a significant decrease in the levels of trait anxiety of the adults in the experimental group participating in the physical activity program ($t_{99}: 3.99, p = 0.0002 < 0.05$). The effect size between the pre-test and post-test mean scores of scores they received from the trait anxiety inventory (significant effect at a small level) was found to be 0.26. However, it was determined that there was no significant difference between the trait anxiety level pre-test and posttest scores of adults in the control group who didn't participate in the physical activity program. Another finding of the research is that there is a significant difference between the pretest and posttest mean score of the scores that the participants in the experimental group received from the Life Satisfaction Scale ($T_{79}: 3.189, p = 0.002 < 0.05$). It was figured out that there is no significant difference between the pre-test and post-test mean scores of the scores that the control group received from the Life Satisfaction Scale ($t_{79}: .966, p = 0.336 > 0.05$). When considered the effect sizes; while the effect size between pre-test and post-test mean scores of the scores that participants in the experimental group received from Life Satisfaction Scale was 0.41, the effect size between pre-test and post-test mean scores of the scores that control group received from Life Satisfaction Scale was found to be 0.06 (meaningless effect).

Conclusion. As a result, it can be said that the physical activity program applied to adults reduces their trait anxiety levels and affects their life satisfaction levels positively.

Keywords: trait anxiety, life satisfaction, physical activity program, adults

Introduction

Anxiety is generally defined as the state of uneasiness and anxiety felt by the individual in case of a threatening situation (Scovel 1991, Işık, 1996). According to Clark and Beck (2012), anxiety is defined as the fact that individual is upset, is exposed to uncontrollable dangers and has complicated mood in some events, conditions and circumstances. According to Spielberg, Gorsuch and Lushen (1970), anxiety consists of two main components. These are state and trait anxiety. State anxiety is defined as a

subjective fear that individual feels because of the situation s/he is in, while trait anxiety is defined as the inclination of individual to anxiety state. Öner and Le Compte (1985) describe the trait anxiety state as a general and continuous state of anxiety that doesn't depend on a specific event or situation. According to Özgüven (1994), it is defined as "the stressor situation is perceived as dangerous or threatening, and against these threats, the frequency and intensity of state emotional reactions increase and gain

¹ Faculty of Sport Sciences, Gazi University, Ankara, 06330, TURKEY

² Faculty of Sport Sciences, Kırıkkale University, Kırıkkale, 71450, TURKEY

³ Middle of Haci Sabanci, Ankara, TURKEY

E-mail address: oguz_kaan61@hotmail.com

Received 20.03.2017 / Accepted 17.04.2017

* the abstract was published in the 17th I.S.C. "Perspectives in Physical Education and Sport" - Ovidius University of Constanta, May 18-20, 2017, Romania



continuity". Much research revealed that individuals with a high level of stress and anxiety experience frequently the situations that negatively impact their personal development, such as decrease in their performance, having negative mood, avoiding personal relationships, avoidance of social environments and feelings of despair (MnEvoy, Watson, Watkins and Nathan, 2013; Mennin, Holaway, Fresco, Moore and Heimberg, 2007; Salovey, Stroud, Woolery and Epel, 2002; Weems, Taylor, Marks and Varela, 2010; Yang et al., 2014).

Depression, one of the consequences of anxiety and its consequences, reveals the decrease in success and motivation of a person, to not be able to demonstrate fully their skills and abilities, to display anti-social behaviors, especially the increase in the events of adolescent skipping schools, and substance and alcohol use (Donnelly, 2009). Thus, the quality of life of the people is affected and the person might not be satisfied with life. It can be said that this feeling of satisfaction is closely related to life satisfaction (Özer and Karabulut, 2003), a concept closely related to happiness, morale and well-being. Considering that happiness and well-being may increase, as the level of anxiety decreases; it can be predicted that there is an inverse relationship between anxiety and life satisfaction. Life satisfaction is the leading element of the essential elements that people need to have in order for people to be happy in their lives and to make sense of their lives (Diner, Gohm, Suh and Oishi, 2000). This concept, contrary to the anxiety, focuses on why people regard their lives as positive ways. These studies cover different concepts such as happiness, satisfaction, and positive emotion (Selçukoğlu, 2001).

First of all, it is necessary to explain the concept of satisfaction. Satisfaction is defined as fulfilling the expectations, needs, desires and wishes (Neilarten, Havinghurt and Tobin, 1961), reconstituting the state of equilibrium as a result of fulfilling the main biological needs in organism such as starvation, thirst, sexuality, or the spiritual needs such as curiosity, love, closeness and success (Budak, 2000). According to Christopher (1999), life satisfaction is a state that emerges with the expectations of the individual regarding the life and the level of fulfilling these expectations. In other words life satisfaction is closely related to happiness, morality and well-being. Moreover, life satisfaction doesn't mean the satisfactions of individuals for a specific situation or specific process, but the satisfaction of all experiences in a general sense (Vara, 1999).

Life satisfaction of individuals can be affected by many things. Some of these are happiness from everyday life, meaning attributed to life, adaptation in respect of achieving goals, positive individual identity, physical self-sense of well-being, economic security and social relationship (Schmitter, 2003). Life satisfaction is the emotional response or attitude that one display to the life in work, leisure and other time periods. Life satisfaction is related to age, gender, working and business conditions, educational level, religion, race, income level, marital and family life, social life, personality characteristics and biological factors (Köker, 1991). Life satisfaction, which is a psychological feature that can affect every area of everyday life, is important for people's lives. This situation features the psychological characteristics of the people (Sünbül, 2002).

The life satisfaction, which is defined as cognitive perceptions and evaluations regarding the general life, consists of three parts. The first is the state of well-being by comparing the individual's life with the external criteria. Second, it is the state of sense that is created by judging one's own life. The third is the satisfaction that daily relationships create (Serin and Özbülak, 2006). Life satisfaction is expressed as an important element of comprehensive happiness (Diener, Emmons, Larsen and Griffin, 1985).

The literature review regarding anxiety revealed that physical activity and exercise programs lead to reduce the levels of anxiety of individuals (Asmundson et al., 2013; Petruzello et al., 1991). It is seen that one way to reduce the symptoms of depression and anxiety is to exercise (Jayakody, Gunadasa and Hosker, 2014). In some studies dealing with physical activity and anxiety, it was revealed that physical activity programs have directly effect on the anxiety level (O'Connor, Raglin and Martinsen, 2000; Stathopolou et al., 2006). These physical activity programs have a positive effect on the anxiety symptoms (Herring et al., 2010; Jayakody et al., 2014; Careke al., 2011; DeBoer et al., 2012). In addition, the conducted experimental studies shows that exercise is a therapeutic strategy to relieve mild depression symptoms (DeBoer, Powers, Utschig, Otto and Smits, 2012), as well as to make mood well and to reduce anxiety disorders (Dunn, Trivedi, Kampert, Clark, and Chambliss, 2005; Singh et al., 2005; Veale et al., 1992).

Participating regularly in exercise and physical activity increase the life satisfaction levels of children and adolescents in all age groups (Holstein, Ito and Due, 1990; Protor, Linley and Maltby, 2009), young adults (Grant, Wardle and Stetoe, 2009, Joseph, Royse, Benitez and Pekmezi, Maher et al., 2013),



adults (Eime, Harvey, Brown and Payne, 2010; Wang et al., 2012) and old persons (Clark, Long and Schiffman, 1999; Withall et al., 2014). Besides, it appeared that participation in leisure time physical activity (Joseph et al., 2013; Thome and Espekage, 2014) and sport / exercise participation (Grant, Wardle and Stetoe, 2009; Rangul, Bauman, Holmen and Midthjell, 2010) increase the life satisfaction.

The aim of this study is to examine the effect of physical activity program on the anxiety and life satisfaction levels of adults. In accordance with this general objective, answers for the following sub-problems were sought.

1. At which level is the descriptive statistical values regarding anxiety and life satisfaction scores of adult in the experimental and control group?

2. *In terms of trait anxiety level;*

a) Is there a significant difference between pre-test and post-test mean scores of adults in the experimental and control groups? b) At which level is the effect size (Cohen's d) values between pre-test and post-test mean scores of adults in the experimental and control groups?

3. *In terms of life satisfaction level;*

a) Is there a significant difference between pre-test and post-test mean scores of adults in the experimental and control groups?

b) At which level is the effect size (Cohen's d) values between pre-test and post-test mean scores of adults in the experimental and control groups?

Method

This section includes research model, research group, data collection tools and data analysis.

Research Model

This study was designed in quasi-experimental way with pre-test and post-test control groups. This design is a model with high implementation validity in research in education fields where it isn't possible to control all variables. Existing pretests assist in determining the level of similarity of groups before the training program, while posttests contribute to interpretation of results (Cohen, Manion and Morrison, 2007). Also, dependent variables in fictionalized design are "level of trait anxiety" and "life satisfaction levels" of sedentary adults, while the independent variable is "physical activity program".

Research Group

Convenience sampling method from purposeful sampling methods was used in determining the research group. This method allows for in-depth study of situations that are thought to have rich knowledge and allows the researcher to save time, energy and resources by quickly and easily reaching the sample (Patton, 2014). In this direction, the study was carried out through data collected from a total of 160 sedentary adults, 80 of whom were experimental and 80 were control groups, who attended a gym in Konya Province. It was determined that there was no significant difference between experimental and control groups in terms of trait anxiety and life satisfaction levels ($t_{158}: 0.435, p = 0.664 > 0.05$). This finding indicates that the levels of the groups regarding the dependent variables before the applications are similar. Demographic information of participants is given in Table 1.

Table 1. Demographic information of participants

Variables	Participants	
	Experimental (n:80)	Control Group (n:80)
Gender		
Female	43	43
Male	37	37
Marital Status		
Married	28	46
Single	52	34
Age		
18-22	15	24
23-27	22	24
28-32	20	16
33 and older	23	16
Educational Status		
Primary School	10	24
High School	25	26
University	45	30
Income State		
Low	27	20
Middle	35	36
High	18	24



The study was conducted with the participation of 160 sedentary adults (control: 80; control: 80). The experimental group consists of 43 females and 37 males. The individuals in this group are between the ages of 18 and 36, 28 are married and 52 are single. In terms of educational status, 10 of them are primary school, 25 of them are high school and 45 of them are university graduates; while 27 have low, 35 have middle and 18 have high income state. The control group consists of 43 females and 37 males. Individuals in this group are between the ages of 18 and 36, 46 are married and 34 are single. In addition, in terms of education, 24 were primary education, 26 were high school and 30 were university graduates; while 20 have low, 36 have middle and 24 have high income state.

Data Collection Tools

In present research, in which the effect of physical activity program on trait anxiety and life satisfaction levels of sedentary adults is examined, "Personal Information Form", "Trait Anxiety Inventory" and "Life Satisfaction Scale" were used as a data collection tool.

Personal Information Form: This form was prepared to collect personal informations on individuals that create research group. Form contains the statements regarding age, sex, marital status, educational status and income state.

The Life Satisfaction Scale: The life satisfaction scale developed by Diener, Emmons, Larsem and Griffen (1985) measures the subjective assessment of one's own life. The scale is a five-item, seven-point Likert-type assessment tool. The Cronbach Alpha for internal reliability of the scale was calculated as .87. It was determined that the rate of the single factor scale to explain the variance was found to be 66%. The adaptation of the scale to Turkish on the undergraduates was made by Köker (1991) and the internal consistency of the scale was calculated as .85. In studies conducted later, Durak, Senol-Durak and Gencoz (2010) determined the Cronbach Alpha for the internal reliability of scale to be .71 and Phillips et al. (2013) determined as .90. In this study, the Cronbach alpha coefficient for internal consistency of the scale was calculated as .84.

Trait Anxiety Inventory: In research, "Trait Anxiety Inventory" developed by Spielberger and adapted to Turkish by Öner and Le Compte (1983) was used in determining the trait anxiety levels of participants. Inventory was adapted to Turkish by Öner and Le Compte (1983). Considering that inventory consists of 20 items; minimum score of 20 and maximum score of 80 can be received. The total of each direct and reverse statements are received to give score the inventory. The total score of reversed statements are subtracted from the total score of direct statements. Pre-determined score of 35 are added to this number. The latest obtained value is the anxiety score of the individual. The fact that the score is high shows that anxiety level is high, and that the score is low shows that anxiety level is low. It was found in coherence validity that in comparison of normal individuals with diagnosed psychiatric patients, state and trait anxiety levels of patients were much higher than normal. Considering the inventory reliability, Alpha reliability of trait anxiety inventory was found between .83 and .87. It was determined that reliability of test- retest method changed between .71 and .86. In following studies, Teixeira et al. (2013) found the Cronbach Alpha internal consistency coefficient regarding trait anxiety inventory to be .81 and Pamuk et al. (2014) found to be .89. In present study, Cronbach Alpha internal consistency coefficient was found to be .86 for trait anxiety inventory.

Physical Activity Program

The participant in the experimental group were applied a physical activity program including warm-up movements, fitness, pilates, step, fit dance, street dance and stretching-cooling exercises for 3 days and 2 hours per week for 12 weeks. In addition, the opinions of the three academicians who were experts in physical education and sports were asked to give its final shape to program. Detailed information on the program is given in Table 2.

Table 2 contains information on the content of the Physical Activity Program applied on the Experimental Group. This program was applied for 12 weeks, 3 days and 2 hours a week. The Physical Activity Program was formed by bringing together activities with different qualities in line with expert opinions. These activities include aerobic exercise, fitness, fit dance, fitness + step, pilates and street dance.



Table 2. 12 week physical activity program

Week	Day	Hour	Type of exercise	Content of exercise
1. Week	Tuesday	2	Fitness	Workout with its own weight
	Thursday	2	Pilates	Warm-up and mat workout
	Saturday	2	Fitness + Step	Workout with its own weight + step
2. Week	Tuesday	2	Pilates	Warm-up and mat trainings
	Thursday	2	Fitness + Step	Fitness work-out with small weights
	Saturday	2	Street Dance	Quick step work-out
3. Week	Tuesday	2	Fitness	Fitness work on hydraulic machines
	Thursday	2	Fit Dance	Zumba dance
	Saturday	2	Fitness	Fitness work on hydraulic machines
4. Week	Tuesday	2	Street Dance	Quick step work-out
	Thursday	2	Fitness	Fitness work on hydraulic machines
	Saturday	2	Fit Dance	Zumba + aerobic
5. Week	Tuesday	2	Fitness	Work out on machines
	Thursday	2	Aerobic Exercise	Treadmill - bicycle – elliptic
	Saturday	2	Fitness	Work out on machines
6. Week	Tuesday	2	Pilates	Work out with pilates balls and mat
	Thursday	2	Fitness	Work out on machines
	Saturday	2	Fit Dance	Zumba + aerobic

Process

In the first stage of study, participants were informed about the aim, content and implementation process of study. In the second stage, volunteer-based participants were randomly split into experimental (n = 80) and control group (n = 80). In the third stage, pre-tests were applied to participants. In the fourth stage, the physical activity program, which consists of 36 sessions in total for three days a week for 12

weeks, was applied to the participants in the experimental group. In this stage, the participants in the control group didn't participate in any activity. In the fifth stage, post-test was applied to participants after the 12-week Physical Activity Program. The data were obtained through the scales applied before and after the 12 week process. The experimental design of the research process is given in Table 3.

Table 3. Experimental design

Group	Pre-test	Sports Activities (12 Week)	Post-test
Experimental	Life Satisfaction Scale – Trait Anxiety Inventory	Participants were applied a physical activity program consisting of 36 Sessions.	Life Satisfaction Scale – Trait Anxiety Inventory
Control	Life Satisfaction Scale – Trait Anxiety Inventory	Participants weren't applied any physical activity program	Life Satisfaction Scale – Trait Anxiety Inventory

Table 3 gives information on the experimental design of research. In the research, individuals in Control Group weren't applied any physical activity program when the participants in the Experimental Group were applied Physical Activity Program consisting of 36-sessions. Pre-test and post-test scores of the experimental and control groups were obtained with "Life Satisfaction Scale" and "Trait Anxiety Inventory".

Data Analysis

Whether or not the data show normal distribution was tested with Kolmogorov Smirnov analysis. In this analysis, the fact that calculated p value was higher than 0,05 can be interpreted as scores didn't show

significant (excessive) deviation from normal distribution at this significance level and were in accordance with it (Büyüköztürk, 2014). In this context, it was determined that pretest and posttest scores of each assessment tool showed normal distributions as a result of conducted analyses (* LSS₁: p = 0,06 > 0,05; ** LSS₂: p = 0,058 > 0,05; *** TAI₁: P = 0,200 > 0,05; **** TAI₂: p = 0,057 > 0,05). Therefore, Independent Sample t test was used to determine the intergroup difference and Paired Sample t test was used to determine the intra-group difference.

In addition, Cohen " d " was used to calculate the effect size in this research. Cohen "d" indicates how



many standard deviations the compared means get away from each other (Card, 2012). Regardless of the effect size sign, respectively $d = 0,20-0,50$ is interpreted as small, $d = 0,50-0,80$ as medium and $d = 0,80 < d$ as large (Cohen, Manion and Morrison, 2007, Cohen, 1988). The mean and standard deviation values of pre-test and post-test data were calculated and compared with each other to determine effect size. The data were analyzed by using the SPSS for Windows 22.0 statistical program. Significance level of 0.05 was taken into account in interpreting the results.

*LSS₁: Life Satisfaction Scale pre-test, **LSS₂: Life Satisfaction Scale post-test, ***TAI₁: Trait Anxiety

Inventory pre-test, ****TAI₂: Trait Anxiety Inventory post-test

Findings

Findings obtained from research were examined under three different titles according to the sub-problems of research.

Findings regarding the first sub-problem of the research:

Descriptive statistical values regarding the trait anxiety and life satisfaction scores of the adults in the experimental and control groups are shown in Table 4.

Table 4. Descriptive statistics regarding the trait anxiety and life satisfaction scores of the adults in the experimental and control groups

		Experimental Group (n:80)		Control Group (n:80)	
		Before Program	After Program	Before Program	After Program
Trait Anxiety	M	43.12	41.24	39.40	40.41
	SD	7.12	5.48	8.56	7.87
	Min.	28	20	26	28
	Max	73	63	74	78
Life Satisfaction	M	22.79	25.01	22.10	21.66
	SD	6.19	4.30	7.47	7.03
	Min.	7	14	7	8
	Max	35	35	35	35

When examined Table 4, it is seen that the participants in the experimental group have scores from the pre-program Trait Anxiety Inventory, the mean is 43.12, the standard deviation is 7.12, the minimum value is 28 and the maximum value is 73. Participants in the experimental group have scores received from the post-program Trait Anxiety Inventory; the mean is 41.24, the standard deviation is 5.48, the minimum value is 20 and the maximum value is 63.

It appears that the participants in the experimental group have scores from the pre-program Life Satisfaction Scale, the mean is 22.79, the standard deviation is 6.19, the minimum value is 7 and the maximum value is 35. Participants in the experimental group have scores received from the post-program Life Satisfaction Scale; the mean is 25.01, the standard deviation is 4.30, the minimum value is 14 and the maximum value is 35.

It is seen that the participants in the control group have pre-test scores from the Trait Anxiety Inventory, the mean is 39.40, the standard deviation is 8.56, the minimum value is 26 and the maximum value is 74. Participants in the control group have post-test scores

received from the Trait Anxiety Inventory; the mean is 40.41, the standard deviation is 7.87, the minimum value is 28 and the maximum value is 78.

It appears that the participants in the control group have pre-test scores from Life Satisfaction Scale, the mean is 22.10, the standard deviation is 7.47, the minimum value is 7 and the maximum value is 35. Participants in the control group have post-test scores received from the Life Satisfaction Scale; the mean is 21.66, the standard deviation is 7.03, the minimum value is 8 and the maximum value is 35.

Findings regarding the second sub-problem of the research:

The pre-test and post-test mean scores of the adults in the experimental and control groups towards the Trait Anxiety Inventory were examined with the "Independent Samples T-test" and the effect size between the pre-test and post-test mean scores of these groups was calculated with the Cohen's "d" statistic. The obtained findings are shown in Table 5.



Table 5. Comparison of pre-test and post-test trait anxiety scores of adults in the experimental and control groups

Group	Pre-test		Post-test		t(79)	p	Cohen's d
	M	SD	M	SD			
Experimental Group n(80)	43.12	7.12	41.24	5.48	2.217	.004*	.29**
Control Group n(80)	39.40	8.56	40.41	7.87	1.243	.196	.09

*p<.01, **d>.20

When examined Table 5, it was found that there was a significant difference between the pre-test and post-test mean scores of the scores that participants in the experimental group received from Trait Anxiety Inventory (t79: 2.217, p = 0.004 < 0.05). However, in the control group, to which no activity program was applied, it was found that there was no significant difference between the pre-test and post-test mean scores of the scores received from Trait Anxiety Inventory (t79: 1.243, p = 0.196 > 0.05). In addition, the effect size between the pre-test and post-test mean scores of the scores that participants in the experimental group received from the Trait Anxiety Inventory was found to be 0.29 (significant effect at a

small level). The effect size between the pre-test and post-test mean scores of the scores that participants in the control group received from the Trait Anxiety Inventory was found to be 0.09 (insignificant effect).

Findings regarding the third sub-problem of the research:

The pre-test and post-test mean scores of adults in experimental and control groups regarding the Life Satisfaction Scale were examined with the "Independent Samples T-test" and the effect size between the pre-test and post-test mean scores of these groups was calculated by the Cohen's "d" statistic. The obtained findings are shown in Table 6.

Table 6. Comparison of pretest and posttest life satisfaction scores of adults in the experimental and control groups

Group	Pre-test		Post-test		t(99)	P	Cohen's d
	M	SD	M	SD			
Experimental Group n(80)	22.79	6.19	25.01	4.30	3.189	.002*	.41**
Control Group n(80)	22.10	7.47	21.66	7.03	.966	.336	.06

*p<.01, **d>.20

When examined Table 6, it was found that there was a significant difference between the pre-test and post-test mean scores of the scores that the participants in the experimental group received from the Life Satisfaction Scale (t79: 3.189, p = 0.002 < 0.05). However, in the control group, to which no activity program was applied, it was found that there was no significant difference between the pre-test and post-test mean scores of the scores received from the Life Satisfaction Scale (t79: .966; p = 0.336 > 0.05). In addition, the effect size between the pre-test and post-test mean scores of the scores that participants in the experimental group received from the Life Satisfaction Scale was found to be 0.41 (significant effect at a medium level). The effect size between the pre-test and post-test mean scores of the scores that participants in the control group received from the Life Satisfaction Scale was found to be 0.06 (insignificant effect).

Discussion

In the study, whether or not the physical activity program affects adults' anxiety levels and life satisfactions was examined. As a result of the research, it was observed that there was a positively significant decrease in the participants' trait anxiety levels compared to levels before and after the physical activity program. This positive decrease observed is related to the small effect size. In addition, it was revealed that the physical activity program positively contributed to the life satisfaction of adults.

There was a positive increase in life satisfaction levels before and after the activity program. The effect size between the mean scores of the pre-test and post-test was found to be 0.41 at a medium level. The results obtained are similar to results of research in the related literature. Research results showed that physical activity and exercise programs reduce the



anxiety levels of participants of the activity program (Anderson and Shivakumar, 2013, Broman-Fulks and Storey, 2008; Carmeli, 2013, Wipfli, Rethorst and Landers, 2008). In the study of Akandere and Tekin (2008) conducted on the undergraduates, it was seen that there were positive changes in the trait anxiety state of undergraduates participating in the physical activity program. However, it was observed that there was no change in the state of trait anxiety of undergraduates in the control group who didn't participate in the physical activity program. The effect size between the pre-test and post-test mean scores obtained from the state of trait anxiety of undergraduates participating in the control group was calculated.

It was determined that there was a significant difference between the pre-test and post-test mean scores of the scores that the participants in the experimental group received from the Life Satisfaction Scale. That is because it was found in the literature that physical activity that is a part of healthy life increase the life satisfaction of people (Eime et al., 2010, Shibata, Oka, Nakamura and Muraoka, 2007; Silva et al., 2010). In the study of Shibata et al. (2007) in which they dealt with Japanese adults' physical activity levels and healthy life quality, it was figured out that the life quality of adults participating in physical activity was found to be higher than those who didn't participate. However, it was observed that there was no change in the levels of life satisfaction of adults in the control group who didn't participate in the physical activity program. These findings show parallelism with the present study.

It was determined that the effect size between the pre-test and post-test mean scores of the scores that participants in the experimental group received from the Life Satisfaction Scale was a significant effect at a medium level. However, it was calculated that the effect size between the pre-test and post-test mean scores of the undergraduates in the control group received from the Trait Anxiety Level was at an insignificant level.

Conclusion

As a result, it can be said that the physical activity program positively affects the trait anxiety levels of the adults and has the psychologically healing properties. The current study (Akandere et al., 2008; Teixeira, Raposo, Fernandes and Brustad, 2013; Esenturk et al., 2016) also supports this situation. Physical activity affects not only the private mental health but also the general mental health. In particular, physical activity has a healing effect in relieving the anxiety and its treatment (Araujo, Mello

and Leite, 2007). In addition, it can be said that physical activity positively affects life satisfaction of sedentary adults (Eime, Harvey, Brown and Payne, 2010; Grant, Wardle and Stetoe, 2009). The findings obtained as a result of the research shows that physical activity plays an important role in psychological health and life satisfaction of sedentary adults.

Acknowledgments

We thank all athletes for participating in this study. No funding was used for this study.

References

- Anderson E, Shivakumar G, 2013, Effects of exercise and physical activity on anxiety, *Frontiers in Psychiatry*, 2013; 4:1-4. <http://dx.doi.org/10.3389/fpsy.2013.00027>.
- Araújo SRC, Mello MT, Leite JR, 2007, Transtornos de ansiedade e exercício físico, *Revista Brasileira de Psiquiatria*, 29(2):164-171. <http://dx.doi.org/10.1590/S1516-44462006005000027>
- Asmundson GJ, Fetzner MG, Deboer LB, Powers MB, Otto MW, Smits JAJ, 2013, Let's get physical: a contemporary review of the anxiolytic effects of exercise for anxiety and its disorders. *Depression and Anxiety*, 30(4),362-373. <http://dx.doi.org/10.1002/da.22043>
- Broman-Fulks JJ, Storey KM, 2008, Evaluation of a brief aerobic exercise intervention for high anxiety sensitivity, *Anxiety Stress Coping*, 21(2), 117-128. <http://dx.doi.org/10.1080/10615800701762675>
- Budak S, 2000, *Psikoloji Sözlüğü*. Ankara: Bilimve Sanat Yayınları.
- Büyüköztürk Ş, 2014, *Sosyalbilimler için verilerin analizi el kitabı (Genişletilmiş 20. baskı)*, Ankara: Pegem Akademi.
- Card NA, 2012, *Applied meta-analysis for social science research*. New York: The Guilford Press.
- Carek PJ, Laibstain SE, Carek SM, 2011, Exercise for the treatment of depression and anxiety. *The International Journal of Psychiatry and Medicine*, 41(1),15-28. <http://dx.doi.org/10.2190/PM.41.1.c>
- Carmeli E, 2013, Physical activity reduces stress and anxiety, *Journal of Aging Science*, 2(1), 1-2. <http://dx.doi.org/10.4172/2329-8847.1000e108>
- Clark SD, Long MM, Schiffman LG, 1999, The mind-body connection: The relationship among physical activity level, life satisfaction, and cognitive age among mature females. *J Soc Behav Pers* 14, 221–240.



- Cohen L, Manion L, Morrison K, 2007, Research methods in education (6th edition), London: RoutledgeFalmer.
- Cohen J, 1988, Statistical power analysis for the behavioral sciences (2nd. edition), New Jersey: Lawrence Erlbaum Associates, Inc.
- Christopher JC, 1999, Situating psychological well-being: Exploring the cultural roots of its theory and research. *Journal of Counseling and Development*, 77 (2), 141-153.
- DeBoer LB, Powers MB, Utschig AC, Otto MW, Smits JAJ, 2012, Exploring exercise as an avenue for the treatment of anxiety disorders. *Expert Review of Neurotherapeutics*, 12(8),1011-1022. <http://dx.doi.org/10.1586/ern.12.73>
- Diener E, Gohm C, Suh E, Oishi S, 2000, Similarity of the relations between marital status and subjective well-being across cultures. *Journal of Cross-Cultural Psychology*, 31, 419–436.
- Diener ED, Emmons, RA, Larsen RJ, Griffin S, 1985, The satisfaction with life scale. *Journal of personality assessment*, 49(1), 71-75.
- Donnelly R, 2009, Embedding interaction within a blend of learner centric pedagogy and technology. *World Journal on Educational Technology*, 1(1).6-29.
- Dunn AL, Trivedi M,H, Kampert JB, Clark CG, Chambliss HO, 2005, Exercisetreatment for depression: efficacy and dose response. *American Journal of Preventive Medicine*, 28(1), 1-8.
- Durak M, Senol-Durak E, Gencoz T, 2010, Psychometric properties of the satisfaction with life scale among Turkish university students, correctional officers, and elderly adults. *Social indicators research*, 99(3), 413-429.
- Eime RM, Harvey JT, Brown WJ, Payne WR, 2010, Does sports club participation contribute to health-related quality of life? *Med Sci Sports Exerc* 42, 1022–1028. doi: 10.1249/MSS.0b013e3181c3adaa PMID: 19996991
- Esentürk OK, Yarımkaya E, Akandere M, Yılmaz A, 2016, The effect of physical activity programme on trait anxiety level on adults. *Science, Movement and Health* 16(2), 609-618.
- Grant N, Wardle J, Steptoe A, 2009, The relationship between life satisfaction and health behavior: A cross-cultural analysis of young adults. *Int J Behav Med* 16, 259-268. doi: 10.1007/s12529-009-9032-x PMID: 19319695
- Herring MP, O'Connor PJ, Dishman RK, 2010, Effect of exercise training on anxiety symptoms among patients: a systematic review. *Archives of Internal Medicine*, 170(4),321-331. <http://dx.doi.org/10.1001/archinternmed.2009.530>
- Holstein BE, Ito H, Due P, 1990, Physical exercise among school children. A nation wide sociomedical study of 1,671 children 11–15 years of age. *Ugeskr Laeger*, 152: 2721-2727. PMID: 2219503
- Işık E, 1996, Nevrozlar. Ankara: Kent Matbaası.
- Jayakody K, Gunadasa S, Hosker C, 2014, Exercise for anxiety disorders: systematic review. *Br J Sports Med* 48: 187–196. doi: 10.1136/bjsports-2012-091287 PMID: 23299048.
- Joseph RP, Roysse KE, Benitez TJ, Pekmezi DW, 2013, Physical activity and quality of life among university students: exploring self-efficacy, self-esteem, and affect as potential mediators. *Qual Life Res* 23: 659–667. doi: 10.1007/s11136-013-0492-8 PMID: 23928820.
- Maher JP, Doerksen SE, Elavsky S, Hyde AL, Pincus AL, et al., 2013, A daily analysis of physical activity and satisfaction with life in emerging adults. *Health Psychol* 32, 647–656. doi: 10.1037/a0030129 PMID: 23088171
- McEvoy PM, Watson H, Watkins ER, Nathan P, 2013, The relationship between worry, rumination, and comorbidity: Evidence for repetitive negative thinking as a transdiagnostic construct. *J. Affect. Disord.* 151, 313–320.
- Mennin DS, Holaway RM, Fresco DM, Moore MT, Heimberg RG, 2007, Delineating components of emotion and its dysregulation in anxiety and mood psychopathology. *Behav. Ther.* 38, 284–302.
- Neurgarten BL, Havinghurt RJ, Tobin S, 1961, *Journal of Gerontology*. The measurement of life satisfaction. 16, 134-143.
- O'Connor PJ, Raglin JS, Martinsen EW, 2000, Physical activity, anxiety and anxiety disorders. *International Journal of Sport Psychology*, 31(2),136-155.
- Öner N, LeCompte A, 1983, Durumluk-sürekli kaygı envanteri el kitabı. İstanbul: Boğaziçi Üniversitesi Yayınları.
- Özer M, Karabulut ÖÖ, 2003, Yaşlılarda yaşam doyumu. *Geriatrici*, 6(2), 72-74.
- Patton MQ, 2014, Nitel araştırma değerlendirme yöntemleri. Mesut Bütün-Selçuk Beşir Demir (Çev. Edt.). Ankara: Pegem A.
- Pamuk Y, Hamurcu H, Armağan B, 2014, Sınıf öğretmen adaylarının durumluk ve sürekli kaygı düzeylerinin incelenmesi (İzmir-Buca örneği), *Bartın Üniversitesi Eğitim Fakültesi Dergisi*, 3(2),293-316. <http://dx.doi.org/10.14686/BUEFAD.201428183>
- Petruzzello SJ, Landers DM, Hatfield BD, Kubitz KA, Salazar W, 1991, A meta-analysis on the



- anxiety-reducing effects of acute and chronic exercise, *Sports Medicine*, 11(3),143- 182. <http://dx.doi.org/10.2165/00007256-199111030-00002>
- Proctor CL, Linley PA, Maltby J, 2009, Youth life satisfaction: A review of the literature. *Journal of Happiness Study* 10, 583–630.
- Rangul V, Bauman A, Holmen TL, Midthjell K, 2012, Is physical activity maintenance from adolescence to young adulthood associated with reduced CVD risk factors, improved mental health and satisfaction with life: The HUNT Study, Norway. *Int J Behav Nutr Phys Act* 9, 144.doi: 10.1186/1479- 5868-9-144 PMID: 23241306
- Salovey P, Stroud LR, Woolery A, Epel E, 2002, Perceived emotional intelligence, stress reactivity and symptom reports. [http://refhub.elsevier.com/S0165- 1781\(16\)30579 0/sbref56](http://refhub.elsevier.com/S0165- 1781(16)30579 0/sbref56).
- Scovel T, 1991, “The Effect of Affect on Foreign Language Learning: A Review of The Anxiety Research in” E.K. Horwitz and D.J. Young, *Language Anxiety*, 101–108. Englewood Cliffs, NJ: Prentice Hall.
- Schmitter PC, 2003, Democracy in Europe and Europe's democratization. *Journal of Democracy*, 14(4), 71-85.
- Selçukoğlu Z, 2001, Araştırmagörevlilerin edindikmişlik düzeyi ile yalnızlık düzeyi ve yaşam doyumu arasındaki ilişkinin bazı değişkenler açısından değerlendirilmesi. (Yayınlanmamış Yüksek Lisans Tezi). Konya: Selçuk Üniversitesi Sosyal Bilimler Enstitüsü.
- Serin NG, Özbek B, 2006, Okul idarecilerinin duygusal zeka beceri düzeyleri ile yaşam doyumunu yöneticilik deneyimlerine ilişkin olarak yapılan araştırmanın değerlendirilmesi. *Uluslararası Duygusal Zeka ve İletişim Sempozyum Bildiri Kitabı* (ss. 23-30). İzmir: Ege Üniversitesi, İletişim Fakültesi.
- Silva RS, da Silva I, da Silva RA, Souza L, Tomasi E, 2010, Physical activity and quality of life, *Ciencia de Saude Coletiva*, 15(1):115-120. <http://dx.doi.org/10.1590/S1413-81232010000100017>.
- Singh NA, Stavrinou TM, Scarbek Y, Galambos G, Liber C, Singh MA, F, 2005, A randomized controlled trial of high versus low intensity weight training versus general practitioner care for clinical depression in older adults. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 60(6), 768-776.
- Shibata A, Oka K, Nakamura Y, Muraoka I, 2007, Recommended level of physical activity and health related quality of life among Japanese adults. *Health and Quality of Life Outcomes*, 5(64), 1-8.
- Spielberger CD, Gorsuch RL, Lushene R, 1970, *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Stathopoulou G, Powers MB, Berry AC, Smits JA, Otto MW, 2006, Exercise interventions for mental health: a quantitative and qualitative review, *Clinical Psychology. Science and Practice*, 13(2),179-193. <http://dx.doi.org/10.1111/j.1468-2850.2006.00021.x>
- Sünbül AM, 2002, Birmeslekolarak öğretmenlik. Öğretmenlik mesleğine giriş (Editör: Demirel, Özcan ve Kaya, Zeki) Öğretmenlik mesleğine giriş içinde (s. 245-276). Ankara: Pegem A Yayıncılık.
- Teixeira CM, Raposo JV, Fernandes HM, Brustad RJ, 2013, Physical activity, depression and anxiety among the elderly. *Social Indicators Research*, 113(1),307 3018. <http://dx.doi.org/10.1007/s11205-012-0094-9>
- Thome J, Espelage DL, 2004, Relations among exercise, coping, disordered eating, and psychological health among college students. *Eat Behav* 5, 337–351. PMID: 15488448
- Vara Ş, 1999, “Yoğun Bakım Hemşirelerinde İş Doyumu ve Genel Yaşam Doyumu Arasındaki İlişkilerin İncelenmesi”. (Yayınlanmamış Yüksek Lisans Tezi). İzmir: Ege Üniversitesi Sağlık Bilimleri Enstitüsü.
- Veale DMWC, Le Fevre K, Pantelis C, De Souza V, Mann A, Sargeant A, 1992, Aerobic exercise in the adjunctive treatment of depression: a randomized controlled trial. *Journal of the Royal Society of Medicine*, 85(9), 541.
- Wang F, Orpana HM, Morrison H, De Groh M, Dai S, 2012, Long-term association between leisure-time physical activity and changes in happiness: Analysis of the prospective National Population Health Survey. *Am J Epidemiol* 176: 10951100.doi: 10.1093/aje/kws199 PMID: 23171884
- Weems CF, Taylor LK, Marks AB, Varela RE, 2010, Anxiety sensitivity in childhood and adolescence: parent reports and factors that influence associations with child reports. *Cognitive Therapy Research*, 34, 303-315.
- Wipfli BM, Rethorst CD, Landers DM, 2008, The anxiolytic effects of exercise: a meta-analysis of randomized trials and dose response analysis, *Journal of Sport & Exercise Psychology*, 30(4), 392-410.
- Withall J, Stathi A, Davis M, Coulson J, Thompson JL, Fox KR, 2014m Objective indicators of



physical activity and sedentary time and associations with subjective well-being in adults aged 70 and over. *Int J Env Res Public Health* 11, 643–656. doi: 10.3390/ijerph110706842 PMID: 24992487

Yang MJ, Kim BN, Lee EH, Lee D, Yu BH, Jeon HJ, & Kim JH, 2014. Diagnostic utility of worry and rumination: a comparison between generalized anxiety disorder and major depressive disorder. *Clin.Neurosci.* 68, 712–720.