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EFFECT OF REGULAR PHYSICAL ACTIVITY ON INDIVIDUALS' STRESS, HAPPINESS AND LEISURE SATISFACTION LEVELS

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ABSTRACT

The research aims to examine the effect of physical activity on perceived stress, happiness and leisure satisfaction levels of working sedentary individuals who have participated the physical activity program regularly. The research is a quasi-experimental study done by using quantitative research method. Experimental group participants havepracticed regular physical activity program one hour a day, 3 days a week for 8 weeks. Except from the experimental study, in order to determine the emotional states of regular physical activity program participants and nonparticipants, we have used "Perceived Stress", "Oxford Happiness" and "Leisure Time Satisfaction" scales. The research involves 90 people divided into two groups; "Experiment" (45 people) and "Control" (45 people). The age ranges from 25 to 45 years old. . The groups' pretest and posttest results have been compared by using "t-Test" and "Two-way Analysis of Variance" tests in a way involving both subdimensions of scales and sub-problems of the research. Besides, the demographic information of the participants has been made available by frequency and percentage analysis. It has been identified that stress and insufficient self-efficacy perception of individuals in the experiment group and attending regular physical activity program has decreased significantly in comparison to the individuals in the control group and not attending the regular physical activity program. Also,happiness perception points of the experiment group have been detected much higher than of the control group. Leisure satisfaction levels of regular physical activity program participants have seemed to increase in all subdimensions compared to individuals in the control group and not attending the regular physical activity program. In conclusion, it can be argued that people with intensive work tempos, evaluating their free time by participating in a regular physical activity program, may cause positive changes in their social and psychological emotional states.

Key Words: Leisure, Stress, Happiness, Physical Activity

INTRODUCTION

Leisureas aconcept is seen as a vitalfield which goes back in the world history and is described as a kind of transition and change tool among cultures (Hunnicut, 2006, 55)in terms of reflecting the vital rhythms of its time (Torkildsen, 2005, 11) and includes various games similar to sport activities (Juniu, 2000). Leisure time requirement offers an entertainment-based structure which enables individuals to avoid tiring obligations of business life and relax (Henderson, 2010) because with optional activities individuals socialize with their environment and are satisfied (Pearson, 2008). Therefore, with the technological progress of today it has a growing attention. The concept should not be seen only as a matter of time; in fact, leisure time both represents optional time for individuals and creates a kind of activity and attitude field in which they can spend their time usefully and entertainingly (Oh et al., 2016; Zuzanek, 2006, 185-186). Leisure concept is considered as a concept which improves the quality of life and as a result enables people to work more efficiently (Fave and Massimini, 2003) because the concept in question is seen as a fact allowing individuals who live industrially and technologically improved but passive lives to show interest in different recreational activites such as biking, swimming, skiing and weight training (Kay and Smith, 2016, 215-222). Even though technological progress makes people get used to inactive life style, it should be admitted that smart phones, widespread internet network, more TV

channels and computers which have become a part of our daily lives strengthen social communication and increase opportunities to spend our leisure time with (Roberts, 2010).Thanks to this kind of a social network the desire to follow leisure time activites up to date and join them can increase(Arnett, 1995). It is known that spending leisure time with regular physical activities help considerably prevent physical diseases which increase the risk of sudden death such as paralysis, cancer, obesity, osteoporosis, muscle injuries and diabetese(Andersen et al, 2007; Humphrey, 2005; Latham et al, 2003; Popham and Mitchell, 2006; TRB Special Report, 2005, 19-20). Therefore, especially American Centers of Disease Control and Prevention and Sport Health Schools recommend that people join a physical activity program lasting minimum 30 minutes in their leisure time (Haskell et al, 2007).These kinds of activities are thought to have preventing or diminishing effect on not only physical but psychological disorders and indicated to have positive effects even on Alzheimer which is one of the most common diseases in today's world (Colcombe et al, 2006; Rovio et al, 2005). Consequently engaging with physical activity within leisure time at least for 20 minutes which increases heart rate and breathing can be considered as sufficient to increase positive physical and psychological effects in question and reach leisure time satisfaction by gaining social competence (Agate et al, 2009; Booth et al, 2000; Dergeance et al, 2003; Raz-Silbiger et al, 2015).As there are many physical activity options to choose in leisure time (Dovey et al,1998), governments see it as a priority to encourage these kinds of programs by making them a public health policy (Stephens et al, 1985).The most important point is to be able to conduct these programs regularly and professionally because if an individual starts to live an inactive life again, his/her body will turn to its old form as well. (Moran and Arechabala, 2012, 22).

It is known that there is a strong connection between "happiness" and "success" (Lyubomirsky et al, 2005) and this fact both increase their life standards and provide well-being with socio-cultural values (Veenhoven, 2012, 8-9; Wojcik et al, 2015); thus, it is not wrong to think that regular physical activity programs can also increase the process of well-being. The reason is that a stressful and unhappy life style is an important factor triggering depression (Caspi et al, 2003) and cause undesirable psychological problems decreasing life standards such as desensitization, lack of sexual drive, feeling panic, exhaustion and lack of appetite (Lomas, 2000, 22-24). Even walking regularly, even if not within a program, makes people feel good (Humphrey, 2005) and is seen an effective method to treat depression or anxiety (Craig et al, 2003), so it can be predicted that concepts of regular physical activity and subjective well-being (Easterlin, 1995) are in an interactive structure because physical activity takes one away from negative feelings and creates an environment in which happy and positive feelings are high, social relations are strong and one feels much better (Humphrey, 2005; Haskell et al, 2007).It can be expected that positive feelings regular physical activity provides be reflected positively in business life, as well. Thus, an employee having happy and positive feelings will be much more creative and his/her favourable attitude will affect the organization environment and enable other employees' motivation to increase (Yahşi and Özbek, 2016).

When the literature is analysed within this scope, it can be seen that in their leisure time individuals prefer mostly team sports, outdoor sports and fitness center activities in order to have an entertaining and healthy life and at the same time, demographic factors such as age and gender play an important role in especially choosing fitness centers (Ardahan, 2013; McFee and Tomlinson, 1993, 173; Zealand 2015, 5; Hacıcaferoğlu et al, 2012). Therefore, in this work we have studied socio-psychological effects of regular physical activity program as a recreational event on individuals and witha planned fitness program applied to

participantswe tried to analyse their socio-psychological emotional states before and after regular physical activity with the help of scales used.

THEORETICAL FRAMEWORK

Before we have established the theoretical structure of the research, it is necessary to examine the leisure time theories and conduct a detailed theoretical structure analysis in order to determine the framework. Leisure time theories can be considered as reaching a purpose and a conclusion by analyzing recreational activities within the purpose of action and ideology and combining the choices made with gender, social class and cultural variables (Rojek, 2005, 51). Therefore, leisure time researches are seen as a professional paradigm among theoretical structures and researches based on theories are able to stick to systematic and accepted standards. (Hemingway and Parr, 2000).For this reason, people conducting leisure time researches have to learn to observe the roots of their actions and the theories explaining the results obtained by comparing these roots with different variables (Rojek, 2005, 14). One of the leisure time theories "Social Space (Bourdieu) Theory" sees events such as physical activities as a social life style by showing examples of cultural events such as sports, physical activity, listening to music, reading and dressing in researches aiming to understand social life and defines practices developed for leisure time activities as "habitus"(Heper et al, 2012, 60; Rojek, 2005, 76-91).As for the "Serious Leisure Time Theory", it emphasizes that recreational activities should not entail regular participation, disturb people and require responsibility but should have professional qualities (Stebbins, 2006, 449-451). "Hierarchical Leisure Time Constraints Theory" argues that gender, age, physical capacity and cultural variables restrain activity choices (Godbey et al, 2010).On the other hand, "Socio-emotional Selectivity Theory" provides a different point of view and argues that individuals' leisure time activity choices are affected by people they feel close to and this has a positive effect on their emotional states (B-Wolle and Godbey, 2007). Emphasizing the gender variable, "Feminist Leisure Time Theory" explains that women can encounter critical and oppressive attitude and this may change the activities they choose in their leisure time (Henderson and Shaw 2006, 216-219).Another theory is "Self Efficacy Theory" says that motivation is the key factor determining the participation of people in leisure time activities and if an individual has a strong desire to join an activity, then it will make him/her want more to attend the activity (Chatzisarantis and Hagger, 2009).

"Planned Behaviour Theory" argues that when making choices, people are more likely to choose planned planned activites (Sas-Nowosielski, 2006; Ajzen and Driver, 1992).The theory explains that people think both positive and negative effects of especially the activities they want to do so they have strong emotional preferences in terms of these kinds of activities (Ajzen and Driver, 1992). The theory also states that activities whose outcomes are known and which are time-limited create desire in people and make them predict the results of their action (French et al, 2013).Therefore, when we look at the explanations of the "Planned Behaviour Tehory" this research is based on, preferences and expectations stand out when it comes to attending a planned leisure time activity and according to the data obtained by the research,positive or negative results of their emotional states can be evaluated.

METHOD

The Research Model:

In this study a “quasi-experimental” method which is a quantitative research method has been used(Kirk, 1982).In order to gcollect the data, three separate scales have been applied to both experiment and control group to measure social and psychological states of the participants. Besides 8 weeks of regular physical activity program has been carried out with the experiment group.

Population and Sample:

The population is composed of sedentary individuals who live in the capital city Ankara and have desk job in 2016. Participants with at least two years of job experience have been involved in the study.The age range of the participants is 25-45 and the experimental part has been conducted in a private sport complex located in the capital city Ankara. The experiment group of the study consists of 20 female and 25 male participants (45 people) who are university graduates, belong to different occupational groups and live sedentary lives. As for the control group, they are 23 female and 22 male participants (45 people) who work in a government agency and also have sedentary lives.

Data Collection Tools:

In the research, three different scales such as “Perceived Stress”, “Oxford Happiness (the short form)” and “Leisure Time Satisfaction” have been used in order to determine the sociological and psychological states of participants. The necessary permissions of the scales have been provided by the scale owners. The exercise program used for the experiment group has been created by the joint efforts of researchers and expert trainers and the participants have been allowed not to join the exercises 3 times at most. Those who have not joined the exercise more than 3 times have been expelled from the study. The experimental period of the research has been determined as 3 days a week for 8 weeks. The time participants spend with fitness exercise has been determined as one hour a day, 3 days a week and 24 hours in total. All participants have been given 1 day to rest after every exercise day. Participants have been informed about the features of the fitness program and the details of the scales before the beginning of the study and application time of the scales has been decided as 30 minutes. The exercise program planned for the experiment group has been conducted in a way that they can use all the body muscles equally. According to this program, every muscle group from big muscles to the small ones has been restricted with 3 sets and 10-15 repetition. Except from these, a 15-minute aerobic activity has been added to the program. Individuals in the Experiment and Control groups have been informed about the research and involved in the study voluntarily. To this end, the participants have read and signed the volunteer information letter and Ankara University Ethics Board Permission and Private Sport Complex utilization permit which are necessary for this research have been provided.

Data Analysis:

In the research,“Perceived Stress”, “Oxford Happiness” and “Leisure Time Satisfaction” points obtained by the pretests and posttests results of the “Experiment Group” and “Control Group” have been analysed with “t-Test for Paired Samples” and “Two-way Analysis of Variance”. Before the analysis, the data has been tested whether it fulfills “Normality” and “Reliability” requirements.

Normal Distribution and Reliability Analysis of the Data:

The average value and standard deviation of the points individuals have taken from all the scales used in the research and skewness and kurtosis values used to decide whether the points have been distributed normally or not is provided in the Table 1. In the normality distribution measurements, when skewness values are between -2 and +2 and kurtosis values are between -7 and +7, then the data is identified as normally distributed (Hair et al, 2010; Bryne 2010; Kline, 2011). As seen in the data of Table 1, skewness and kurtosis values are -2 and below +2 respectively; therefore, the data is distributed normally. Reliability factor calculated in the reasarch is between ".65" and ".87". This shows that the scales used to obtain the data about the research model are reliable (Kayış, 2006).

Table 1. Skewness – Kurtosis Values of the Experiment and Control Groups:

Scale	Experiment Group				Control Group			
	Pretest		Posttest		Pretest		Posttest	
	Skewness	Kurtosis	Skewness	Kurtosis	Skewness	Kurtosis	Skewness	Kurtosis
Psycholog.	,213	-,245	-,955	1,16	,196	-,068	-,574	,267
Education.	-,453	,477	-1,34	3,42	,095	-,459	,036	-,573
Social	,287	-,950	-,677	-,119	-,163	-,389	,189	-,478
Physical	-,558	,897	-1,08	1,96	,073	-,743	-,239	,171
Relaxation	,230	,094	-,417	,280	-,434	,373	-,373	,344
Aesthetics	,157	-,347	-,724	,027	-,311	,528	-,128	-,034
Happiness	,493	-1,14	-,246	-,669	1,14	1,17	,994	,353
Stress	,281	-,134	1,01	3,00	-,078	-,342	1,21	2,90
InsufficientSelf-efficacy	,132	-,020	-,331	-,697	-,952	,719	-,426	-1,00

FINDINGS

The experiment group in the research consists of 45 people; 25 men and 20 women.These people are mostly university graduates (80%) and between the ages of 25 and 35 (66,7%). As for their job experience, 55,65% have experience 2 to 10 years. 60% of the participants are not engaged in any recreational activity other than physical activity. The control group consists of 22 men and 23 women and 73,3% of these people are between the age of 36 and 45. 84,4% of the control group are university graduates. Participants in the control group are mostly 11 or more years of job experience(71,1%) and 53,3% of them are engaged in different recreational activities other than physical activity.

The frequency and percentage distribution involving the demographic information of the experiment and control groups are provided in the Table 2.

Table 2. Participants' Demographic Information:

Experiment Group		f	%	Control Group		f	%
Gender	Male	25	55,6	**Gender**	Male	22	48,9
	Female	20	44,4		Female	23	51,1
Age	25-35	30	66,7	**Age**	25-35	12	26,7
	36-45	15	33,3		36-45	33	73,3
Education	University	36	80,0	**Education**	University	38	84,4
	Master	9	20,0		Master	7	15,6
Job Experience	2-10 Years	25	55,6	**Job Experience**	2-10 Years	13	28,9
	11 Years / More	20	44,4		11 Years / More	32	71,1
Other Activity	Yes	18	40,0	**Other Activity**	Yes	24	53,3
	No	27	60,0		No	21	46,7
Total		**45**	**100**	**Total**		**45**	**100**

Table 3. t-Test Results for the Pretest – Posttests of the Perception of Stress, Happiness and Leisure Time Satisfaction Levels of Participants Engaged in Regular Physical Activity:

Scale	Measurement	X	sd	df	t	p*
Stress	Pretest	20,20	4,71	44	3,323	,002*
	Posttest	16,73	4,94			
Insufficient self-efficacy	Pretest	19,88	4,18	44	5,633	,000*
	Posttest	14,68	4,39			
Happiness	Pretest	21,84	4,36	44	5,748	,001*
	Posttest	27,08	5,07			
Psychological	Pretest	12,68	3,48	44	7,481	,000*
	Posttest	16,68	2,40			
Educational	Pretest	13,46	3,14	44	5,932	,000*
	Posttest	16,26	2,46			
Social	Pretest	13,28	3,34	44	4,296	,000*
	Posttest	15,93	2,48			
Physical	Pretest	14,28	3,34	44	4,556	,000*
	Posttest	16,88	2,25			
Relaxation	Pretest	12,35	3,23	44	5,712	,000*
	Posttest	15,82	2,37			
Aesthetics	Pretest	13,57	2,98	44	5,259	,000*
	Posttest	16,77	2,61			

(p<0,05)*

As it can bee seen in the Table 3, t-test analysis shows that after regular physical activity program, in all sub-dimensions of applied scales between pretest and posttest averages there are meaningful differences in terms of statististics. According to the findings in question after regular physical activity program "Stress" (Pretest x=20.20, Posttest x=16.73), [t(44)=3.323; p<0.05] and "Insufficient Self-efficacy" (Pretest x=19.88, Posttest x=14.68), [t(44)=5.633; p<0.05] perception of the participants have decreased. "Happiness" perception of regular physical activity program participants has increased (Pretest x=21.84, Posttest x=2.08), [t(44)=5.748; p<0.05]. Similarly "Educational" (Pretest x=13.49, Posttest x=16.26), [t(44)=7.481; p<0.05], "Social" (Pretest x=13.28, Posttest x=15.93), [t(44)=4.296; p<0.05], "Physical" (Pretest x=14.28, Posttest x=16.88) [t(44)=4.556; p<0.05], "Relaxation" (Pretest x=12.35, Posttest x=15.82), [t(44)=5.712; p<0.05] and "Aesthetics" (Pretest x=13.57, Posttest x=16.77), [t(44)=5.259; p<0.05] perception levels have increased.

According to these results, while joining regular physical activity program in leisure time decreases stress and insufficient self-efficacy perceptions; it increases happiness, educational, social, physical, relaxation and aesthetics perceptions.

Table 4. Results of the Two-way Analysis of Variance of the Participants According to Sub Dimensions

Scale	Group	PRETEST			POSTTEST			F	p*
		N	X	S	N	X	S		
Stress	Experiment	45	20,20	4,71	45	16,73	4,94	11,386	,001*
	Control	45	17,06	4,25	45	18,31	4,37		
Insufficient self-efficacy	Experiment	45	19,88	4,18	45	14,68	4,39	23,422	,000*
	Control	45	21,06	4,83	45	21,80	4,75		
Happiness	Experiment	45	21,84	4,36	45	27,08	5,07	24,933	,000*
	Control	45	20,95	4,23	45	20,17	4,13		
Psychological	Experiment	45	12.68	3.48	45	16.68	2,40	20,359	,000*
	Control	45	13.62	2,97	45	14,40	2,75		
Educational	Experiment	45	13,46	3,14	45	16,26	2,46	5,209	,025*
	Control	45	13,71	2,73	45	14,80	2,60		
Social	Experiment	45	13,28	3,34	45	15,93	2,48	4,288	,041*
	Control	45	13,71	2,76	45	14,75	1,96		
Physical	Experiment	45	14,28	3,34	45	16,88	2,25	3,108	,081
	Control	45	14,28	3,23	45	15,31	3,21		
Relaxation	Experiment	45	12,35	3,23	45	15,82	2,37	15,462	,000*
	Control	45	13,68	3,42	45	14,02	2,90		
Aesthetics	Experiment	45	13,57	2,98	45	16,77	2,61	7,558	,007*
	Control	45	13,91	3,43	45	14,57	2,97		

(P<0,05)*

As it can be seen in Table 4, the Two-way Analysis of Variance shows that between groups of participants and non-participants of regular physical activity program there are meaningful differences statistically in allsub-dimensions except physical perception. According to these findings, "Stress" (Pretest x=20.20, Posttest x=16.73); [F(1;43)=11.386, p<0.05] and "Insufficient Self-Efficacy"(Pretest x=19.88, Posttest x=14.68); [F(1;43)=23.422, p<0.05] perception levels of regular physical activity program participants have decreased. Nevertheless "Happiness" (Pretest x=21.84, Posttest x=27.08); [F(1;43)=24.933, p<0.05] perception of the participants have increased. Similarly "Psychological" (Pretest x=12.68, Posttest x=1.68), [F(1;43)=20.359; p<0.05], "Educational" (Pretest x=13.46, Posttest x=16.26), [F(1;43)=5.209; p<0.05], "Social" (Pretest x=13.28, Posttest x=15.93), [F(1;43)=4.288; p<0.05], "Relaxation" (Pretest x=12.35, Posttest x=15.82), [F(1;43)=15.462; p<0.05] and "Aesthetics" (Pretest x=13.57, Posttest x=16.77), [F(1;43)=7.558; p<0.05] perception levels have increased.

According to these results, attending physical activity programs in leisure time decreases stress and insufficient self-efficacy perception levels and increases significantly relaxation, aesthetics, educational, social, psychological and happiness perceptions in comparison to non-participants. However, physical perception has not changed statistically in either group.

Table 5. Results of the Two-way Analysis of Varience According to Demographic Variables of Regular Physical Activity Program Participants

Factor Variable	Group	PRETEST			POSTTEST			F	P*
		N	X	S	N	X	S		
Psychological	Male	25	13,24	3,68	25	16,20	2,43	5,179	,028*
Gender	Female	20	12,00	3,16	20	17,30	2,27		
Aesthetics	25-35	30	14,46	2,75	30	16,73	2,82	5,148	,028*
Age	36-45	15	11,80	2,70	15	16,86	2,19		
In. Self-efficacy	Yes	18	18,00	2,91	18	15,50	3,86	6,404	,015*
Other Activity	No	27	21,14	4,47	27	14,14	4,70		
Happiness	Yes	18	23,38	4,48	18	24,94	5,62	14,156	,001*
Other Activity	No	27	20,81	4,03	27	28,51	4,20		

(P<0,05)*

As it can be seen in Table 5, male individuals joining physical activities regularly have "Psychological" perception point (Pretest x=13.24) but after regular physical activity it is (Posttest x=16.20). Wheras in women average points are (Pretest x=12.00 and Posttest x=17.30) respectively. Consequently regular physical activity shows a meaningful difference statistically in "Psychology" perception in terms of gender [F(1;43)=5.179, p<0.05]. According to these results, it can be said that psychological state of women is higher than men after regular physical activity.

"Aesthetics" perception point is(Pretest x=14.46) in 25-35 age group but it is (Posttest x=16.73) after regular physical activity. Whereas average points in 36-45 age group are (Pretest x=11.80 and Posttest x=16.86) respectively. Consequently regular physical activity shows a meaningful difference statistically in "Aesthetics" perception in terms of "age variable" [F(1;43)= 5.148, p<0.05]. According to these results, it can be said that among people joining regular physical activity especially in 25-35 and 36-45 age groups aesthetic expectations are high.

"Insufficient self-efficacy" perception point of regular physical activity participants is (Pretest x=18.00) but after regular physical activity it is (Posttest x=15.50).Average points of non-participants are (Pretest x=21.14 andPosttest x=14.14) respectively. Consequently, regular physical activity shows a meaningful difference statistically in "Insufficient Self-Efficacy" perception in terms of "Other Activity" [F(1;43)= 6.404, p<0.05]. According to these results, it can be said that engaging with a different recreational activity along with regular physical activity decreases insufficient self-efficacy perception more.

"Happiness" perception point of activity participants is (Pretest x=23.38) but after regular physical activity it is (Posttest x=24.94). Average points of non-participants are (Pretest x=20.81 and Posttest x=28.51) respectivelty. Consequently, regular physical activity shows a meaningful difference statistically in "Happiness" perception in terms of "Other Activity" [F(1;43)= 14.156, p<0.05]. According to these results, similar to the previous results, engaging with a different recreational activity along with regular physical activity makes participants much happier.

DISCUSSION AND CONCLUSION

It has been concluded from this study that "stress" levels of the regular physical activity participants decreased. Regular physical activities were proven to create an antidepressant-like effect on individuals, to have positive influence on preventing anxiety (concerns and

worries) and to lower the intense levels of stress on individuals in previous studies (Salmon, 2001). These research data are parallel to the results of our study which is also supported by other studies. Some examples of these are studies conducted in the area of medicine. For example; in a previous study, regular physical activity was shown to present neuroprotective (protecting the brain nerve cells) effect and to be an effective method of protection of the nervous system in individuals (Carro *et al.,* 2001). In a similar study, controlled regular physical activity, especially one that lasts for 10 weeks and longer, was shown to reduce the symptoms of depression in people (Knöchel *et al.,* 2012). Another study demonstrated that regular physical activities is an easily applicable treatment in psychological illnesses caused by stress and is preferred in mild to medium depressions as an actively used treatment (Eyre and Baune, 2011). Another medical study has shown that physical activity can be used in mental illnesses such as schizophrenia. In that study, a physical activity programme was used for 48 patients with schizophrenia and these patients have shown recovery in terms of their short-term memories (Vanvampfort *et al.,* 2014). Regular physical activity programmes were also proven to cause an increase in the quality of life, psychological and physical well-being in cancer patients (Knols *et al.,* 2005).

Participants' self identification of "insufficient sufficiency" was also shown to decrease with regular physical activity in the study. In a different study where, regular physical activity research was conducted on Multiple Sclerosis patients for 1 year, patients were demonstrated to have less concern about self-sufficiency and that this provided more positive results in comparison to other factors (Motl *et al.,* 2013). Another study with mood comparisons between an experiment and control group of patients after an 8-week physical activity programme showed that after the applied activities, participants were in a good mood and positive results were received on feeling good and development in self-sufficiency. There were no significant differences in the control group other than happiness (Tse *et al.,* 2013). In addition to reducing the negative symptoms of individuals caused by stress, regular physical activity was also proven to increase the levels of self-respect, thus strengthening their positive moods and increasing cognitive function in older people (Fox, 1999). Again, in another study, regularly attended physical activity was shown to help reduce the feeling of stress in individuals and develop self-sufficiency (Bherer *et al.,* 2013). In a research study conducted with participants ranging from16 to 90 years of age, the relationship between self-sufficiency and physical activity was analysed and it was concluded that physical activity is an important tool in developing self-sufficiency and coping with negative feelings especially in older people (Warner *et al,* 2014). Regular daily walks were shown to increase mobility, functions and the feeling of individuality in older people in another study and it was emphasised that regular physical activity is a helpful device in providing them with self confidence (Haselwandter *et al,* 2015). As seen in previous studies, regular physical activity programmes help reduce the stress and lack of self confidence in individuals. All studies mentioned above have results that are similar to our study results.

According to the results regarding sub-problems, the study showed no significant differences on variables of "stress", "age", "gender", "professional work duration" and "other activity". When the present literature was reviewed, it was observed that similar results were obtained in the past. For example; in a study conducted in the United States, after a physical activity programme applied to a large number of participants ranging from 22 to 28 years of age, both genders showed a decrease in feelings of depression and a significant difference was obtained in good feelings (Galper *et al,* 2006). In another similar study, upon completion of physical activities for 2-3 days a week, participants were observed to have no significant differences in terms of "gender" but a significant difference was obtained in terms of the "age" variable. In

this study, older people were exposed to less stress after completing the physical activities when compared to young people (Hassmen *et al*, 2000).

When regular activity was analysed according to the age groups, some studies have shown that younger participant groups had better results in health, low stress levels and depression (Ströhle, 2009). In a study conducted in the United States in 2015 where the relationship between leisure time physical activities and stress was observed, a positive relationship was seen between all physical activities (whether active, passive or social) and stress reduction. No significant differences were found in this relationship in terms of gender in participation to leisure time activities actively or passively (Kim, 2015). In another study, the relationship between leisure time activities and workaholics was analysed and significant results were obtained. The study did not show a significant difference on low or high work addiction levels of the participants but proved that participants with high work tempo had a tendency towards participating in fun leisure time activities. Although no significant differences on gender were found in the results, the participants were observed to prefer fun, relaxing, healthy and stress reducing activities more. Participants preferred the following activities the most: fishing, gardening, golfing and hiking (Tucker, 2001). During a 12-week physical activity programme conducted with post office workers in Norway, the participants' business lives and stress relationships showed no significant differences but an increase in physical well-being and health was observed in the group that participated in the physical activity. The results of this study are parallel to our study's results in terms of significant differences in gender, age, occupation duration and other activities not observed and of regular physical activity reducing stress symptoms (Eriksen *et al.*, 2002).

In our study, participants who attended the regular physical activity programme were observed to have increased levels of "happiness". In a similar study where the effects of regular physical activity were analysed with participants older than 60, subjects attended several regular physical activities including yoga, dancing and tai-chi and as a result were observed to have increased mobility and physical functions with regular physical activity which created a kind of a "therapy" effect that made them happy (De-Vries *et al.*, 2012). In a study conducted with 156 students (53 male, 103 female students), the relationship between regular physical activity and the concept of happiness was analysed and regular physical activity increases happiness (Mohammadi *et al.*, 2015). It was especially emphasised in another study that regular physical activity attended in leisure time helps increase the happiness and good feelings in evening time after the activity is completed, especially in people who are very committed to their work that can be defined as workaholics. The same study showed that no matter how people are devoted to their jobs, sparing their leisure time to physical activity makes them feel happy and gets their heads off of work (Bakker *et al.*, 2013). In another study from Germany, athletes' physical performances were analysed according to their mood changes with happiness, anger, anxiety and sadness, and the results showed that these athletes present better physical performances with feelings of anger and happiness while no significant differences were found with anxiety and sadness (Rathschlag and Memmert, 2013). Another study observing the relationship between personality, leisure time experiences and happiness showed that no matter which physical activity is preferred, the participants felt satisfaction and linked the activities with the concept of happiness. The study also claimed that as participation to leisure time activities increased, the feeling of happiness also increases (Lu and Hu, 2005).

In another study where the effects of regularly attended physical activity to participants' health and happiness levels, recreative physical activities such as cycling and hiking increases

both the levels of healthiness and happiness (Rasciute and Downward, 2010). In a separate study analysing the concepts of feeling good and happiness, a significant difference was noted on feeling good in groups that attended both fitness and yoga activities in a fitness centre (Mochon *et al.,* 2008). As seen in these studies, regular physical activity is able to create a significant increase in people's levels of happiness. Therefore; it can be concluded both from our study and the previous studies mentioned that planned and regularly attended physical activity increases happiness in participants. This kind of increase also supports the idea that a planned activity creates a will to participate and leads the participant to the preferred activity, which is emphasised in planned behaviour theory. Moreover, participants' feelings are strengthened with positive feedback after the activities.

In our study, the concept of "happiness" did not present any statistically significant differences except for "other activity" variable. Similar results can be seen in previous studies in the literature. For example; in an experimental study where the relationship between physical activity and hapinness in women was analysed, female participants attended a 30-minute physical activity programme, five days a week which was suggested by American Medical Society for Sports Medicine, but no siginificant differences were found between the applied activity programme and the levels of happiness in women (Eide, 2016). It can be said that these results are parallel to our study. Different results were concluded in another study where the relationship between happiness and gender was analysed. In that study, higher scores were achieved in men in terms of feeling worried and letting things slide and women presented higher scores in optimism, building good relations and healthy nutrition (Warner and Vroman, 2011). The type of activity applied in our study can be said to have caused this result. In their study, Hacısoftaoğlu and Bulgu (2012) found that physical activities cause more conflicting results in women while also helping them feel better. In another study conducted with 700 German citizens on self-defined healthiness and happiness concepts, a significant increase was observed in participants who attended regular physical activities but no significant differences were found affecting happiness in demographic values used in the study (Cornelisse-Vermaat *et al.,* 2006). In a separate study, sources of the concept of happiness were analysed, different sources that were taught to affect happiness were emphasised and different options were suggested to the participants. Approximately half of the participants (52,6%) preferred their source of happiness as "strengthening social relations", the other half preferred the alternative activities suggested in the study. According to the results achieved, preferring different and complicated activities for a source of happiness meant to the subjects that the effects of the activity will not be lost (Parks *et al.,* 2012). According to these results, it can be said that attending different recreative activities besides regular physical activities create a positive effect that increases happiness. Also, planned behaviour theory which emphasises that a planned behaviour can create positive and negative results, supports these results.

In our study, participants who attended the regular physical activity programme showed increased results in "leisure time satisfaction" concept. Several qualities were previously discussed and researched in the literature. For example; in a study that took place in Taiwan, leisure time satisfaction was found to be directly significant with the quality of personality in people and also that it has an effect in leisure time activity participation (Lu and Kao, 2009). In another study conducted in the United States, leisure time satisfaction factor was directly related to the family relations and the family's understanding of leisure time affect the levels of satisfaction (Poff *et al.,* 2010). In a similar study, the group of participants that attend trips and tours as a recerative activity showed increased leisure time satisfaction and quality of life, compared to the group that did not attend the tours (Sirgy *et al.,* 2011). Another study

analysed the affects of leisure time activity participationto the leisure time satisfaction levels of participants who are studying for university entrance exams and concluded that attendance groups presented increased results comparing to the group that did not attend recreative activities (Gökçe, 2015). Similar results were obtained in participants who attended outdoor recreational activities and it was demonstrated that these caused a positive increase in their life satisfaction levels (Ardahan and Mert, 2013). In another study where the relationship between leisure time and depression was analysed, regular physical activity programme increased leisure time satisfaction, mood, happiness and mental health in middle aged people (45-65 years). Also, according to this study, people who do not attend regular physical activities have a higher tendency towards depression compared to the ones that do (Lu, 2011). This demonstration is parallel to our study where a significant difference was determined between gender and psychological perception levels. In another study where, psychological relaxation played a key role, factors that affect leisure time needs and satisfaction of workers were analysed and it was claimed that attending recreative activities in leisure time helps people socialise and also affects their physical and mental satisfaction (Demir and Demir, 2014). These results coincide with results obtained from our study.

Several different results can be seen in studies that analysed the leisure time satisfaction in the literature. For example; in a study that analysed the levels of leisure time satisfaction of participants according to their gender and income, similar results were achieved with no significant differences determined in terms of gender but in terms of income (Ardahan and Lapa, 2010). In another study conducted by Pearson (2008) with working women, heavy work load on women was concluded to trigger psychological disorders, thus affecting the women's work and leisure time satisfaction levels and it was claimed that work satisfaction and leisure time satisfaction are in relation to each other. In contrast to our study, Gökçe (2015)'s thesis study on exam anxiety and leisure time satisfaction level presented a significant difference in the "physical" dimension of the leisure time satisfaction scale. Whereas in our study, the significant difference was found in the "aesthetic" and "psychological" sub-dimensions. Results regarding satisfaction with life, feeling good and participation to recreative activities were found in some studies and a significant difference was found between optimism and recreative activity participation, and between ages and the year of participation of the subjects according to these results (Heo and Lee, 2010; Newman *et al.,* 2013). Similar results were seen in some PhD dissertations; for example, in a PhD research conducted in Taiwan on old people, leisure time, leisure time motivation and satisfaction with life concepts were found to coincide with each other and higher levels of leisure time satisfaction and motivation was found in young people that attended the recreative activities, when compared to old participants. In addition, it was emphasised that demographic factors such as educational and marital status is effective in raising these levels. According to the mentioned study, female participants gained higher points on satisfaction levels than male participants (Wang, 2008). In another study in Taiwan, the relationship between students' leisure time activity participation and leisure time satisfaction was analysed and no significant differences were found between leisure participation and satisfaction. Similarly, no significant differences occurred between participants' genders and satisfaction with life. In the results of this study, it was claimed that students in Taiwan cannot spare sufficient time to leisure activities (Huang, 2003).

In a doctoral research study where the levels of life and leisure time satisfaction with leisure activities were analysed with older adults, significant differences were found between leisure time activity participation and leisure satisfaction, but none were seen in terms of the gender factor. The study's results suggest that with increasing levels of leisure time activity

participation, satisfaction levels of the participants may increase as well (Boley, 2001). In a PhD thesis study conducted with primary school teachers on Leisure Time Satisfaction, activities such as outdoor activities, various hobbies, indoor activities and cultural and entertainment activities cause a significant difference in leisure time satisfaction levels (Wu, 2010). Besides these results, it can also be concluded from other studies in the literature that participating in a regular physical activity increases the leisure satisfaction and happiness levels in participants while also providing them with quality of life in a way that makes them less vulnerable to every day stress and the feeling of self-insufficiency (Gürbüz and Henderson, 2014; Koçak , 2017). These kinds of activities are seen to be closer to "reasons for preference" emphasised in the planned behaviour theory because they are interesting, fun and healthy as mentioned in the theory itself. This theory which is applied less in practice in relation with physical activities, created a structure that strengthened the study by creating stimuli such as "healthy" and "fun" due to the interesting nature of the said activity, as seen in our study.

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