

Examining The Relationship Between University Students' Leisure Time Exercise Levels and Life Skills According to Their Participation in E-Sports

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Abstract

The aim of this study was to determine the leisure time exercise levels and life skills of university students who participate and do not participate in e-sports activities, as well as to examine how various variables change these characteristics and to determine the relationships between the measurement tools. For this purpose, the data collected face-to-face from 307 university students with the "Leisure Time Exercise Scale (LTE)" and "Life Skills Scale (LS)" were analyzed with parametric tests since they provided homogeneous distribution. The findings obtained shows that university students' leisure time exercise scores are at a low, but their life skills are above the middle level. The findings of the study indicate that various variables differentiate the levels of LTE and LS, the status of doing e-sports creates a significant difference on LTE and LS, and there is a significant positive relationship between LTE and LS. The findings are discussed with the support of the literature.

Keywords: Leisure, Exercise, Life, Skills, E-Sport

INTRODUCTION

The effects of technological changes that make their presence felt at every point in the postmodern world are also seen in the field of sports. With technological changes and digitalization, the understanding of entertainment and competition that individuals perceive with sports has started to shift from the traditional to digital worlds (Jenny et al., 2017; Çeviker et al., 2023). Although the concept of sports, which differs from the traditional one with digitalization, has eliminated age, gender, distances, individual limitations and obstacles encountered, it continues to maintain its feature of uniting individuals from different countries and regions in line with a common goal (Kartal, 2020; Ceylan et al., 2022). The concept of e-sports (electronic sports) has emerged as a result of the technology-oriented change in the field of sports at the point of departure from the mentioned tradition (Karatepe & Uslu, 2022). Esports according to the e-sports federation: It covers all kinds of activities in which individual or team participation is shown online or offline through an electronic device (tesfed.org.tr).

E-sports, which has been in existence since the early 1980s, represents environments where players compete through networked games and related activities (Borowy & Yin, 2013). According to Li, Wang & Li (2004), e-sports refers to the activities that users perform interactively with software and hardware devices in virtual environments created by information technologies. According to Wagner (2006), e-sports is a sports field where individuals develop their mental or physical skills and receive training using information and communication technologies. E-sports can be characterized as computer games that are competitive and require mental skills.

E-sports is known as a platform where millions of players who can play various types of games online against their opponents or artificial intelligence can enjoy their leisure time (Üstün, 2022). However, it is also seen that e-sports has developed significantly and has become an industry that has attracted a significant part of the world's population in the last 20 years. This rapid growth and increase in the number of participants makes it very difficult to consider this activity separately from recreation (Aksu et al., 2021; Demirkan et al., 2023). E-sports events play an important recreational role for both participants and active-passive viewers. During major tournaments or broadcasts, efforts are made to provide viewers with the highest level of satisfaction (Tezcan & Ayhan, 2023) and focus on the entertainment factor in their experience. In relation to these shifts in the

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focus of sports, the entertainment consumption scenario of traditional sports has changed and a new type of show business has emerged with e-sports (Vera & Terrón, 2019).

As one of the cornerstones of a healthy lifestyle, playing sports and having a physically active life provide significant benefits in terms of stress management (Moksnes et al., 2010; Asztalos et al., 2012), social relationships (Mötteli & Dohle, 2017), self-improvement (Shang, Xie, & Yang, 2021), and time management (Blegur, Wasak, & Souisa, 2019). However, the relationship between physical activity and life skills is multifaceted and interdependent. Regular physical activity in leisure can positively affect life skills such as self-discipline and motivation (Wilson, Rodgers, & Fraser 2002; Briki, 2016), problem solving and decision making (Sone et al., 2017; White et al., 2017), stress management (Stults-Kolehmainen, & Sinha, 2013), communication and collaboration (Harden et al., 2014).

E-sports stands out as a modern phenomenon with a predominantly IT side compared to traditional sports. By encouraging participants to compete through computer games, this new form has created a large audience and a huge industry. However, e-sports have advantages and disadvantages compared to traditional sports. The advantages of e-sports include accessibility and diversity (Uzuner, 2023; Lee et al., 2023), mental skill development (Gong et al, 2019; Argilés, Quevedo-Junyent, & Erickson, 2022) and globalization (Gong, 2021), while the disadvantages are based on factors such as physical health effects (Bayraktar, Yildiz, & Bayraktar, 2020; Anwar, Noor, & Asrar-ul-Haq, 2023), social isolation (Arac Ilgar, 2023) and addiction risk (Mumtaz, Ragamustari, & Hirawan, 2021; Singh et al., 2023).

In the 21st century, with the increasing interest in this activity, e-sports has started to emerge as a new research area with the potential for more theoretical and empirical studies involving competitive participation in computer and video games (Adamus, 2012). In this context, the aim of this study is to examine and compare life skills as well as leisure time exercise in athletes and e-sportsmen.

METHOD

Research Model

This research was prepared by utilizing the survey model, one of the quantitative research methods. The survey model is a research approach that aims to describe a past or present situation as it exists. The event, individual or object that is the subject of the research is tried to be defined in its own conditions and as it is. No effort is made to change or influence them in any way. The thing to be known exists and is there. The important thing is to be able to "observe" and determine it appropriately (Karasar, 2008: 77).

Participants

The study group of this research consists of 307 participants with an average age of 24.71 ± 6.76 who voluntarily accepted to participate in the study and whose average age was 24.71 ± 6.76 and who were selected by random sampling method from Gazi University Ankara University Hacettepe University Hacı Bayram Veli University, among the universe of university students studying at university in Ankara. Personal variables of the participants are given in Table 1.

Table 1. Personal variables of the participants

	N=307	N	%
E-sports participation	I agree	191	62,2
	Disagree	116	37,8
Gender	Male	183	59,6
	Female	124	40,4
Age	17-21 years old	103	33,6
	22-25 years old	119	38,8
	26 years and older	85	27,7
Perceived income level	Very low	48	15,6

	Low	87	28,3
	Middle	143	46,6
	High	29	9,4
Perceived weekly amount of free time	Adequate	148	48,2
	Inadequate	159	51,8
Daily leisure	No free time	29	9,4
	1-2 hours	86	28,0
	3-4 hours	103	33,6
	5-6 hours	51	16,6
	7 hours	38	12,4
Productive use of leisure	Yes	120	39,1
	No	187	60,9
Sports/exercise status	Yes	200	65,1
	No	107	34,9
Number of days of sport/exercise per week	No sport	107	34,9
	1-2 days	56	18,2
	3-4 days	96	31,3
	5-7 days	48	15,6
Type of sport/exercise	No sport	107	34,9
	Individual	171	55,7
	Team	29	9,4
Exercise content	No exercise	107	34,9
	Aerobic and anaerobic	40	13,0
	Aerobics	160	52,1

Data Collection

In the study, the personal information form prepared by the researcher to determine the personal information of the participants and the Leisure Time Exercise Questionnaire (LTEQ) developed by Godin and Shephard (1985) and conducted by Yerlisu Lapa, Certel, Kaplan, and Yağar (2016) for adolescents to determine the level of participants' participation in leisure time exercise were used as data collection tools. The "Free Time Exercise Questionnaire (FTEQ)" developed by Godin and Shephard (1985) and conducted by Yerlisu Lapa, Certel, Kaplan, and Yağar (2016) to determine the level of participation in exercise in adolescents was used. The questionnaire includes questions to measure students' physical activity in their free time for at least 15 minutes in the last 7 days. The questionnaire aims to determine the number of times per week that individuals participate in strenuous physical activity, moderate physical activity and mild physical activity. For the calculation of the questionnaire; strenuous intensity activities are multiplied by 9, moderate intensity activities by 5 and mild intensity activities by 3 scores. At the end of the calculation, individuals with a score of 24 and above are classified as active, individuals with a score between 14 and 23 are classified as moderately active, and individuals with a score of 13 and below are classified as not active enough. The "Life Skills Scale" developed by Bolat and Balaman (2017) was used as the second scale. The scale consists of 30 items and 5 factors which are coping with stress and emotions, self-awareness and empathy, problem solving and decision making, critical and creative thinking, interpersonal relationship and communication.

Data Analysis

In this study, leisure time exercise levels and life skills of university students who do and do not engage in e-sports were analyzed. Firstly, missing value, outlier, variance homogeneity, normality, linearity, assumptions were reviewed to prepare the data collected with the research scales for analysis. After this stage, descriptive statistics were analyzed with two-way ANOVA, correlation and ANOVA to examine the relationship between leisure time exercise levels and life skills according to their participation in e-sports and to reveal the effects. In cases where there was a significant difference in the two-way analysis of variance, complementary calculations

were made to determine from which groups this difference originated and Bonferroni test was used. All statistical results were tested two-way and the significance level was accepted as at least 0.05.

FINDINGS

The mean and standard deviation values of the leisure time exercise scores, life skills total score and sub-dimension scores of the university students participating in the study and the mean and standard deviation values of the leisure time exercise scores, life skills total score and sub-dimension scores according to their participation in e-sports are given in Tables 2 and 3.

Table 2. Means and standard deviations of LTE and LS

	N=(307)			
	\bar{X}	sd	Min	Max.
SZE	23,69	26,10	,00	119,00
YBT	118,47	17,62	52,00	150,00
Coping with Emotions and Stress	25,18	5,71	7,00	35,00
Empathizing and Self-awareness	28,02	4,91	9,00	35,00
Decision Making and Problem Solving	28,33	4,37	14,00	35,00
Creative Thinking and Critical Thinking	20,45	3,12	9,00	25,00
Communication Interpersonal Relationship	16,49	2,57	8,00	20,00

Table 2 shows that university students' leisure time exercise scores are at a low level, but their life skills are above the middle level and they have the highest score in the communication interpersonal relationship sub-dimension.

Table 3. Means and standard deviations of LTE and LS according to participation in e-sports

	N=(307)							
	Not Engaged in E-Sports [n=(191)]				E-Sports Participant [n=(116)]			
	\bar{X}	sd	Min	Max.	\bar{X}	sd	Min	Max.
LTE	25,19	24,26	,00	113,00	21,21	28,82	,00	119,00
LS	117,07	18,13	53,00	150,00	120,78	16,58	52,00	150,00
Coping with Emotions and Stress	24,13	5,92	7,00	35,00	26,92	4,91	9,00	35,00
Empathizing and Self-awareness	27,81	5,21	10,00	35,00	28,38	4,39	9,00	35,00
Decision Making and Problem Solving	28,19	4,52	14,00	35,00	28,54	4,12	14,00	35,00
Creative Thinking and Critical Thinking	20,38	3,25	9,00	25,00	20,56	2,89	10,00	25,00
Communication Interpersonal Relationship	16,57	2,58	8,00	20,00	16,37	2,56	8,00	20,00

Table 3 shows that the leisure time exercise levels and life skills communication and interpersonal relationship sub-dimension scores of e-sports participants are lower than those of non-e-sports participants, while e-sports participants have higher scores than non-e-sports participants in life skills total score and other sub-dimensions. Tables 4 and 5 show the leisure time exercise levels of the university students participating in the study according to their total participation and participation in e-sports.

Table 4. Leisure time exercise levels of university students (LTE)

N= (307)		
LTEL	n	%
Not active enough	134	43,6
Moderately active	45	14,7
Active	128	41,7
Total	307	100,0

Table 4 shows that the majority of the participants are not sufficiently active, followed by those who are active and those who are moderately active.

Table 5. University students' LTE levels according to their participation in e-sports

	Not Engaged in E-Sports [n=(191)]		E-Sports Participant [n=(116)]	
	n	%	n	%
LTEL				
Not active enough	71	37,2	63	54,3
Moderately active	30	15,7	15	12,9

Active	90	47,1	38	32,8
Total	191	100,0	116	100,0

When Table 5 is examined, it is seen that e-sports participants are not active at a sufficient level compared to those who do not do e-sports, while those who do not do e-sports have higher rates of being active and moderately active than e-sports participants.

Two-way ANOVA was applied to determine whether there was a significant difference between the participants' leisure time exercise levels (LTE) and life skills (LS) depending on the other independent variables according to the e-sports participation status (2), and to examine the main effect of each independent variable and the interaction (joint) effect with e-sports participation status. Accordingly, no significant difference was found in terms of the main effect of the status of doing e-sports, the main effect of the other dependent variable and the joint effect of the status of doing e-sports and the other variable in terms of gender (2), age group (3), perceived income (4), perceived weekly leisure time amount (2), daily leisure time duration (5), efficient use of leisure (2) variables ($p>0.05$). In addition, there are significant differences in the variables of sport/exercise status, number of days of sport/exercise per week, type of sport/exercise and exercise content of the participants who do and do not do e-sports. Tables related to the differences are given below.

According to the results of the two-way analysis of variance for leisure time exercise levels and life skills of e-sports and non-e-sports participants according to their sports/exercise status, there was no significant difference in the main effect of e-sports participation status and sports/exercise status on leisure time exercise level, while the joint (interactive) effect of e-sports participation and sports/exercise variables was found significant. According to the results of the simple main effect analysis conducted to analyze the interaction effect; the leisure time exercise scores of the participants who do not participate in e-sports while doing sports/exercise are higher than those who participate in e-sports. On the other hand, the leisure time exercise scores of e-sport participants who do not participate in sports/exercise are lower than those of non-e-sport participants (Tables 6 and 7). As a result, it can be said that individuals who engage in e-sports are even more active than individuals who do not even do sports/exercise.

Table 6. Two-way analysis of variance results for LTE and LS of e-sports and non-e-sports participants according to their sport/exercise status

	Participation in e-Sports			Doing sports/exercise			Participation in e-sports * Sports/exercise		
	F	p	(η^2)	F	p	(η^2)	F	p	(η^2)
LTE	,011	,933	,011	18,632	,145	,949	6,379	,002*	,030
LS	11,494	,183	,920	18,739	,145	,949	,405	,525	,001
Coping with Emotions and Stress.	74,806	,073	,987	11,736	,181	,921	,283	,595	,001
Empathizing and Self F.	7,891	,218	,888	29,078	,117	,967	,475	,491	,002
Decision Making and Problem Solving	,110	,796	,099	1,105	,484	,525	3,342	,069	,011
Creative Thinking and Critical Thinking	,132	,778	,117	1,800	,408	,643	2,171	,142	,007
Communication Interpersonal Relationship	,111	,795	,100	1,271	,462	,560	3,582	,059	,012

* $p<0.05$

Table 7. Descriptive statistics results of LTE and LS of e-sport and non-e-sport participants according to their sport/exercise status

	Sport/exercise status	No e-sports			E-sports			Total		
		\bar{X}	sd	n	\bar{X}	sd	n	\bar{X}	sd	n
		n=191			n=116					
LTE	Yes	38,97	23,02	140	31,32	30,42	60	33,61	25,63	200
	No.	8,37	19,21	51	2,18	5,63	56	5,13	14,15	107
	Total	25,19	24,26	191	21,21	28,82	116	23,69	26,10	307
LS	Yes	118,29	18,18	140	124,30	15,55	60	120,09	17,62	200
	No.	113,73	17,72	51	117,00	16,95	56	115,44	17,32	107
	Total	117,07	18,13	191	120,78	16,58	116	118,47	17,62	307
	Yes	24,56	5,90	140	27,35	4,68	60	25,39	5,70	200

Coping with Emotions and Stress	No.	22,94	5,87	51	26,46	5,14	56	24,79	5,75	107
	Total	24,13	5,92	191	26,92	4,91	116	25,18	5,71	307
Empathizing and Self-awareness	Yes	28,51	5,07	140	29,25	4,10	60	28,73	4,80	200
	No.	25,88	5,14	51	27,45	4,54	56	26,70	4,88	107
	Total	27,81	5,21	191	28,38	4,39	116	28,02	4,91	307
Decision Making and Problem Solving	Yes	28,21	4,62	140	29,52	3,97	60	28,60	4,47	200
	No.	28,16	4,28	51	27,50	4,05	56	27,81	4,16	107
	Total	28,19	4,52	191	28,54	4,12	116	28,33	4,37	307
Creative Thinking and Critical Thinking	Yes	20,43	3,23	140	21,20	2,70	60	20,66	3,09	200
	No.	20,24	3,34	51	19,88	2,96	56	20,05	3,14	107
	Total	20,38	3,25	191	20,56	2,89	116	20,45	3,12	307
Communication Interpersonal Relationship	Yes	16,59	2,66	140	16,98	2,40	60	16,71	2,58	200
	No.	16,51	2,36	51	15,71	2,58	56	16,09	2,50	107
	Total	16,57	2,58	191	16,37	2,56	116	16,49	2,57	307

According to the results of two-way analysis of variance for leisure time exercise levels and life skills according to the number of days of weekly exercise/sports practiced by e-sports and non-e-sports participants, the main effect of e-sports participation status was found to be significant only in the sub-dimension of coping with emotions and stress from the life skills sub-dimensions. The main effect of the number of exercise/sport days per week on leisure time exercise scores and life skills empathizing and self-awareness sub-dimension was found to be significant. The joint (interactive) effect of participation in e-sports and the number of days of weekly sports/exercise makes a significant difference on leisure time exercise scores.

Accordingly, it was found that those who participated in e-sports had better coping skills with emotions and stress from life skills, and the leisure time exercise scores of those who did not do sports, those who did sports for 1-2 days, those who did sports for 3-4 days, and those who did sports for 5-7 days were lower than the leisure time exercise scores of those who did sports/exercise more days after themselves. In addition, empathizing and self-awareness skills of those who do not do sports/exercise are lower than those who do sports/exercise 3 days or more weekly. According to the results of the simple main effect analysis conducted to analyze the interaction effect; although the general leisure time exercise level of e-sports participants was low, the leisure time exercise scores of e-sports participants with a weekly exercise time of 3 days or more were higher than those who did not practice e-sports and had a weekly exercise time of 3 days or more (Table 8-9). As a result, it can be said that e-sports increases the ability to cope with emotions and stress, improves empathy and self-awareness when the weekly exercise duration exceeds 3 days, and the level of leisure time exercise can be increased when the weekly exercise duration exceeds 3 days, despite being physically passive while doing e-sports.

Table 8. Two-way analysis of variance results for LTE and LS according to e-sports and non-e-sports participants

	Participation in e-Sports			Number of days of sport/exercise per week			Participation in e-sports * Number of days of sports/exercise per week		
	F	p	(η ²)	F	p	(η ²)	F	p	(η ²)
LTE	,901	,409	,222	13,878	,029*	,933	4,850	,003*	,046
LS	4,624	,100	,544	3,474	,167	,776	,971	,407	,010
Coping with Emotions and Stress.	19,996	,010*	,825	3,679	,157	,786	,696	,555	,007
Empathizing and Self F.	5,088	,070	,487	14,868	,026*	,937	,391	,760	,004
Decision Making and Problem Solving	,647	,474	,161	,623	,647	,384	2,141	,095	,021
Creative Thinking and Critical Thinking	,669	,464	,157	1,090	,473	,522	1,426	,235	,014
Communication Interpersonal Relationship	,012	,919	,004	,729	,599	,422	2,539	,057	,025

*p<0.05

Table 9. Descriptive statistical results of LTE and LS of e-sports and non-e-sports participants according to the number of days of sport/exercise per week

		No E-Sports			E-Sporter			Total		
		\bar{x}	sd	n	\bar{x}	sd	n	\bar{x}	sd	n
		n=191			n=116					
LTE	No sport	8,37	19,21	51	2,18	5,63	56	5,13	14,15	107
	1-2 days	21,20	16,40	41	21,07	13,74	15	21,16	15,61	56
	3-4 days	30,61	20,50	64	36,06	27,54	32	32,43	23,08	96
	5 -7 days	44,49	27,73	35	66,77	33,32	13	50,52	30,66	48
	Total	25,19	24,26	191	21,21	28,82	116	23,69	26,10	307
LS	No sport	113,73	17,72	51	117,00	16,95	56	115,44	17,32	107
	1-2 days	117,07	14,79	41	126,13	14,97	15	119,50	15,25	56
	3-4 days	115,12	18,44	64	123,47	14,49	32	117,91	17,59	96
	5 -7 days	125,49	19,77	35	124,23	19,49	13	125,15	19,49	48
	Total	117,07	18,13	191	120,78	16,58	116	118,47	17,62	307
Coping with Emotions and Stress	No sport	22,94	5,87	51	26,46	5,14	56	24,79	5,75	107
	1-2 days	24,37	5,22	41	27,13	3,94	15	25,11	5,03	56
	3-4 days	23,31	6,00	64	27,19	4,52	32	24,60	5,82	96
	5 -7 days	27,06	5,83	35	28,00	6,01	13	27,31	5,83	48
	Total	24,13	5,92	191	26,92	4,91	116	25,18	5,71	307
Empathizing and Self-awareness	No sport	25,88	5,14	51	27,45	4,54	56	26,70	4,88	107
	1-2 days	28,05	4,24	41	29,73	4,18	15	28,50	4,25	56
	3-4 days	27,87	5,39	64	28,72	4,16	32	28,16	5,01	96
	5 -7 days	30,20	5,10	35	30,00	3,98	13	30,15	4,78	48
	Total	27,81	5,21	191	28,38	4,39	116	28,02	4,91	307
Decision Making and Problem Solving	No sport	28,16	4,28	51	27,50	4,05	56	27,81	4,16	107
	1-2 days	27,95	3,81	41	30,07	4,01	15	28,52	3,94	56
	3-4 days	27,66	4,70	64	29,56	3,38	32	28,29	4,38	96
	5 -7 days	29,51	5,19	35	28,77	5,33	13	29,31	5,18	48
	Total	28,19	4,52	191	28,54	4,12	116	28,33	4,37	307
Creative Thinking and Critical Thinking	No sport	20,24	3,34	51	19,88	2,96	56	20,05	3,14	107
	1-2 days	20,44	2,91	41	21,60	2,67	15	20,75	2,87	56
	3-4 days	19,97	3,04	64	21,16	2,70	32	20,36	2,97	96
	5 -7 days	21,26	3,80	35	20,85	2,88	13	21,15	3,55	48
	Total	20,38	3,25	191	20,56	2,89	116	20,45	3,12	307
Communication Interpersonal Relationship	No sport	16,51	2,36	51	15,71	2,58	56	16,09	2,50	107
	1-2 days	16,27	2,31	41	17,60	2,20	15	16,62	2,34	56
	3-4 days	16,31	2,79	64	16,84	2,03	32	16,49	2,57	96
	5 -7 days	17,46	2,66	35	16,62	3,36	13	17,23	2,85	48
	Total	16,57	2,58	191	16,37	2,56	116	16,49	2,57	307

According to the results of two-way analysis of variance for leisure time exercise levels and life skills according to the sport/exercise type of participants who do and do not participate in e-sports, the main effect of e-sports participation status on life skills level and only on the sub-dimension of coping with emotions and stress from the sub-dimensions of life skills was found significant. The main effect of sport/exercise type on only life skills empathizing and self-awareness sub-dimension was found to be significant. The joint (interactive) effect of e-sports participation and sport/exercise type creates a significant difference on leisure time exercise scores. Accordingly, it is seen that those who participate in e-sports have better life skills and coping skills with emotions and stress, and those who do individual sports have better empathy and self-awareness skills than those who do not do sports/exercise. According to the results of the simple main effect analysis conducted to analyze the interaction effect; although the general leisure time exercise level of e-sports participants is low, the leisure time exercise level of individual sports participants is higher than those who do not practice e-sports, but the opposite is the case for team sports participants (Table 10-11). As a result, it can be said that e-sports positively affects general life skills, ability to cope with emotions and stress, doing individual sports improves

empathy and self-awareness, and despite being physically passive while doing e-sports, doing individual sports instead of team sports can increase the level of leisure time exercise.

Table 10. Two-way analysis of variance results for LTE and LS of e-sport and non-e-sport participants according to sport/exercise type

	Participation in e-Sports			Type of sport/exercise			Participation in e-sports* Type of sport/exercise		
	F	p	(η ²)	F	p	(η ²)	F	p	(η ²)
LTE	,085	,796	,038	7,498	,118	,882	8,854	,000*	,056
YB	8,233	,013*	,385	17,053	,055	,945	,222	,801	,001
Coping with Emotions and Stress.	26,562	,000*	,672	8,173	,109	,891	,224	,799	,001
Empathizing and Self F.	2,368	,163	,233	19,713	,040*	,947	,358	,699	,002
Decision Making and Problem Solving	,962	,402	,251	1,033	,492	,508	1,786	,169	,012
Creative Thinking and Critical Thinking	,527	,513	,130	1,823	,354	,646	1,071	,344	,007
Communication Interpersonal Relationship	,063	,819	,022	1,306	,434	,566	2,050	,130	,013

*p<0.05

Table 11. Descriptive statistics results of LTE and LS of e-sports and non-e-sports participants according to sport/exercise type

		No E-Sports			E-Sporter			Total		
		\bar{X}	sd	n	\bar{X}	sd	n	\bar{X}	sd	N
				n=191			n=116			
LTL	No sport	8,37	19,21	51	2,18	5,63	56	5,13	14,15	107
	Individual	30,74	23,64	125	44,37	32,22	46	34,41	26,82	171
	Team	36,13	16,86	15	21,21	12,78	14	28,93	16,60	29
	Total	25,19	24,26	191	21,21	28,82	116	23,69	26,10	307
LS	No sport	113,73	17,72	51	117,00	16,95	56	115,44	17,32	107
	Individual	118,30	18,51	125	124,59	16,24	46	119,99	18,10	171
	Team	118,13	15,73	15	123,36	13,55	14	120,66	14,70	29
	Total	117,07	18,13	191	120,78	16,58	116	118,47	17,62	307
Coping with Emotions and Stress	No sport	22,94	5,87	51	26,46	5,14	56	24,79	5,75	107
	Individual	24,46	5,96	125	27,30	5,01	46	25,22	5,85	171
	Team	25,40	5,47	15	27,50	3,50	14	26,41	4,67	29
	Total	24,13	5,92	191	26,92	4,91	116	25,18	5,71	307
Empathizing and Self-awareness	No sport	25,88	5,14	51	27,45	4,54	56	26,70	4,88	107
	Individual	28,49	5,25	125	29,46	4,31	46	28,75	5,02	171
	Team	28,67	3,27	15	28,57	3,34	14	28,62	3,24	29
	Total	27,81	5,21	191	28,38	4,39	116	28,02	4,91	307
Decision Making and Problem Solving	No sport	28,16	4,28	51	27,50	4,05	56	27,81	4,16	107
	Individual	28,28	4,62	125	29,54	4,13	46	28,62	4,52	171
	Team	27,60	4,79	15	29,43	3,52	14	28,48	4,26	29
	Total	28,19	4,52	191	28,54	4,12	116	28,33	4,37	307
Creative Thinking and Critical Thinking	No sport	20,24	3,34	51	19,88	2,96	56	20,05	3,14	107
	Individual	20,42	3,24	125	21,22	2,74	46	20,63	3,13	171
	Team	20,53	3,20	15	21,14	2,66	14	20,83	2,92	29
	Total	20,38	3,25	191	20,56	2,89	116	20,45	3,12	307
Communication Interpersonal Relationship	No sport	16,51	2,36	51	15,71	2,58	56	16,09	2,50	107
	Individual	16,66	2,61	125	17,07	2,54	46	16,77	2,59	171
	Team	15,93	3,08	15	16,71	1,90	14	16,31	2,56	29
	Total	16,57	2,58	191	16,37	2,56	116	16,49	2,57	307

According to the results of two-way analysis of variance for leisure time exercise levels and life skills according to the exercise content of e-sports and non-e-sports participants, the main effect of e-sports participation status

on life skills level and only in the sub-dimension of coping with emotions and stress from life skills sub-dimensions was found significant. The main effect of exercise content on life skills was significant. The joint (interactive) effect of e-sports participation and sport/exercise type creates a significant difference on leisure time exercise scores. Accordingly, it is seen that those who participate in e-sports have better life skills, and those who do aerobic exercise have better life skills than those who do not do sports/exercise. According to the results of the simple main effect analysis conducted to analyze the interaction effect; although the general leisure time exercise level of e-sports participants is low, the leisure time exercise level of aerobic exercisers is higher than those who do not participate in e-sports, but the situation is the opposite in both aerobic and anaerobic exercisers (Table 12-13). As a result, it can be said that e-sports and individual sports positively affect general life skills and the ability to cope with emotions and stress, and although e-sports are physically passive, doing aerobic exercise while doing e-sports can increase the level of leisure time exercise compared to anaerobic exercise.

Table 12. Two-way analysis of variance results for LTE and LS of e-sports and non-e-sports participants according to exercise content

	Participation in e-Sports			Exercise content			Participation in e-sports* Exercise content		
	F	p	(η ²)	F	p	(η ²)	F	p	(η ²)
LTE	,010	,928	,005	7,701	,115	,885	8,644	,000*	,054
LS	14,140	,006*	,649	19,426	,040*	,927	,193	,825	,001
Coping with Emotions and Stress.	52,957	,000*	,858	10,346	,088	,912	,168	,846	,001
Empathizing and Self F.	3,166	,145	,426	17,468	,054	,946	,401	,670	,003
Decision Making and Problem Solving	,994	,407	,288	1,033	,492	,508	1,716	,182	,011
Creative Thinking and Critical Thinking	,957	,406	,259	1,758	,363	,637	1,084	,340	,007
Communication	,009	,932	,004	1,219	,451	,549	1,843	,160	,012
Interpersonal Relationship									

*p<0.05

Table 13. Descriptive statistics results of LTE and LS of e-sports and non-e-sports participants according to exercise content

		No E-Sports			E-Sporter			Total		
		\bar{x}	sd	n	\bar{x}	sd	n	\bar{x}	sd	n
				n=191			n=116			
LTE	No exercise	8,37	19,21	51	2,18	5,63	56	5,13	14,15	107
	Aerobic and anaerobic	33,83	21,85	23	23,12	13,17	17	29,28	19,22	40
	Aerobics	30,83	23,31	117	45,23	33,05	43	34,70	26,94	160
	Total	25,19	24,26	191	21,21	28,82	116	23,69	26,10	307
LS	No exercise	113,73	17,72	51	117,00	16,95	56	115,44	17,32	107
	Aerobic and anaerobic	118,57	13,96	23	124,76	13,01	17	121,20	13,75	40
	Aerobics	118,23	18,95	117	124,12	16,59	43	119,81	18,48	160
	Total	117,07	18,13	191	120,78	16,58	116	118,47	17,62	307
Coping with Emotions and Stress	No exercise	22,94	5,87	51	26,46	5,14	56	24,79	5,75	107
	Aerobic and anaerobic	24,83	5,01	23	27,76	3,46	17	26,07	4,61	40
	Aerobics	24,50	6,08	117	27,19	5,11	43	25,23	5,94	160
	Total	24,13	5,92	191	26,92	4,91	116	25,18	5,71	307
Empathizing and Self-awareness	No exercise	25,88	5,14	51	27,45	4,54	56	26,70	4,88	107
	Aerobic and anaerobic	28,91	3,12	23	28,88	3,28	17	28,90	3,14	40
	Aerobics	28,43	5,37	117	29,40	4,41	43	28,69	5,14	160
	Total	27,81	5,21	191	28,38	4,39	116	28,02	4,91	307
Decision Making and	No exercise	28,16	4,28	51	27,50	4,05	56	27,81	4,16	107
	Aerobic and anaerobic	28,04	4,07	23	29,82	3,40	17	28,80	3,86	40
	Aerobics	28,24	4,74	117	29,40	4,21	43	28,55	4,62	160

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Problem Solving	Total	28,19	4,52	191	28,54	4,12	116	28,33	4,37	307
Creative Thinking and Critical Thinking	No exercise	20,24	3,34	51	19,88	2,96	56	20,05	3,14	107
	Aerobic and anaerobic	20,39	3,00	23	21,35	2,45	17	20,80	2,78	40
	Aerobics	20,44	3,28	117	21,14	2,82	43	20,63	3,17	160
	Total	20,38	3,25	191	20,56	2,89	116	20,45	3,12	307
Communication Interpersonal Relationship	No exercise	16,51	2,36	51	15,71	2,58	56	16,09	2,50	107
	Aerobic and anaerobic	16,39	2,66	23	16,94	1,82	17	16,63	2,33	40
	Aerobics	16,62	2,67	117	17,00	2,61	43	16,73	2,65	160
	Total	16,57	2,58	191	16,37	2,56	116	16,49	2,57	307

Table 14. Correlation Analysis between University Students' LTE and LS Scores and Subscales

N=307							
		LS	Coping with Emotions and Stress.	Empathizing and Self F.	Decision Making and Problem Solving	Creative Thinking and Critical Thinking	Communication Interpersonal Relationship
LTE	r	,240**	,186**	,274**	,184**	,168**	,188**
	P	,000	,001	,000	,001	,003	,001

*p<0.01

According to the results of Pearson correlation test conducted to determine the relationship between university students' leisure time exercise scores and life skills and sub-dimensions, there is a weak positive linear relationship between leisure time exercise scores and life skills scores and sub-dimensions scores.

Table 15. Comparison of LS levels of university students according to LTE levels

	LTEL	n	\bar{x}	sd	F	p
LS	Not active enough	134	113,65	17,96	9,543	,000*
	Moderately active	45	120,98	15,03		
	Active	128	122,63	16,97		
	Total	307	118,47	17,62		
Coping with Emotions and Stress	Not active enough	134	23,98	5,95	5,703	,004*
	Moderately active	45	25,60	5,07		
	Active	128	26,30	5,46		
	Total	307	25,18	5,71		
Empathizing and Self-awareness	Not active enough	134	26,47	4,97	13,534	,000*
	Moderately active	45	28,51	4,58		
	Active	128	29,48	4,51		
	Total	307	28,02	4,91		
Decision Making and Problem Solving	Not active enough	134	27,37	4,39	5,832	,003*
	Moderately active	45	29,13	3,88		
	Active	128	29,04	4,35		
	Total	307	28,33	4,37		
Creative Thinking and Critical Thinking	Not active enough	134	19,87	3,28	4,105	,017*
	Moderately active	45	20,87	2,41		
	Active	128	20,90	3,09		
	Total	307	20,45	3,12		
Communication Interpersonal Relationship	Not active enough	134	15,96	2,60	5,356	,005*
	Moderately active	45	16,87	2,26		
	Active	128	16,92	2,54		
	Total	307	16,49	2,57		

*p<0.05

According to the results of ANOVA conducted to test the life skill levels of university students according to their levels of leisure time exercise, there is a statistically significant difference between their levels of LTE and their life skill scores. According to the results of the Bonferoni test conducted to find out from which groups this difference originates, the participants who are not active enough in the level of LTE have lower LLS scores and sub-dimension scores than those who are moderately active and those who are active.

DISCUSSION AND CONCLUSION

This study was conducted to investigate the relationships between university students' leisure time exercise levels and life skills according to whether they do e-sports or not. According to the findings of this study, it was determined that university students had the lowest score in leisure time exercise, above average level in life skills and high in communication interpersonal relationship sub-dimension. According to the results of the study, the majority of the participants were 22-25 years old (38.8%), male (59.6%), participated in e-sports activities (62.2%), had a medium level of income (46.6%), stated that their weekly free time was insufficient (51.8%) and that they could not use this time efficiently (60.9%), and did sports/exercise individually (55.7%) (65.1%).

According to the participation status in e-sports, it was determined that e-sports participants had lower leisure time exercise levels and life skill communication and interpersonal relationship sub-dimension scores than non-e-sports participants. It was observed that e-sports participants generally exercised less in their free time and had lower communication and interpersonal relationship skills. This finding suggests that e-sports may have a negative impact on some life skills. Active participation in social settings or sports organizations improves physical and psychological health, which can be personally assessed (Barbieri, 2021). At the same time, according to Stevens et al. (2020), strong social identities in physical activity groups are positively associated with increased participation. For e-sports participants, on the other hand, the process brings about emotion control problems or personality disorders, social isolation and communication difficulties, and difficulty in distinguishing virtual from real (BTK, 2017). According to Palanichamy et al. (2020), playing online games for long periods of time is associated with mental health problems such as social phobia, obsessive-compulsive disorder, attention deficit and hyperactivity disorder.

When the relationship between university students' participation in e-sports and their leisure time exercise levels was examined, it was determined that the majority of the students (43.6%) and those who did e-sports were not active enough compared to those who did not do e-sports (37.2%), while those who did not do e-sports were active (47.1%) and moderately active (15.7%). According to these findings, it is thought that e-sports may affect the physical activity levels of university students and doing e-sports may increase or decrease the physical activity level. According to Şirin et al. (2023), for individuals between the ages of 22-25, who constitute the general participants of the study, playing online games instead of active participation games or sports is more entertaining and therefore attractive. In support of this information, Kilpatrick, Herbert, and Bartholomew (2005) found that individuals' participation in physical activity decreases especially towards the end of adolescence and the beginning of adulthood. In other words, a greater decrease in physical activity levels is observed during the transition from adolescence to adulthood.

No statistically significant difference was found between leisure time exercise levels (LTE) and life skills (LS) according to the variables of gender, age, perceived income, perceived weekly and daily leisure time duration, and efficient use of leisure. There is a statistically significant difference between e-sports participation and non-participation according to the variables of the participants' sports/exercise status, the number of sports/exercise days per week, the type of sports/exercise and the content of the exercises. It was determined that individuals who did not participate in e-sports had higher LTE scores for doing sports/exercise than those who participated in e-sports, while participants who did not do sports/exercise but did e-sports had lower LTE scores than those who did not do e-sports. In light of these findings, it can be said that e-sports participants are less active in terms of lack of physical activity than non-exercisers. According to Atıcı et al. (2023), the leading phenomenon in the negative aspects of e-sports is the lack of physical activity. According to Bayrakdar et al. (2020), it is seen that the daily physical activity levels of e-sports players representing their countries in the international arena are low. Contrary to the research findings, according to the research of Giakoni-Ramírez et

al. (2022), it is seen that they have moderate and high levels of physical activity when it is possible to talk about professionalism that increases with the league level in e-sports participation.

In the study, it was determined that the ability to cope with emotions and stress increased with participation in e-sports. Leisure time exercise levels (LTE) and life skills according to the type of sport/exercise were found to be significant in the level of life skills and coping with emotions from its sub-dimensions according to the participants' participation in e-sports or not. It can be said that e-sports positively affects general life skills, emotional regulation and stress management skills, while individual sports play a role in developing empathy and self-awareness. According to Aydın (2023), it was determined that individuals who are interested in e-sports with a license have low levels of depression, anxiety and stress. According to the study of Leis et al. (2023), although e-sports participants can effectively cope with the demands of the competitive environment, they have to make a separate effort to manage stress and optimize their performance. According to the participation status, it is possible to mention that the empathy and self-awareness of e-sports participants improve when the weekly exercise time is over 3 days. Regular sport is shown as one of the main predictors of increased positivity, perseverance, coping with problems, empathy, physical and psychological well-being (Reinboth, Duda & Ntoumanis, 2004; Ferguson et al., 2015).

According to the findings of the study, it was determined that e-sports and individual sports activities positively affect general life skills, coping with emotions and stress management skills, and although e-sports are physically passive during e-sports, e-sports can also contribute to leisure time exercise by increasing the level of aerobic exercise. The phenomenon of sports plays an important role in life skills to meet the physical and psychological needs of the individual, to support individual development and to help them find a place in social life (Karataş et al., 2021). In the current study, it was observed that the life skill levels of university students showed a significant difference between LTE and life skill scores according to their leisure time exercise levels. Participants who were not sufficiently active in LTE had lower life skills scores than those who were moderately active and inactive. These results suggest that regular exercise has a positive effect on life skills. It is possible to emphasize that physical activity can play an important role in supporting life skills and that a healthy lifestyle can be an effective way to improve life skills.

It was observed that the measurement tools with a weak positive correlation had a positive relationship with each other. Therefore, it may be possible to contribute positively to life skills by increasing leisure time exercise levels. Considering the potential of various variables of the participants to create a significant difference on the relevant measurement tools, it is evaluated that various plans should be made especially for e-athletes who lead a more passive lifestyle to adopt an active leisure time exercise process. At the same time, in future studies, it is recommended that more research should be conducted on the leisure time of e-athletes with different measurement tools to ensure that measures are taken against the possible negativities of passive life.

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