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Investigation of life satisfaction and interpersonal problem-solving skills of high school students according to their sports status

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The aim of this work is to examine the life satisfaction and problem solving skills of high school students according to their sports status. Life satisfaction and problem-solving inventories were applied to 1100 voluntary students from 37 high schools selected from the 128 high school population in Turkey's Kocaeli province by cluster sampling method. Since the data showed normal distribution when analyzed in SPSS 21 package program, the parametric test of Independent Sample T test was used to compare binary groups and One Way Anova test was used to compare multiple groups. Significance level was accepted as 0.05. When the data were analyzed, it was seen that being insistent and unwilling to take responsibility approaches in problem-solving and life satisfaction increased in males and in those who do sports; pessimistic and insistent approaches to problems increased as age and grade level increased and constructive approach to problems and life satisfaction increased as parental education level increased. It is seen that the interpersonal problem-solving skills and life satisfaction perceptions of students increase significantly with regular participation in sports. In this respect, it is suggested that sports opportunities in schools should be increased and participation should be encouraged.

Key words: Interpersonal problem-solving skill, life satisfaction, sports, high school students.

INTRODUCTION

Everybody faces different problems while realizing their goals and communicating throughout their life and try to solve the problems they encounter in a healthy way. Problem solving is defined as a complex process that people carry out by using their cognitive, affective and behavioral skills from feeling the problem until finding a solution (Demirtaş and Dönmez, 2008). Problem-solving skill used in problem solving is a necessary element for a happy and satisfied life. It is stated that some adolescents have emotional and behavioral problems since they have difficulties in coping with their problems while experiencing life and these problems can grow into

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problematic behaviors (Meyers et al., 2011; Tiabashvili et al., 2015). Adolescence is a period of rapid changes in physiological and psychological terms. Adolescents may experience emotional negativities in the adaptation process to the effects of physical growth and hormones on the one hand and in the career planning process due to uncertainties on the other hand. In all these changes, life satisfaction defined with interpersonal problem-solving and meeting expectations is also important. It is stated that life satisfaction indicates the cognitive aspect of subjective well-being in relation to the happiness of individuals and is determined by the symptoms of mental and physical health (Diener, 1984).

Exercise and sports are also recommended for mental and physical health, which are the bases of life satisfaction (Maher et al., 2014; Müftüoğlu, 2005; Penedo and Dahn, 2005). In the studies examined, it is stated that exercise and sports change the hormone level in the blood by creating chemical changes; and exercises that last longer than 30 min increase the level of natural happiness hormone 'endorphine' and improve the problem solving-skill increasing attention and some positive emotions (Baltaş and Baltaş, 2008; Basso and Suziki, 2017). Sport, which is a kind of game performed with relaxation and relief, helps children to manage their impulses and emotions, decreases their anxiety levels and supports them in dealing with trauma and ultimately increases their life satisfaction as it creates a relaxing effect in short and long term (Baltaş and Baltaş, 2008; De Vries, 1981; Erden and Gürdil, 2009; Müftüoğlu, 2005).

In order for young people to protect their health during adolescence and to cope with their problems, it was considered important for them to participate in a sports activity which they are interested in, suits their abilities and increases the feeling of "I can" in their free time. Participation in an activity, which they like and believe that they can achieve, would be supportive in life satisfaction and dealing with problems that may arise (Karagün, 2016). Considering all this literature information, it was wondered whether life satisfaction and problem-solving skills of high school students in adolescence varied by the status of their sports participation, which is said to bring mental and physical health. In this regard, an answer was sought for the question of whether there is a difference in life satisfaction and problem-solving skills among high school students who do and do not do sports.

The purpose of the study

The purpose of this study is to determine the problem-solving skills and life satisfaction of high school students according to their sports participation. It aims also to evaluate whether these traits vary significantly by age, gender, grade, parental education and economic condition.

Research questions

In line with the main purpose, answers to the following sub-problems were sought:

(i) Does life satisfaction vary by sports participation status?
(ii) Does life satisfaction vary by socio-demographic variables?
(iii) Do interpersonal problem-solving skills vary by sports participation status?
(iv) Do interpersonal problem-solving skills vary by socio-demographic variables?

MATERIALS AND METHODS

Subjects

This work is a descriptive survey study. The population consists of 9^{th}, 10^{th}, 11^{th} and 12^{th} grade students studying in high schools in Kocaeli province. The permissions required for the research were obtained from Kocaeli University Human Research Ethics Committee (KÜ GOKAEK 2018/168) and Kocaeli Provincial Directorate of National Education. After obtaining the permissions, the types and numbers of schools in high school level were determined from the official website of Turkey's Kocaeli Provincial Directorate of National Education. For this research; 37 high school samples representing 128 high school population in Kocaeli Province were selected by cluster sampling method (Karasar, 2005). Meetings were held with students on the days and time determined by the managers of different types of high schools. After explaining the purpose of the research, the scales were distributed to the students who voluntered to participate in the study and approximately 30 min were given for the answering process.

Data collection

Information questionnaire

In the light of literature information, a 10-question questionnaire consisting of variables that may affect life satisfaction and interpersonal problem-solving skills prepared by the researchers was applied.

Life satisfaction scale (LSS)

It was developed by Diener et al. (1985) as a 7-point likert to determine life satisfaction of individuals. It was adapted to Turkish by Köker (1991). Since the 7-point likert is not suitable for Turkish culture, it was changed to five-point Likert type. The highest score that can be obtained from the scale is 35 and the lowest is 5. Low scores indicate low satisfaction with life. Alpha was found as 0.86 in the reliability study of the scale. The cronbach alpha value for this study is 0.81.

Interpersonal problem-solving inventory

The inventory was developed by Çam and Tümkaya. It is a five-point Likert type consisting of not suitable at all, not suitable, slightly suitable, suitable, most suitable, and completely suitable. The fifty-item scale has 5 sub-dimensions including constructive approach, pessimistic approach, lack of self-confidence approach, unwilling to

take responsibility approach and insistent-persevering approach to problems. In the validity study of the scale, the alpha values are between .67 and .84 (Çam and Tümkaya, 2008). The alpha value for this study was found between 0.70 and 0.87.

Statistical analysis

Since the data showed normal distribution when analyzed in SPSS 21 package program, the parametric test of Independent Sample T test was used to compare binary groups and One Way Anova test was used to compare multiple groups. Significance level was accepted as 0.05.

RESULTS

In this research, 1100 students had participated. There were 672 female students (61.21%), and 428 male students (38.78%). While 39.6% of high school students do regular sports, 60.2% do not. When Table 1 was examined, it was seen that life satisfaction of high school students did not vary significantly by age and grade level, whereas there were significant differences in terms of monthly income and paternal education level (Table 1). When Table 2 was examined, life satisfaction scores were found to be significantly higher in males compared to females and in those who do sports compared to those who do not. In the insistent-persevering approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem-solving skills scale, the scores of male students were significantly higher than female students in terms of gender. No significant difference was found in terms of gender in the constructive approach, pessimistic approach and unwilling to take responsibility approach sub-dimensions.

In the insistent-persevering approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem-solving skills, the scores of those who do sports were significantly higher than those who do not. There was no significant difference in the sub-dimensions of constructive approach, pessimistic approach and unwilling to take responsibility approach (Table 2).

In Table 3, no significant difference was found in terms of the age of the students in the constructive approach, lack of self-confidence approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem-solving skills scale. The scores of 15-year-old students were significantly lower than those in the 17-year-old group in the sub-dimension of pessimistic approach to problems, and than those in the 18-year-old group in the sub-dimension of insistent-persevering approach to interpersonal problems. There was no significant difference in terms of the grade levels of the students in the constructive approach, lack of self-confidence approach and unwilling to take responsibility approach sub-dimensions of the interpersonal problem solving skills; whereas the averages of the 9^{th} grade students were lower than those in the 11^{th} grade in the pessimistic approach sub-dimension; the scores of the 9^{th} grade students were significantly lower than those in the 12^{th} grade in the insistent-persevering approach sub-dimension (Table 3). When interpersonal problem-solving skills were examined in terms of parental education level, no significant difference was found in the sub-dimensions of insistent-persevering approach, pessimistic approach, lack of self-confience approach, and unwilling to take responsibility approach, whereas it was observed that the constructive approach increased significantly in parallel with the increase in education level (Table 3).

DISCUSSION

When the life satisfaction data in Table 1 were examined, no significant difference was found in terms of age and grade level. However, a significant increase was determined in life satisfaction as monthly income and parental education level increased. In the literature, it is stated that life satisfaction increases in parallel with the increase in the education level (Crede et al., 2015; Plagnol and Easterline, 2008). When the findings of the research were interpreted with these explanations, parents were thought to be a kind of role model for their children by experiencing life satisfaction as a result of realizing their own educational expectations with the increase in their education level. It was determined that the students' life satisfaction increased with the increase in their families' income. There is a significant difference between the life satisfaction scores of those who have a family with a salary of 2000 TL or less and those who have a family with a salary of 3501 TL or more. It is reported in the literature that there is a close relationship between students' monthly expenditures and their life satisfaction (Kabasakal and Uzbaş, 2013; Shim et al., 2010) and life satisfaction increases with socio-economic satisfaction (Chow, 2005), supporting the research findings. Considering the explanation that it is the result of the comparison between the expectations of individuals and what they have in the definition of life satisfaction (Özer and Karabulut, 2003), it was thought that life satisfaction increased as a result of meeting the expectations with the increase in income status.

In Table 2, life satisfaction data were found to be significantly higher in those who do sports. It is reported the literature that physical activity and sports are effective in increasing life satisfaction (Maher et al., 2014; Toros et al., 2010), supporting our research findings. In addition, when evaluated with the literature information that physical health affects life satisfaction, and sports and exercise have contributions in terms of physical health (Müftüoğlu, 2005; Penedo and Dahn, 2005), the life satisfaction of students increased as a result of fulfilling their various expectations about life and feeling emotionally well with participation in sports. However, it is

Table 1. Variance analysis of life satisfaction scale according to socio-demographic variables.

Variable		N(%)	X	Sd	F	P	Difference
Age	15[1]	443(42.51)	16.03	4.984	1.478	0.219	
	16[2]	309(29.65)	15.83	4.770			
	17[3]	195(18.71)	15.85	4.601			
	18[4]	95(9.12)	14.87	5.032			
Grade	9th Grade[1]	335(32.15)	16.15	4.971	0.477	0.878	
	10th Grade[2]	416(39.92)	15.79	4.777			
	11th Grade[3]	153(14.68)	15.47	4.830			
	12th Grade[4]	138(13.24)	15.63	4.869			
Maternal education level	Primary School[1]	333(31.96)	15,16	4,882	4.790	**0.003**	1-3, 1-4
	Secondary School[2]	291(27.93)	15,73	4,758			
	High School[3]	281(26.97)	16,27	4,678			
	University[4]	137(13.15)	16,80	5,172			
Paternal education level	Primary School[1]	185(17.75)	14.41	4.984	9.121	**0.000**	1-2, 1-3, 1-4, 2-4
	Secondary School[2]	281(26.97)	15.53	4.617			
	High School[3]	356(34.17)	16.29	4.803			
	University[4]	220(21.11)	16.67	4.882			
Monthly income	2000 and below[1]	153(14.68)	14.23	4.521	10.258	**0.000**	1-3,1-4, 1-5, 2-5
	2001-2500[2]	219(21.02)	15.05	4.838			
	2501-3000[3]	228(21.88)	16.12	4.762			
	3001-3500[4]	152(14.59)	15.94	4.523			
	3501 and above[5]	290(27.83)	16.99	4.991			

Table 2. Analyses of the scores of life satisfaction and interpersonal problem-solving scale sub-dimensions according to the gender and sports status of the students (t test).

Problem solving sub-dimensions and life satisfaction	Female N=643 %=61.71	Male N=399 %=38.29		Doing sports N=404 %=38.77	Not doing sports N=638 %=61.23	
	Mean±Sd	Mean±Sd	P	Mean±Sd	Mean±Sd	p
Constructive approach	45.98±10.72	46.02±11.59	0.958	46.45±11.404	45.76±10.78	0.327
Pessimistic approach	31.49±10.71	32.48±11.73	0.173	32.12±11.98	31.78±10.53	0.595
Lack of self-confience approach	22.03±7.46	21.36±6.63	0.128	21.30±7.42	22.05±6.95	0.100
Insistent- persevering	22.34±6.26	23.41±6.49	**0.008**	23.48±6.82	22.26±5.98	**0.003**
Unwilling to take responsibility	13.56±4.45	14.24±4.06	**0.012**	14.29±4.34	13.53±4.28	**0.005**
Life satisfaction	15.56±4.73	16.29±5.04	**0.018**	16.57±4.82	15.37±4.82	**0.000**

important to conduct detailed studies in terms of precise results.

No significant difference was found in the constructive approach, negative approach, and lack of self-confidence approach sub-dimensions of the interpersonal problem-solving inventory in terms of sports participation. However, in the sub-dimensions of insistent-persevering approach and unwilling to take responsibility approach to the problem; the scores of those who do sports were found significantly higher. This result shows that those who do sports are insistent, patient and more flexible in solving problems but do not take responsibility when they experience interpersonal problems. It is stated in the literature that people who do sports approach problems more comfortably and flexibly than those who do not (Işık et al., 2016). It is also stated that those who do sports

Table 3. Variance analysis of interpersonal problem-solving skills sub-dimensions scores by socio-demographic variables.

Variable		Constructive approach	Pessimistic approach	Lack of self-confience approach	Insistent-persevering approach	Unwilling to take responsibility approach
		Mean±Sd	Mean±Sd	Mean±Sd	Mean±Sd	Mean±Sd
Age	15	46.42±11.00	30.77±10.65	21.38±7.31	22.14±6.15	13.59±4.21
	16	45.86±10.87	32.17±11.16	21.94±7.07	22.76±6.47	14.15±4.44
	17	46.08±10.64	34.13±11.69	22.54±7.13	23.38±6.21	13.91±4.24
	18	44.28±12.70	31.34±11.36	21.49±6.75	24.24±6.992	13.67±4.54
	p	0.393	**0.005**	0.269	**0.01**	0.354
Grade Level	9th Gare[1]	46.65±11.09	30.89±10.77	21.94±7.16	23.07±6.05	13.87±
	10th Grade[2]	45.52±11.06	31.59±10.73	21.26±7.38	22.01±6.64	13.77±
	11th Grade[3]	44.85±9.96	34.10±11.47	22.46±6.81	22.63±5.99	14.07±
	12th Grade[4]	46.99±12.01	32.41±12.25	22.17±6.83	24.37±6.41	13.56±
	p	0.118	**0.006**	0.389	**0.004**	0.85
Maternal Education Level	Primary School	44.20±11.15	32.10±10.55	22.26±7.37	22.08±6.43	13.80±4.24
	Secondary School	46.07±10.63	31.68±11.40	21.42±6.79	22.99±5.99	14.07±4.13
	High School	47.26±11.06	31.10±10.77	21.16±6.86	22.97±6.37	13.63±4.36
	University	47.68±11.27	33.28±12.5	22.63±7.91	23.48±6.87	13.76±4.79
	p	**0.003**	0.428	0.181	0.088	0.815
Paternal Education Level	Primary school	44.03±11.57	32.11±12.06	21.49±7.59	22.58±6.81	13.74±4.51
	Secondary school	45.47±10.99	31.95±11.08	21.83±6.94	22.52±5.85	13.89±4.11
	High school	46.59±10.78	31.69±10.77	21.70±7.1	22.73±6.35	13.74±4.4
	University	47.61±10.83	31.88±10.92	21.89±7.13	23.12±6.57	13.96±4.33
	p	**0.003**	0.991	0.216	0.421	0.945

feel good with the secretion of happiness hormone ‘serotonin’ (Baltaş and Baltaş, 2008; Penedo and Dahn, 2005; Bond et al., 2002). Considering these explanations in the literature, young people doing sports are more patient as a result of feeling good with the effect of sports; their approach to problems is more flexible and they make efforts to solve problems with an insistent approach.

In Table 2, life satisfaction of boys was significantly higher than girls. It is seen that there are also studies finding women's life satisfaction scores higher in the literature (Ata, 2019), contrary to the studies supporting the results of the research (Albayrak, 2016). Studies not determining a significant difference between the life satisfaction scores of female and male students are also encountered (Chow, 2005; Gilman and Huebner, 2006; Kabasakal and Uzbaş, 2013). When problem-solving skills of high school students were evaluated in terms of gender, no significant difference was found in the sub-dimensions of constructive approach, pessimistic approach and lack of self-confidence approach to problems. In the unwilling to take responsibility sub-dimension, boys’ scores were found to be significantly higher than girls’. In this regard, it can be said that boys avoid taking responsibility for problem-solving. In some studies in the literature, there is no difference in terms of gender (Işık et al., 2016; Gupta et al., 2015); whereas girls’ scores are higher than boys’ in the insistent-persevering approach and the negative approach to problems in some other studies (Çam and Tümkaya, 2008; Vekli and Paliç, 2012). There are also studies suggesting that boys' pessimistic approaches are higher than girls’ and girls perceive themselves more effectively in problem-solving (Coşkun, 2019; Serin and Derin, 2008).

When the results were interpreted with the information that girls are given more responsibility from a young age in teaching social gender roles (Karagün, 2013), it was thought that girls also take more responsibility in problem-solving than boys with the effect of gender roles. In addition, the high level of insistent-persevering approach of men was explained as males behave insistently and perseveringly in solving a problem with the effect of learnings in social gender role teaching such as men should be fighters, go-getter, complete a job and get what they want (Karagün, 2013).

In Table 3, interpersonal problem-solving skills were not foıund significant in terms of the age variable in the

sub-dimensions of constructive approach, lack of self-confidence approach and unwilling to take responsility approach. However, in the pessimistic approach to the problem, the 15-year-old students' scores were lower than the 17-year-old students' scores. It is seen that students in the age group of 17 are more pessimistic in problem-solving. In the literature, there are studies which find students' problem solving-skills significant in favor of the younger ones (Pakaslahti et al., 2002; Yıldırım et al., 2011), as well as studies finding no difference by age (Coşkun, 2019). Normally, as the age increases, problem-solving skills are expected to improve depending on the experiences. The fact that the study group was at the age of making professional choices and the uncertainty in their career planning was thought to have an effect on finding a result contrary to this expectation in the studies conducted. In the insistent-persevering approach, the scores of 15-year-old students were lower than the 18-year-old group. Finding positive results in favor of 18-year-old group were evaluated as more efforts were made more patiently as experience increased.

Problem solving-skills were not found significant in terms of grade level in the sub-dimensions of constructive approach, lack of self-confidence approach and unwilling to take responsibilty approach. Significantly higher scores were found in the 11^{th} grade in the pessimistic approach and in the 12^{th} grade in the insistent-persevering approach. In some studies, problem-solving skill scores of lower grade students were found higher than the 11^{th} grade students (Vekli and Paliç, 2012; Yıldırım et al., 2011). In some studies, problem solving-skills in the 9^{th} and 12^{th} grades were lower than in the 10^{th} and 11^{th} grades. This is because students try to adapt to a new environment in the process of starting high school, and the students in the process of university preparation only reach the information they need and they do not display an attitude focused on solving the problem apart from that due to the increase in their anxiety level (Işık et al., 2016). In the insistent-persevering approach, the scores of the 12^{th} grades were found higher than the scores of the 10^{th} grades. In the literature as age grows, the perception of problem-solving increases (Tümkaya and İflazoğlu, 2000). This is because the scores of pessimistic approach to problems increased in the 11^{th} grade, when adolescence is experienced intensely; it might be that a decision in the choice of profession had not yet been clarified and there was uncertainty towards the future. The reason why the scores of insistent-persevering approach increased in the 12^{th} grade might be that they were in the process of university preparation and they experienced that they needed to solve problems approaching them more insistently in academic terms.

Problem-solving was not found significant in terms of parental education status in the sub-dimensions of pessimistic approach, lack of self-confidence approach, insistent-persevering approach and unwilling to take responsibility approach. Considering the education level of both mother and father, as education level increased, constructive approach increased. It was thought that it is because educated parents become role models for their children as a result of raising conscious children and their rational and more systematic approach to the events. Besides the studies supporting these findings (Tümkaya and İflazoğlu, 2000; Yıldırım et al., 2011), there are also studies reporting that the educational status of the mother and father has no effect (Elkin and Karadağlı, 2015; Serin and Derin, 2008). It is thought that a constructive approach is developed as a result of the development of a different perspective on problems as education level increases.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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