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Determining the Relationship Between Irrational Beliefs and Problem-Solving Skills of Adolescents

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ABSTRACT
Objective: This descriptive study was conducted to determine the relationship between irrational beliefs and problem-solving skills of adolescents and to examine them according to their sociodemographic characteristics. **Materials and Methods:** The research was conducted with 353 6th, 7th and 8th grade students studying in Ankara between April 15 and June 15, 2022. In the study, "Data Collection Form" and "Problem Solving Inventory for Children" were used as data collection tools. **Results:** In the study, a significant negative correlation was found between adolescents' irrational beliefs and problem-solving skills (r=-0.389; p<0.01). When the sub-dimensions of the scales were evaluated in the study, a significant negative relationship was found between the sub-dimensions of self-control, avoidance, and problem-solving confidence of adolescents (r=-0.255; r=-0.273; r= -0.286, p<0.01). When the irrational belief levels of adolescents were examined according to sociodemographic characteristics: their mother's occupation and parents' educational status; When examined according to problem solving skill levels, a significant difference was found according to gender, school success status and mother's profession (p<0.05). **Conclusion:** The research conducted reveals the importance of the relationship between adolescents' irrational beliefs and problem-solving skills. In this respect, the research contributes to school health nursing studies by creating data.
Keywords: Adolescence, Nursing, School Health, Problem Solving, Beliefs.

Adölesan Bireylerin İrrasyonel İnanışları ve Problem Çözme Becerisi Arasındaki İlişkinin Belirlenmesi

ÖZ
Amaç: Bu araştırma, adölesan bireylerin irrasyonel inanışları ve problem çözme becerisi arasındaki ilişkinin belirlenmesi ve sosyodemografik özelliklere göre incelenmesi amacıyla tanımlayıcı türde yapılmıştır. **Gereç ve Yöntem:** Araştırma, 15 Nisan-15 Haziran 2022 tarihleri arasında Ankara'da okuyan 6., 7. ve 8. Sınıf 353 öğrenci ile yapılmıştır. Araştırmada veri toplama araçları olarak: ''Veri Toplama Formu'', ''Çocuklar İçin Problem Çözme Envanteri'' ve ''Ergenler İçin Mantıkdışı İnanç Ölçeği'' kullanılmıştır. **Bulgular:** Araştırmada, adölesan bireylerin irrasyonel inanışları ve problem çözme becerisi arasında negatif yönde anlamlı bir ilişki bulunmuştur (r=-0.389; p<0.01). Yapılan araştırmada ölçeklerin alt boyutu değerlendirildiğinde, adölesanların öz denetim, kaçınma ve problem çözmeye güven alt boyutları arasında negatif yönde anlamlı ilişki bulunmuştur (r=-0.255; r=-0.273; r=-0.286, p<0.01). Adölesanların, irrasyonel inanış düzeyleri sosyodemografik özelliklere göre incelendiğinde: annelerinin mesleği ve ebeveynlerin eğitim durumu; problem çözme becerisi düzeylerine göre incelendiğinde cinsiyet, okul başarı düzeyi ve annenin mesleğine göre anlamlı fark bulunmuştur (p<0.05). **Sonuç:** Yapılan araştırma adölesanların irrasyonel inanışları ve problem çözme becerileri arasındaki ilişkinin önemini ortaya koymaktadır. Araştırma bu yönüyle okul sağlığı hemşireliği çalışmalarına veri oluşturarak katkı sağlamaktadır.
Anahtar Kelimeler: Adölesan, Hemşirelik, Okul Sağlığı, Problem Çözme, İnançlar.

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INTRODUCTION

Adolescence is defined as a transition period that starts from childhood and continues until adulthood. It is generally thought that individuals in adolescence do not have sufficient skills to cope with problems (Kabasakal, 2018). It is important for individuals to gain problem-solving skills for a healthy adolescence. One of the most important factors affecting this skill is irrational beliefs. For this reason, it is important to determine the relationship between PSS and irrational beliefs. PSS is one of the basic cognitive processes of people. Problem solving is a process that involves systematic observation and critical thinking, providing a suitable solution to achieve the desired goal (Nihan and Baran, 2021). One of the important areas of study of PSS is the beliefs of adolescents. Beliefs are examined under two headings: rational and irrational. Rational beliefs help individuals focus and solve problems. Irrational beliefs are illogical and unsafe. It can be challenging to convey rational beliefs to adolescents, so it is important to be creative when conveying templates and present them to adolescents in procedures that are appropriate for the school curriculum (Abiogu et al., 2021). School health nursing, which is one of the fields of study of public health nursing, is one of the important fields of study. School health nurses have duties such as monitoring the normal development of individuals, educating individuals, creating a healthy environment, intervening in current and potential health problems, and providing case management services. However, protecting the mental health of students is one of the important duties of school health nurses. (Bohnenkamp et al., 2015; Holmes et al., 2016; Ulutaşdemiş et al., 2016). In this context, a team consisting of school administrators, teachers, and public health professionals can protect mental health and help students improve their academic success by developing problem-solving skills (Serin & Derin, 2008). When the literature is examined, there are few studies specific to the field of nursing on irrational thoughts and problem-solving skills in adolescents (Bohnenkamp et al., 2015; Şahin, 2015; Holmes et al., 2016; Kabasakal, 2018). School health nurses can help adolescents realize their irrational thoughts and strengthen their problem-solving skills, thus providing them with positive health behaviors (Ersoy & Ünsal, 2017). Therefore, it is expected that this research will provide new information to the literature by generating data for school health nursing studies.

MATERIALS AND METHODS

Type of research

The research was carried out in a descriptive relational type.

Design, setting, and sample

The research population was selected from Keçiören district of Ankara province. Keçiören is in the central district of Ankara and there are 44 secondary schools. The school where the study would be conducted was determined by lottery method. There are 672 students in the research population of the selected school. The sample of the study was obtained by calculating the sample size formula for a known universe. The research sample consists of 353 students who meet the sample selection criteria. 5th grade students were not included in the study because they were not in the IBSA age range. The sample included students who met the selection criteria: students in adolescence (6th, 7th, and 8th grades) and students who gave written (student-parent) and verbal (student) consent to participate in the research.

Data collection

In the study, data were collected with "Sociodemographic Information Form", "Irrational Belief Scale for Adolescents" and "Problem Solving Inventory for Children".

Sociodemographic Characteristics Information Form: There is a survey formula that includes 11 introductory questions such as the demographic characteristics of the researchers, the profession of the mother and father, and their educational status (Kabasakal, 2018; Yıldız, 2020).

Irrational Beliefs Scale for Adolescents (IBSA): This scale can be applied to secondary school students. The scale, which consists of 21 items, has three sub-dimensions. These are 8 items in Success Requests, 7 items in Comfort Requests, and 6 items in Respect Requests. The questions are answered by scoring from 1 to 5. The total score of the scale ranges from 21 to 105. Çivitçi (2003) found the reliability value of the scale to be 0.82 (Çivitçi, 2003). In the analyzes, Cronbach-α value was calculated as 0.74 and the reliability of the study was found to be high.

Problem Solving Inventory for Children (PSIC): This scale can be applied to secondary school students. Scale questions consist of 24 items. The scale has 3 sub-dimensions. These are: Avoidance: 5 items, Reliance on Problem Solving: 12 items, and Self-Control: 7 items. Questions are answered as Likert type. The total score of the scale is between 24-120. As the score obtained from the scale increases, the problem-solving skills of individuals increase. The reliability, and validity of the scale was determined by Serin et al., (2010) and was found to be 0.80 (Serin et al., 2010). In the analyses, the Cronbach-α value of the scale was found to be 0.78, and the reliability level of the study was found to be high.

Application of data collection forms

The research survey and consent forms were administered between April 15 and June 15, 2022. The classrooms where the study was to be conducted were visited during the hours permitted by the school principal. Parent and student permission forms 6.,7. and 8th grade students were visited, the study was explained, and the forms were distributed. Later, the same classes were visited again, and consent forms were collected from the students (parents and

students) who accepted the study, and the survey form was distributed by the researcher.
The survey questions were introduced to the students by the researcher. Students were given 1 class hour to answer. At the end of 1 hour, the forms received from the students were checked and collected by the researcher.

Analysis of research data

Excel 2010 and SPSS-26 (Statical Package for Social Sciences (SPSS) 26 package programs were used to enter and analyze the data. Descriptive statistics and frequency tables were used to interpret the data. In statistical analysis, parametric methods "Independent Sample-t", "ANOVA (F-table value) and "Tukey" tests were used for normally distributed data. Non-parametric methods: Mann-Whitney U Test, Kruskal-Wallis H Test, Bonferroni correction, Spearman correlation coefficient tests were used for measurement data that did not show normal distribution.

Ethical approval

Necessary permissions were obtained for the scales to be used in this research. In addition, necessary permissions were obtained from Ankara Yıldırım Beyazıt University Health Sciences Ethics Committee (Date: 22 March 2022 Issue: 3), Ankara Provincial Directorate of National Education (Date: 14.04.2022 Issue: 111243), Keçiören District National Education Directorate and School administrators. No confidential information was received from parents and students, and participation was voluntary, and a consent form was signed.

RESULT

In this part of the research, the statistical analysis of the scales and the socio-demographic characteristics of the research are given in tabular form.

Table 1. Distribution of adolescents according to their sociodemographic characteristics.

Variable (n=353)	n	%
Gender		
Male	183	51.8
Female	170	48.2
Age		
11	11	3.1
12	145	41.1
13	105	29.7
14	92	26.1
Class		
6.	131	37.1
7.	113	32.0
8.	109	30.9
Number of siblings		
1	45	12.7
2	161	45.6
3	110	31.2
4 and ↑	37	10.5
Mother's occupation		
Not working	257	72.8
Employee	59	16.7
Officer	32	9.1
Executive	5	1.4
Father's occupation		
Not working	21	5.9
Employee	209	59.2
Officer	83	23.5
Executive	40	11.4
Income level (monthly TL)		
≤5004	87	24.6
5.005-8.000	153	43.4
8.001-11.000	74	21.0
>11.000	39	11.0
Mother's education level		
Uneducated	12	3.4
Elementary	78	22.1
Secondary	78	22.1
High school	137	38.8
University	48	13.6

Table 1. (Continued) Distribution of adolescents according to their sociodemographic characteristics.

Father's education level		
Uneducated	14	4.0
Elementary	57	16.1
Secondary	68	19.3
High school	138	39.1
University	76	21.5
School success status		
Very successful	77	21.8
Good	117	33.1
Moderate	145	41.1
Unsuccessful	14	4.0
Total	353	100

Sociodemographic characteristics of adolescents are given in Table 1. It was determined that 183 (51.8%) of the adolescents were male, 145 (41.1%) were 12 years old and 131 (37.1%) were in the 6th grade. In addition, it was determined that the mothers of 257 adolescents (72.8%) were not working, 209 (59.2%) fathers were workers and 161 students (45.6%) had 2 siblings. On the other hand, 153 (43.4%) of them had a family income of 5,005-8,000 TL, 145 (41.1%) of them stated their success at school at a moderate level, 138 (39.1%) of them were high school graduates and 137 (38.8%) of their mothers were high school graduates. It was observed that adolescents had moderate levels of irrational beliefs and PSS (Table 2).

Table 2. Status of scores on the PSIC and the IBSA.

Ölçek (n=353)		**Average**	**SD**	**Med.**	**Min.**	**Max.**
Irrational Beliefs for Adolescents Scale	The Demand for Respect	23.18	5.74	23.0	8.0	37.0
	The Demand for Comfort	19.65	5.88	19.0	7.0	35.0
	The Demand for Success	24.14	4.30	25.0	10.0	30.0
	IBSA – Total	66.97	11.18	67.0	25.0	102.0
Problem Solving Inventory for Children	Self-confidence related to PSS	37.13	8.20	37.0	21.0	59.0
	Self-control	19.83	5.63	20.0	7.0	34.0
	Avoidance	11.99	3.97	12.0	5.0	25.0
	PSIC – Total	68.95	12.83	69.0	34.0	118.0

*SD: Standard Deviation, *Med.: Median

Table 3. Examination of statistical analysis scores of the IBSA.

Variable (n=353)	**n**	**IBSA**				
		The Demand for Respect	The Demand for Comfort	The Demand for Success	**IBSA – Total**	
		Med. [IQR]	**Med. [IQR]**	**Med. [IQR]**	**$\bar{X} \pm$ SD**	**Med. [IQR]**
Gender						
Female	170	23.0 [9.0]	19.0 [9.0]	25.0 [6.0]	67.34±11.47	68.0 [15.0]
Male	183	22.0 [8.0]	19.0 [9.0]	25.0 [6.0]	66.60±10.92	65.0 [15.0]
Analysis*		Z=-0.028	Z=-0.432	Z=-1.412		Z=-1.001
P		p=0.978	p=0.666	p=0.158		p=0.317
Age						
11	11	23.0 [10.0]	21.0 [8.0]	25.0 [7.0]	67.91±11.19	66.0 [17.0]
12	145	24.0 [9.0]	19.0 [9.0]	24.0 [6.0]	67.67±11.92	66.0 [15.5]
13	105	22.0 [8.0]	18.0 [8.0]	25.0 [6.0]	65.09±10.11	65.0 [13.5]
14	92	23.0 [7.8]	20.0 [9.8]	26.0 [5.0]	67.86±11.06	68.0 [17.8]
Analysis		χ^2=6.181	χ^2=1.455	χ^2=7.552		F=1.397
P		p=0.103	p=0.693	p=0.056		p=0.243
Class						
6. (1*)	131	24.0 [9.0]	19.0 [8.0]	24.0 [6.0]	67.87±12.11	66.0 [16.0]
7. (2*)	113	23.0 [8.0]	19.0 [9.0]	25.0 [5.5]	66.21±10.15	66.0 [14.0]
8. (3*)	109	22.0 [8.0]	18.0 [9.0]	26.0 [6.0]	66.64±11.04	66.0 [17.0]
Analysis		χ^2=7.312	χ^2=0.340	χ^2=5.742		χ^2=0.919
P		**p=0.026**	p=0.844	p=0.057		p=0.632
Difference		**[1-3]**				

Table 3. (continued) Examination of statistical analysis scores of the IBSA.

Variable (n=353)	n	IBSA				
		The Demand for Respect	The Demand for Comfort	The Demand for Success	IBSA – Total	
		Med. [IQR]	Med. [IQR]	Med. [IQR]	$\bar{X} \pm SD$	Med. [IQR]
Number of siblings						
1	45	22.0 [8.5]	20.0 [6.5]	24.0 [6.0]	67.11±10.82	69.0 [16.0]
2	161	23.0 [9.0]	20.0 [9.0]	25.0 [7.0]	67.64±12.14	66.0 [18.0]
3	110	22.0 [8.0]	17.0 [8.0]	25.5 [6.0]	66.12±10.65	65.0 [14.0]
4 and ↑	37	24.0 [8.0]	20.0 [8.5]	23.0 [5.5]	66.32±8.79	65.0 [10.5]
Analysis		χ^2=1.464	χ^2=3.940	χ^2=5.466		χ^2=0.921
P		p=0.691	p=0.268	p=0.141		p=0.820
Mother's occupation						
Notworking (1)	257	22.0 [8.0]	18.0 [8.0]	25.0 [6.0]	66.15±10.85	65.0 [14.0]
Worker (2)	59	22.0 [9.0]	19.0 [8.0]	24.0 [6.0]	67.39±11.87	66.0 [20.0]
Officer (3)	32	26.0 [9.5]	24.0 [7.5]	25.0 [6.5]	72.40±10.98	74.0 [15.3]
Manager (4)	5	24.0 [5.5]	21.0 [11.5]	26.0 [12.0]	68.60±14.01	73.0 [26.0]
Analysis*		χ^2=7.161	χ^2=12.710	χ^2=1.396		χ^2=8.899
P		p=0.067	**p=0.005**	p=0.498		**p=0.031**
Difference			**[1-3]**			**[1-3]**
Father's occupation						
Not working	21	24.0 [11.5]	19.0 [10.0]	23.0 [11.0]	66.33±13.92	68.0 [24.5]
Worker	209	22.0 [8.0]	19.0 [8.0]	25.0 [6.0]	66.84±10.87	66.0 [15.0]
Officer	83	24.0 [8.0]	19.0 [9.0]	25.0 [6.0]	67.65±11.12	67.0 [17.0]
Manager	40	22.6 [9.0]	20.5 [5.0]	25.0 [6.8]	66.48±11.51	66.5 [15.0]
Analysis		χ^2=4.151	χ^2=0.332	χ^2=0.942		χ^2=0.751
P		p=0.246	p=0.954	p=0.815		p=0.861
Mother's Education level						
Uneducated (1)	12	23.0 [11.0]	23.0 [12.3]	27.0 [8.0]	72.17±12.26	8.5 [13.0]
Elementary	78	21.0 [8.0]	18.0 [8.0]	25.0 [7.0]	65.81±11.02	66.5 [14.5]
education (2)	78	22.0 [10.0]	17.0 [7.3]	24.0 [6.0]	65.35±11.66	64.0 [16.3]
Secondary	137	21.0 [7.0]	20.0 [7.0]	25.0 [5.5]	66.75±10.39	65.0 [13.5]
education (3)	48	25.5 [8.8]	22.0 [9.8]	25.0 [5.0]	70.73±11.77	72.5 [19.8]
Highschool (4)						
University (5)						
Analysis		χ^2=12.048	χ^2=8.945	χ^2=4.184		F=2.092
P		**p=0.017**	p=0.062	p=0.382		p=0.081
Difference		**[2-4;2-5]**				
Father's Education level						
Uneducated (1)	14	23.5 [11.3]	18.5 [7.8]	27.5 [5.0]	70.43±13.87	68.5 [18.5]
Elementary	57	21.0 [7.0]	19.0 [6.0]	26.0 [7.5]	66.58±9.74	68.0 [11.5]
education (2)	68	22.0 [8.0]	18.0 [9.0]	26.0 [5.0]	67.69±10.25	65.5 [15.3]
Secondary	138	22.0 [9.0]	18.0 [9.0]	24.0 [6.0]	65.42±11.68	64.0 [16.0]
education (3)	76	25.0 [8.8]	21.0 [9.8]	25.0 [5.8]	68.75±11.34	69.0 [17.0]
Highschool (4)						
University (5)						
Analysis		χ^2=9.229	χ^2=1.520	χ^2=12.188		χ^2=6.207
P		p=0.056	p=0.823	**p=0.016**		p=0.184
Difference				**[1-4]**		
Income level (monthly TL)						
≤5004	87	22.0 [7.0]	21.0 [9.0]	26.0 [7.0]	66.80±11.71	65.0 [15.0]
5.005-8.000	153	22.0 [8.0]	18.0 [8.0]	24.0 [6.0]	65.74±11.41	65.0 [13.0]
8.001-11.000	74	24.5[10.0]	20.0 [9.0]	25.0 [5.3]	69.20±10.38	69.0 [17.0]
>11.000 TL	39	23.0 [8.0]	20.0 [6.0]	25.0 [5.0]	67.84±10.15	66.0 [14.0]
Analysis*		χ^2=7.532	χ^2=3.954	χ^2=1.249		F=1.699
P		p=0.057	p=0.266	p=0.741		p=0.167
School success status						
	77	22.0 [8.5]	18.0 [8.5]	25.0 [7.5]	64.84±11.46	65.0 [14.0]
Very good	117	23.0 [7.0]	20.0 [10.5]	25.0 [5.5]	68.03±11.41	68.0 [17.0]
Good	145	22.0 [9.0]	19.0 [8.0]	25.0 [5.0]	67.26±11.04	67.0 [16.5]
Modarate	14	22.5 [8.0]	22.0 [7.3]	24.5 [9.3]	66.64±8.16	69.0 [11.5]
Bad						
Analysis		Z=-1.630	Z=-1.888	Z=-0.790		Z=-1.759
P		p=0.103	p=0.059	p=0.430		p=0.079

* *SD: Standard Deviation, *Med.: Median

"ANOVA (F-table value)" to compare three or more normally distributed independent groups", "Mann-Whitney U test " to compare the analysis values of two non-normally distributed independent groups; The "Kruskal-Wallis H test " was used to compare three or more independent groups.

Adolescents' success demand scores of those studying in the 6th grade were higher than those of those studying in the 8th grade ($\chi2$=7.312; p=0.026); Comfort demand sub-scale scores of those whose mothers were civil servants were higher than those whose mothers were not working ($\chi2$=12.710; p=0.025); IBSA-total scores of those whose mothers are not working are higher than those whose mothers are civil servants ($\chi2$=8.899; p=0.031); Demand for achievement sub-scale scores were higher among those whose mothers were university graduates than those whose mothers were primary or high school graduates ($\chi2$=12.048; p=0.017); The respect demand scores of those whose fathers were illiterate were found to be significantly higher than those whose fathers were high school graduates ($\chi2$=12.188; p=0.016); PSIC – total scores were found to be significantly higher in those with very good school success compared to those with average and poor school success ($\chi2$=9.339; p=0.025)(Table-3).

Table 4. Examining the statistical analysis scores of the PSIC.

Variable (n=353)	n	PSIC				
		Self-confidence related to PSS	Self-control	Avoidance	PSIC – Total	
		Med. [IQR]	Med. [IQR]	Med. [IQR]	$\bar{X} \pm SD$	Med. [IQR]
Gender						
Female	170	38.0 [13.3]	21.0 [9.0]	12.0 [6.0]	76.54±13.15	75.0 [18.0]
Male	183	36.0 [13.0]	18.0 [7.0]	11.0 [5.0]	78.03±12.51	77.0 [17.0]
Analysis		Z=0.704	Z=-2.896	Z=-1.214		Z=-1.395
P		p=0.482	**p=0.004**	p=0.225		p=0.163
Age						
11	11	34.0 [18.0]	21.0 [10.0]	14.0 [7.0]	74.73±16.19	74.0 [27.0]
12	145	36.0 [13.0]	18.0 [8.5]	12.0 [5.5]	77.22±12.27	76.0 [16.0]
13	105	38.0 [13.5]	20.0 [8.5]	12.0 [5.0]	78.17±12.36	77.0 [16.5]
14	92	36.5 [15.0]	20.0 [9.0]	11.0 [6.0]	76.79±13.87	75.0 [22.8]
Analysis		χ^2=0.617	χ^2=3.768	χ^2=2.519		F=0.357
P		p=0.893	p=0.288	p=0.472		p=0.784
Class						
6.	131	36.0 [13.0]	18.0 [7.0]	12.0 [5.0]	76.69±12.65	76.0 [17.0]
7.	113	38.0 [12.5]	19.0 [8.0]	12.0 [5.0]	77.93±12.52	77.0 [18.0]
8.	109	37.0 [14.5]	20.0 [9.0]	11.0 [6.0]	77.42±13.42	75.0 [21.5]
Analysis		χ^2=2.187	χ^2=2.977	χ^2=2.075		χ^2=0.515
P		p=0.335	p=0.226	p=0.354		p=0.773
Number of siblings						
1	45	36.0 [12.0]	22.0[10.5]	12.0 [5.5]	76.00±12.19	76.0 [13.0]
2	161	37.0 [13.5]	18.0 [8.5]	12.0 [5.0]	77.98±12.61	76.0 [16.5]
3	110	38.0 [14.3]	20.0 [7.5]	11.0 [7.3]	77.45±14.01	76.5 [21.0]
4 and ↑	37	35.0 [13.0]	19.0 [7.5]	12.0 [5.0]	75.57±10.88	75.0 [15.5]
Analysis		χ^2=2.579	χ^2=3.716	χ^2=0.657		χ^2=1.051
P		p=0.461	p=0.294	p=0.883		p=0.789
Mother's occupation						
Notworking[(1)]	257	30.0 [17.0]	20.0 [9.0]	11.0 [6.0]	70.47±10.70	71.0 [13.5]
Worker [(2)]	59	32.0 [10.5]	19.0 [7.0]	12.0 [5.0]	76.20±10.73	74.0 [14.0]
Officer [(3)]	32	35.0 [14.0]	19.5 [10.5]	12.5 [6.0]	78.56±13.19	78.0 [18.5]
Manager [(4)]	5	39.0 [13.0]	19.0 [6.5]	16.0 [6.0]	74.00±14.65	74.0 [28.0]
Analysis*		χ^2=16.356	χ^2=3.943	χ^2=6.480		F=4.864
P		**p=0.001**	p=0.268	p=0.090		**p=0.003**
Difference		**[1-3;1-4]**				**[1-3]**
Father's occupation						
Not working	21	38.0 [13.5]	20.0 [11.5]	11.0 [9.5]	76.85±17.39	80.0 [30.0]
Worker	209	37.0 [13.5]	19.0 [8.0]	12.0 [5.0]	77.73±12.63	77.0 [17.0]
Officer	83	36.0 [15.0]	20.0 [9.0]	11.0 [6.0]	77.27±12.48	75.0 [17.0]
Manager	40	36.5 [12.8]	21.0 [7.3]	13.0 [6.8]	75.50±12.13	74.5 [17.8]
Analysis		χ^2=0.591	χ^2=3.030	χ^2=1.083		χ^2=1.008
P		p=0.898	p=0.387	p=0.781		p=0.799
Mother's Education level						
Uneducated [(1)]	12	37.5 [13.8]	20.0 [8.8]	14.5 [6.5]	72.83±13.97	76.0 [22.5]
Elementary	78	37.5 [12.0]	21.0 [10.0]	12.0 [6.3]	75.95±11.80	74.5 [15.3]
education [(2)]	78	38.5 [13.3]	18.0 [7.0]	11.0 [5.3]	79.91±11.86	79.5 [17.3]
Secondary	137	37.0 [16.0]	20.0 [7.0]	12.0 [5.5]	77.67±13.74	76.0 [21.0]
education [(3)]	48	34.5 [12.5]	19.0 [10.0]	11.0 [7.8]	75.42±12.58	74.0 [18.5]
Highschool [(4)]						
University [(5)]						
Analysis		χ^2=3.168	χ^2=10.737	χ^2=6.726		χ^2=5.610
P		p=0.530	**p=0.030**	p=0.151		p=0.230
Difference			**[2-3]**			

Table 4. (continued) Examining the statistical analysis scores of the PSIC.

Variable (n=353)	n	PSIC				
		Self-confidence related to PSS	Self-control	Avoidance	PSIC – Total	
		Med. [IQR]	Med. [IQR]	Med. [IQR]	X̄ ± SD	Med. [IQR]
Father's education level						
Uneducated (1)	14	37.0 [12.8]	18.5 [14.3]	11.5 [4.8]	76.43±12.77	77.5 [13.5]
Elementary education (2)	57	39.0 [11.0]	20.0 [8.0]	13.0 [6.5]	76.68±12.10	76.0 [19.0]
Secondary education (3)	68	36.0 [12.5]	19.5 [7.0]	11.0 [4.8]	76.84±12.29	74.0 [16.5]
Highschool (4)	138	38.0 [14.0]	19.5 [9.0]	11.0 [6.0]	78.86±13.38	79.0 [19.3]
University (5)	76	35.0 [15.0]	19.0 [8.0]	11.5 [7.0]	75.57±12.81	74.0 [15.8]
Analysis		χ^2=6.474	χ^2=1.225	χ^2=7.728		χ^2=3.441
P		p=0.166	p=0.874	p=0.102		p=0.487
Income level (monthly TL)						
≤5004 TL	87	39.0 [11.0]	20.0 [7.0]	12.0 [6.0]	75.79±12.84	76.0 [16.0]
5.005-8.000 TL	153	37.0 [13.0]	18.0 [8.0]	12.0 [5.0]	78.83±13.26	77.0 [22.0]
8.001-11.000 TL	74	33.0 [15.0]	19.0 [8.5]	11.5 [5.0]	75.72±11.93	75.0 [13.0]
>11.000 TL	39	36.0 [15.0]	19.0 [6.0]	10.0 [6.0]	77.79±12.42	78.0 [14.0]
Analysis*		χ^2=7.266	χ^2=6.512	χ^2=7.058		χ^2=3.135
P		p=0.064	p=0.089	p=0.070		p=0.371
School success status						
Very good (1)	77	39.0 [12.0]	18.0 [7.0]	11.0 [6.0]	80.41±14.88	80.0 [18.5]
Good (2)	117	38.0 [13.5]	19.0 [9.0]	11.0 [6.0]	77.96±12.99	76.0 [20.0]
Modarate (3)	145	35.0 [13.5]	20.0 [8.0]	12.0 [6.0]	74.63±11.18	74.0 [15.5]
Bad (4)	14	30.5 [14.8]	22.0 [8.3]	11.5 [5.3]	72.21±12.07	71.5 [10.8]
Analysis		χ^2=8.519	χ^2=5.932	χ^2=2.796		χ^2=9.339
P		**p=0.036**	p=0.115	p=0.424		**p=0.025**
Difference		**[1-3;1-4]**				**[1-3;1-4]**

*SD: Standard Deviation, *Med.: Median

*"Mann-Whitney U" test for comparing measurement values of two independent groups in non-normally distributed data; "Kruskal-Wallis H" test statistics were used to compare three or more than three to ten independent groupings.

Adolescents' self-control scores according to gender were higher in girls than in boys (Z=-2.896; p=0.004); Problem solving confidence scores of those whose mothers are managers are higher than those whose mothers are civil servants and not working (χ2=16.356; p=0.001); PSIC – total scores of those whose mothers are civil servants are lower than those whose mothers are not working (F=4.864; p=0.003); self-control scores of those whose mothers are primary school graduates. scores were found to be significantly higher than those whose mothers were secondary school graduates (χ2=10.737; p=0.030); problem-solving confidence scores of those with very good school success were found to be significantly higher than those with average and poor school success (χ2=8.519; p=0.036) (Table 4).

Table 5. Examining the correlation levels of the PSIC and the Irrational Beliefs Scale for Adolescents.

Correlation* (n=353)			PSIC			
			Self-confidence related to PSS	Self-control	Avoidance	PSIC – Total
Irrational beliefs for adolescents scale	The Demand for Respect	r	-0.190	0.071	0.109	-0.202
		p	**0.000**	0.186	**0.000**	**0.000**
	The Demand for Comfort	r	-0.413	0.273	0.394	-0.511
		p	**0.000**	**0.000**	**0.000**	**0.000**
	The Demand for Success	r	0.088	0.222	0.077	-0.063
		p	0.097	**0.000**	0.149	0.238
	IBSA –Total	r	-0.286	0.255	0.273	-0.389
		p	**0.000**	**0.000**	**0.000**	**0.000**

*When examining the relationships of two quantitative variables, "Spearman correlation coefficient" was used in cases where at least one variable was not normally distributed.

As adolescent individuals' demand for success, demand for comfort, and IBSA-total score increased, their problem-solving confidence scores decreased. There was a negative and weak significant correlation between adolescents' demand for self-control and comfort, demand for respect and IBSA-total score (r: 0.273; r: 0.222; r: 0.255; p<0.05). As The Demand for Comfort, demand for respect, and IBSA–total scores increased, confidence in problem-solving scores decreased. A negative, weakly significant relationship was found between adolescents' avoidance and desire for achievement, demand for comfort and IBSA - total score (r: 0.109; r: 0.394; r: 0.273; p<0.05). As the Demand for Respect, Demand for Comfort, and IBSA-total score increased, avoidance scores decreased. A statistically significant, weak, and negative correlation was found between the PSIC total of

adolescents and the demand for achievement, demand for comfort and IBSA total score (r: -0.413; r: -0.286; r: -0.190; p<0.05). As The Demand for Respect, comfort demand and IBSA – total score increased, PSIC – total scores decreased (Table 5).

DISCUSSION

This research was conducted to evaluate the relationship between PSS and irrational beliefs of adolescent individuals. In addition, an answer was sought to the question of whether the irrational belief level and PSS level of adolescent individuals differ according to sociodemographic characteristics. When the PSS level of adolescent individuals was examined, it was found that they had a medium level of problem-solving skill. In other words, although adolescent individuals sometimes have difficulty in giving the appropriate reaction when faced with a problem, they can solve it at an acceptable level. When we examine the literature, there are studies that mostly find the PSS of adolescents at a moderate level (Vatansever et al., 2018; Tezel & Tezgören, 2019; Kozikoğlu & Tunç, 2020; and high (Tunç & Taşgın, 2018; Yıldız, 2020), while there are studies that find them to be at a weak level. Nevertheless, it is thought that factors such as sociodemographic characteristics of adolescents, the environment they live in, parental attitudes, and the school they go to bring their PSS to a certain level (Serin & Derin, 2008).

It is seen that PSS level of adolescent individuals varies when we evaluate them in terms of sociodemographic characteristics. When we evaluated PSS according to gender variable, the self-control subscale scores of female adolescents were found to be significantly higher than those of males. Looking at the literature, in addition to the findings of a significant relationship between PSS and gender (Derin, 2006; Kozikoğlu & Tunç, 2020; Yıldız, 2020), there is also evidence to the contrary in studies conducted in different age groups (Hoxha & Surucu, 2015). This situation is thought to be caused by developmental differences between genders: brain structure, mental development, learning skills, and social intelligence level. In cognitive processes, mental development and learning skills elements have a great impact on problem-solving skill levels (Doğan, 2007; Converse et al., 2014). However, it is important to consider the gender factor in intervention studies to be carried out at school. Having PSS can lead an individual to a higher academic life. In this study, the finding that the problem-solving confidence score was significantly higher in adolescents with very good school success compared to adolescents with average and poor school success is evidence of the importance of this issue. While there is a study in the literature that found a significant relationship in terms of problem-solving confidence scores regarding adolescent individuals (Serin & Derin, 2008), there are also contrary findings (Çivitçi, 2006). In this regard, we can consider students with good PSS as individuals who define their academic success as good and study regularly daily (Serin & Derin, 2008). One of the variables that predict PSS in terms of individual characteristics is the mother's working status. The mother's profession affects the problem-solving skill level at different levels. The level of confidence in problem-solving among adolescents whose mothers were managers was found to be significantly higher than those who were civil servants and did not work. However, it is thought that working mothers have better PSS because they overcome the difficulties of business life as well as their responsibilities for home life, and as a result, their children can solve problems better. Although it is stated that PSS differ depending on the mother's profession (Yıldırım et al., 2011), there are also contrary findings (Serin & Derin 2008). Since the mother's occupation alone is not predictive, it is thought that it should be evaluated together with parental attitudes and occupations and other sociodemographic characteristics (Uygur, 2018).

In this study, it was found that adolescent individuals had moderate levels of irrational beliefs (Table 2). In other words, adolescent individuals have moderate irrational beliefs that, although not extreme, prevent the individual from thinking correctly in their cognitive processes. Looking at the literature, while adolescents generally have a moderate level of irrational belief (Kabasakal, 2018; Küçük et al., 2016; Terjesen et al., 2017; Yıldız, 2020), there is also a study that finds the level of irrational belief to be high (Yıldırım, 2021). The moderate level of irrational beliefs of adolescents is noteworthy as a finding that should be taken into consideration to prevent their increase in adulthood and to improve positive mental health. However, it is known that irrational beliefs are affected by factors such as perfectionism, stress, self-esteem, and PSS. In this regard, it is very important for school health nurses to work to reduce irrational beliefs by taking these elements into account for the biopsychosocial development of individuals (Kabasakal, 2019; Ulutaşdemiş et al., 2016; Yıldırım, 2021).

Individual characteristics of adolescents are effective in their irrational belief level. For example, in studies conducted according to the gender variable, there is evidence that female adolescents have high irrational beliefs (Küçük et al., 2016; Aydın & Sevim, 2018). Of course, this finding is not surprising; since girls are expected to be shy, dependent, and emotional in traditional gender roles from an early age, it is thought that when they encounter a problem, they develop irrational beliefs by approaching it with the perspective of "I can't do it, I can't succeed" (Aydın & Sevim, 2018; Balkıs & Duru, 2020). However, it is also noted in the study and other studies that irrational beliefs don't differ significantly according to the gender variable

(Çivitçi, 2006; Yıldız, 2020). It is thought that the gender variable is not a single predictor at the level of irrational belief and should be considered together with other sociodemographic variables (Tunç & Taşgın, 2018; Yıldız, 2020).

One of the variables predicting the level of irrational belief of adolescents is the education level of the father and mother. It appears as a product of the reflection of the parents' upbringing styles and attitudes on the child. Respect demands of those whose fathers are illiterate compared to high school graduates; was found to be significantly high. In other words, as the father's education level decreases, he expects more obedience and respect from his children. Adolescents growing up in a traditional family structure may develop irrational beliefs because of the father's attitude and behavior. While there are studies like this study in the literature there are also studies (Şengönül, 2019) to the contrary (Boyacıoğlu, 2010; Yıldız, 2020). However, the success demand scores of those whose mothers graduated from university were found to be significantly higher than those whose mothers graduated from primary and high school. It is known that as the education level of the mother increases, they expect their children to be more successful and direct them to professions with high status (Şengönül, 2019). Although there is a relationship between the mother's education level and her child's irrational beliefs (Tunç & Taşgın 2018), there are also studies to the contrary (Boyacıoğlu, 2010; Yıldız, 2020).

One of the factors predicting the level of irrational belief in terms of individual characteristics is the mother's occupation. The total irrational belief score of those whose mothers were not working was found to be significantly higher than those whose mothers were civil servants. In other words, adolescents whose mothers do not work have a high level of irrational beliefs. There are limited studies in the literature evaluating the relationship between adolescents' irrational beliefs and the mother's profession. Studies have found that mothers in business life have a higher level of education and better self-improvement, therefore they have more information about their child's development and thus have more realistic expectations (Yeşilyaprak, 2003).

When the relationship between adolescents' PSS and irrational beliefs was evaluated, a negative, statistically weakly significant relationship was found. It was observed that as adolescents' irrational beliefs increased, their school success and mother's occupation increased. In this respect, the study reveals the importance of the relationship between irrational beliefs and PSS of adolescent individuals. Problem-solving skill levels decreased in all sub-dimensions. When the relationship levels between irrational beliefs and problem solving were evaluated, a weak relationship was found in the study. When the literature was examined, there were studies that found a weak (Yıldız, 2020), moderate (Kabasakal, 2019) and high (Uygur, 2018) relationship. It is thought that the reason for the existence of relationships at different levels is related to the sociodemographic characteristics of the sample group studied (Yıldız, 2020). Adolescence is a period in which the individual experiences physical, sensory, and cognitive changes. This change can be complex and challenging for the individual. While overcoming all these, individuals with high irrational beliefs may have difficulty solving problems (Uygur, 2018). Approaching the problem with negative thoughts such as "I can't solve it" or "I can't do it" while solving a problem negatively affects the individual's problem-solving skills and makes him feel inadequate. However, since adolescence individuals are at the beginning of this period, they have difficulty thinking abstractly when solving problems and can only evaluate the event as good or bad, therefore they develop irrational beliefs. For this reason, it is very important for the individual to approach problems rationally by transforming negative thoughts and beliefs into positive ones (Uygur, 2018). In this context, school health nurses have a great responsibility.

To improve the positive mental health of adolescents, they should conduct health screenings, determine individuals' irrational belief and problem-solving skill levels, and create training programs, make plans for individual and family-oriented care, develop rational nursing skills, and cooperate with other members of the team (Kabasakal, 2019).

Limitations of the research

This research is limited to 6th, 7th, and 8th grade students in adolescence.

CONCLUSION

In this study, a moderate and negative relationship was found between irrational beliefs and problem-solving skills of adolescents. It was observed that as the irrational beliefs of adolescents increased, their problem-solving skills decreased. In addition, the irrational belief levels of adolescents were found to be high in 6th grade students, those with unemployed mothers, those with illiterate fathers, and those with university graduate mothers. However, the problem-solving skills of adolescents were found to be high in female students, those with good academic success, and those whose mothers were administrators. In this respect, the study contributes to school health nursing studies by generating data to develop positive mental health. In further studies, it is recommended that the relationship between irrational beliefs and problem-solving skills be investigated in depth in different sample groups and its effectiveness be evaluated in intervention studies.

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Conflict of Interest
There is no conflict of interest in the study.

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