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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

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Understanding Suicide: Do Social Support and Problem-solving Skills Really Matter?

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ABSTRACT

Purpose: How the perception of social support and all dimensions of problem-solving skills affect suicidal behavior in individuals with suicidal ideation or intention was evaluated.

Methods and Materials: A total of 150 individuals including 75 individuals who had attempted suicide and 75 individuals who had not attempted suicide were evaluated. Sociodemographic Data Form, Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Beck Anxiety Inventory, Beck Depression Inventory, Problem Solving Inventory (PSI), Multidimensional Perceived Social Support Scale (MPSSS) and Suicide Intent Scale (SIS) were administered to participants.

Results: The anxiety and depression scores of the suicide attempt group (SAG) were found to be higher compared to the no suicide attempt group. The total and subscale scores of the MPSSS were lower in the SAG group compared to the no suicide attempt group. Also, the SAG group felt significantly more inadequate in problem-solving compared to the non-attempters. The PSI-Approach-Avoidance scores were statistically significantly higher in individuals under 30 years of age.

Conclusion: When suicide remains an important public health issue worldwide, identifying and modifying suicide risk factors is crucial in suicide prevention efforts. In suicide prevention, the individual's relationships with their family, friends, and individuals with whom they share emotional connections should be taken into account. Increasing perceived social support and improving problem-solving skills should be included in suicide intervention programs.

Keywords: Suicide, intervention, social support, problem solving

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İntiharı Anlamak: Sosyal Destek ve Problem Çözme Becerileri Gerçekten Önemli mi?

ÖZET

Amaç: İntihar düşüncesi veya niyeti olan bireylerde sosyal destek algısının ve problem çözme becerilerinin tüm boyutlarının intihar davranışını nasıl etkilediği değerlendirilmiştir.

Yöntem ve Gereçler: İntihar girişiminde bulunan 75 kişi ve intihar girişiminde bulunmamış 75 kişi olmak üzere toplam 150 kişi değerlendirildi. Katılımcılara sosyodemografik Veri Formu, DSM-IV Eksen I Bozuklukları için Yapılandırılmış Klinik Görüşme (SCID-I), Beck Anksiyete Envanteri, Beck Depresyon Envanteri, Problem Çözme Envanteri (PÇE), Çok Boyutlu Algılanan Sosyal Destek Ölçeği (ÇBASDÖ) ve İntihar Niyeti Ölçeği (İNÖ) uygulanmıştır.

Bulgular: İntihar girişimi olan grubun anksiyete ve depresyon puanları intihar girişimi olmayan gruba göre daha yüksek bulundu. ÇBASDÖ toplam ve alt ölçek puanları intihar girişimi olmayan gruba göre, intihar girişimi olan grupta daha düşüktü. Ayrıca intihar girişimi olan grubun, girişimi olmayan gruba göre problem çözme becerisi önemli ölçüde daha yetersizdi. PÇE-Yaklaşma-Kaçınma puanları 30 yaş altı bireylerde istatistiksel olarak anlamlı derecede yüksekti.

Sonuç: İntihar dünya çapında önemli bir halk sağlığı sorunu olmaya devam ettiğinden, intihar risk faktörlerini belirlemek ve değiştirmek intiharı önleme çabalarında çok önemlidir. İntiharı önlemede kişinin ailesi, arkadaşları ve duygusal bağlarını paylaştığı kişilerle olan ilişkileri dikkate alınmalıdır. Algılanan sosyal desteğin artırılması ve problem çözme becerilerinin geliştirilmesi de intihar müdahale programlarına dahil edilmelidir.

Anahtar Sözcükler: İntihar, müdahale, sosyal destek, problem çözme

Suicide is a significant public health problem on a global scale and it is estimated 700,000 people dying by suicide each year and 10-20 times of that people attempting suicide (1). Suicide does not only affect the individual but also their family, friends, and the community they live in. Identifying the predictors and risk factors of suicide behavior is important in preventing suicide and developing intervention plans for individuals with suicidal thoughts.

The reasons for suicide, which seem to be a highly individual phenomenon, can be traced back to irregularities and fluctuations in an individual's relationship with society (2). Suicide is driven by feelings of helplessness and despair, which arise from unbearable pain, serious problems, confusion, mental breakdown, and a weakened sense of self. The dominant motive in suicide is the desire to escape from oneself, which arises when an individual's self-awareness is negative according to Baumeister. The person begins to experience depression and anxiety as a result of negative self-awareness. With a narrow focus on the present, the person experiences profound hopelessness, leading them to seek escape from their current situation by engaging in suicidal behavior (3).

Individuals who engage in suicidal behavior also exhibit inflexible cognitive characteristics and thought structures that contain some dysfunctional assumptions, which make them more susceptible to suicide. A common cognitive characteristic among individuals who exhibit suicidal behavior is cognitive rigidity, which means they lack the flexibility needed to solve problems and, as a result, become stuck and hopeless when faced with difficulties (4). Mraz and Runco, who examined the relationship between creative problem solving and suicidal thoughts, point out the importance of both creativity and flexibility in problem solving. The main starting point of the view that the lack of problem-solving skills is an important factor in explaining suicidal behavior is the cognitive rigidity of these individuals (5).

Social support includes all the concepts that make individuals feel cared for, loved, valued, and believe that they are part of a network of mutual communication and obligations. It can also be expressed as the sum of connections between individuals or groups that provide services aimed at developing adaptive competence to overcome short-term crises and life transitions, long-term difficulties, and stresses (6). Social support can reduce the risk of developing mental illness by increasing resilience and coping against the negative effects of stressful life events. Feelings of loneliness and isolation, which may arise due to insufficient social support, can be experienced by individuals who have suicidal ideation, and the difficulties they face in seeking help from those around them can also reduce their social support. However, ultimately, the loneliness, hopelessness, and isolation that a person is in will probably increase with the decrease in social support.

Problem-solving is a skill that must be learned and developed by an individual, requiring time, effort, energy, and practice, as well as creativity, intelligence, emotions, willpower, and action (7). The problem-solving process is a complex process that involves a series of cognitive, emotional, and behavioral activities that we put forth to solve problems that we may encounter throughout our lives, which create obstacles and cause stress. Insufficient social problem-solving skills have been reported to be associated with depression and suicidal behavior in children and adolescents (8). A study conducted with young adults hospitalized for suicidal behavior, which examined the effects of stress and problem-solving ability on suicidal thoughts and attempts, observed that stress was a precursor to suicidal ideation and attempts. Adolescents with low problem-solving ability who are exposed to high levels of stress have been found to have a high incidence of suicidal ideation and also attempts (9).

While the relationship between social support, problem-solving skills, and suicide has been extensively studied, our knowledge regarding which specific sub-dimensions are particularly important for suicide is limited. In our study, we aim to examine how the perception of social support and all dimensions of problem-solving skills affect suicidal behavior in individuals with suicidal ideation or intention. We believe that our study data will guide clinicians on what to consider in these two areas when developing suicide prevention and intervention plans.

MATERIALS AND METHODS

Sample

This research is a cross-sectional observational survey study. The sample consisted of individuals aged between 18-65 who presented to the emergency department or psychiatric outpatient clinic of Dr. Abdurrahman Yurtaslan Ankara Oncology Research and Training Hospital due to a suicide attempt. The sample also included individuals who presented to the hospital's psychiatric outpatient clinic but had not attempted suicide before. A total of 150 individuals were evaluated, including 75 individuals who

had attempted suicide and 75 individuals who had not attempted suicide.

Measurement Tools

Sociodemographic Data Form: This form was created by the researchers. It includes sociodemographic characteristics such as age, gender, marital status, education level, family history of psychiatric disorders, all medications used, age of onset of illness, time elapsed until diagnosis and etc.

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I): This is a structured clinical interview scale administered by the interviewer to investigate Axis I disorder diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders-IV. The scale was developed by First et al. and has been adapted into Turkish with a reliability study (10-11).

Beck Anxiety Inventory (BAI): It is a self-report inventory measures the frequency and severity of anxiety symptoms experienced by an individual (12). The validity and reliability of the scale has been established in Turkey by Ulusoy and colleagues (13), and a high total score on the scale indicates a higher level of anxiety experienced by the individual.

Beck Depression Inventory (BDI): It measures emotional, somatic, cognitive, and motivational symptoms of depression and is based on clinical observations rather than a specific theory (14). The highest possible score is 63, and an increase in score indicates a higher level of depression. The validity and reliability of the Turkish version of the inventory was established by Hisli in 1989 (15).

Problem Solving Inventory (PSI): It is a self-assessment scale that measures an individual's perception of their problem-solving skills (16). The scale has three subscales: Problem-Solving Confidence, Approach-Avoidance Style, and Personal Control. Higher total scores on the scale indicate that the individual perceives themselves as inadequate in their problem-solving skills. The Turkish adaptation of the scale was carried out by Nesrin Hisli Şahin (17).

Multidimensional Perceived Social Support Scale (MPSSS): The scale subjectively evaluates the sufficiency of social support obtained from three different sources and consists of a total of 12 items. The scale is rated on a seven-point Likert scale and contains three groups of four items, each related to the source of support: family, friends, and a significant other 18. It was validated and tested for reliability in Turkey by Eker and Arkar (19).

Suicide Intent Scale (SIS): It is a 20-item scale that assesses the patient's environmental conditions, post-attempt tendencies, and expectations during a suicide attempt (20). The first nine items primarily provide information about the facts and events related to the attempt, called "Conditions of the Suicide Attempt". The second section is a retrospective evaluation of the individual's emotions and thoughts during the attempt, called "Self-Assessment". The last 5 questions are not scored due to uncertainty in the options during the interview. The validity and reliability for the Turkish sample have been conducted by Dilbaz and colleagues (21).

Statistical Analysis

SPSS (Statistical Package for Social Sciences for Windows v.22.0, SPSS Inc. Chicago, IL) was used to analyze the data of the study. Descriptive statistics were given as mean (±) standard deviation, median (min-max) and percentage. It was planned to evaluate the dataset obtained from the research using Independent two-sample t-test, Analysis of Variance (ANOVA), and Tukey HSD and Tamhane T2 tests from multiple comparison methods, if the parametric test prerequisites for continuous variables were met. If the parametric prerequisites were not met, and assumptions were not met after data transformation, Mann-Whitney U Test, Kruskal-Wallis Test, and Dunn Test from multiple comparison methods were used in the data analysis of continuous variables when necessary. Categorical variables were analyzed using Chi-Square Test, Yates-Corrected Chi-Square Test, and Fisher's Exact Test. The statistical significance level was accepted as $p<0.05$.

RESULTS

In this study 75 people had attempted suicide while the other 75 individual had never attempted suicide. The mean age of the suicide attempt group (SAG) was 33.37±9.06 years, and the mean education duration was 9.89±3.69 years, while the participants without suicide attemption had a mean age of 33.40±8.72 years and a mean education duration of 10.84±3.24 years. There were no statistically significant differences between the SAG and no suicide attempted group in terms of age, gender, marital status, education duration, place of residence, total monthly household income, cohabiting individuals, and medical history. There was a statistically significant difference between the SAG and no suicide attempted group in terms of employment status (p:0.014). The comparative sociodemographic characteristics of the SAG and non-attempters are presented in Table 1.

Table 1: Comparison of Sociodemographic Characteristics of Suicide Attempted Group and Non Suicide Attempted Group

	Suicide attempted group (n:75)		Non suicide attempted group (n:75)		p value
	Amount	%	Amount	%	
Age Groups					
≤29 Years	26	34,7	27	36,0	0,981
30-39 Years	24	32,0	24	32,0	
≥40 Years	25	33,3	24	32,0	
Gender					
Female	58	77,3	50	66,7	0,203
Male	17	22,7	25	33,3	
Marital Status					
Married	39	52,0	40	53,3	0,441
Single	24	32,0	28	37,3	
Divorced/ Widoved	12	16,0	7	9,4	
Duration of Education (years)					
<8 Years	19	25,3	8	10,7	0,067
8 Years	15	20,0	17	22,7	
9-12 Years	19	25,3	30	40,0	
>12 Years	22	29,3	20	26,7	
Living condition					
City center	72	96,0	72	69,0	0,998
District	3	4,0	3	4,0	
Employment Status					
Unemployment	52	69,3	37	49,3	0,014*
Irregularly employed	12	16,0	12	16,0	
Regularly employed	11	14,7	26	34,7	
Persons Living Together With					
Spouse And Children	39	52,0	43	57,3	0,146
Parents	19	25,3	20	26,7	
Alone	5	6,7	9	12,0	
With a relative	9	12,0	2	2,7	
Student House or Dormitory	3	4,0	1	1,3	
History of Medical Treatment					
None	58	77,3	69	88,0	0,023*
Yes	17	22,7	6	12,0	

**:statistically significant; **:number of people*

53 people (70.7%) in the SAG group had attempted suicide once, 13 people (17.3%) twice, and the remaining 9 people (12.0%) had attempted suicide three or more times. Of these individuals, 41 (54.7%) stated that they had attempted suicide with non-psychiatric drugs, 7 (9.3%) with psychiatric medication, 54 (72.0%) had taken the same medication used by other household members, and 3 (4.0%) had purchased medication for this purpose from a pharmacy. When asked about the reasons for their suicide attempt, 37.3% (28 people) stated family problems as the primary reason, followed by abandonment at 28% (21 people) and physical violence at 13.3% (10 people). Sexual violence (2.7%) and having no specific reason (2.7%) were less frequently reported reasons for suicide attempts. 70 individuals (93.3%) stated that they had made the decision to attempt suicide suddenly.

Those in the SAG group stated that 60 individuals (80.0%) had received psychiatric treatment before, while 24 individuals (32.0%) in the no suicide attempt group had received psychiatric treatment before, and this difference was statistically significant ($p<0.001$).

The Beck Anxiety Inventory (BAI) scores of the SAG individuals who participated in the study were 31.80±12.93, while their Beck Depression Inventory (BDI) scores were 26.20±9.69. The no suicide attempt group had BAI scores of 18.64±10.56 and BDI scores of 17.80±6.70. The anxiety and depression scores of the SAG individuals were found to be statistically significantly higher compared to the no suicide attempt group ($p<0.001$ for both).

When the perceived social support of the participants was evaluated, the total and subscale scores of the Multidimensional Perceived Social Support Scale (MPSSS) were found to be significantly lower in the SAG group compared to the no suicide attempt group (SAG MPSSS total: 40.47±12.50, no suicide attempt group MPSSS total: 67.80±10.16; $p<0.001$). When the problem-solving skills of the participants were evaluated, it was found that the SAG group felt significantly more inadequate in problem-solving compared to the non attempters (SAG PSS score: 126.25±18.18, no suicide attempt group PSS score: 95.77±15.34; $p<0.001$). The participants' MPSSS and PSS total and subscale scores are presented in Table 2.

Table 2: Multidimensional Perceived Social Support Scale (MPSSS) and Problem Solving Inventory (PSI) Scores of Participants

	Suicide attempted group (n:75)	Non suicide attempted group (n:75)	p value
	Mean±SD	Mean±SD	
MPSSS- Family	14,11±5,20	22,52±3,47	<0,001†
MPSSS- Friends	14,39±5,77	22,80±3,92	<0,001†
MPSSS- A relative	11,97±6,44	22,48±4,70	<0,001†
MPSSS Total	40,47±12,50	67,80±10,16	<0,001†
	Suicide attempted group (n:75)	**Non suicide attempted group (n:75)**	**p value**
	Mean±SD	**Mean±SD**	
PSI-PSC*	39,24±8,37	29,63±7,83	<0,001†
PSI-AAS**	57,83±10,69	43,39±8,68	<0,001†
PSI-PC***	20,28±3,80	14,67±3,81	<0,001†
PSI-TOTAL	126,25±18,18	95,77±15,34	<0,001†

*†:statistically significant; *PSC: Problem-Solving Confidence; **AAS: Approach-Avoidance Style; ***PC: Personal Control; n: number of people; SD: standard deviation*

To evaluate the perceived social support, problem-solving skills, and suicidal attempt according to age groups, three groups were formed as <30 years, 30-39 years, and >40 years within the SAG. In the created age groups, the PSI -Approach-Avoidance style score and Suicide Intent Scale-Self-Evaluation scores were statistically significantly higher in individuals under 30 years of age compared to those over 40 years of age (p:0.046 and p:0.016, respectively). The BAI, BDI, MPSS, PSI and SIS scores of individuals who attempted and did not attempted suicide according to age groups, are presented in Table 3.

To evaluate the perceived social support, problem-solving skills, and suicidal attempt according to age groups, three groups were formed as <30 years, 30-39 years, and >40 years within the SAG. In the created age groups, the PSI -Approach-Avoidance style score and Suicide Intent Scale-Self-Evaluation scores were statistically significantly higher in individuals under 30 years of age compared to those over 40 years of age (p:0.046 and p:0.016, respectively). The BAI, BDI, MPSS, PSI and SIS scores of individuals who attempted and did not attempted suicide according to age groups, are presented in Table 3.

A correlation analysis was conducted to evaluate whether there was a relationship between suicide ideation and problem-solving skills, perceived social support, and sociodemographic characteristics of the individuals involved in SAG. The analysis revealed that there was no significant correlation between suicide ideation and the scores of BAS, BDS, PSI, and MPSSS (p:0.608, r:0.060; p:0.189, r:0.153; p:0.165, r:0.162; p:0.919, r: -0.012), respectively. In these individuals, there was a statistically significant negative relationship between the scores of the PSI-Approach-Avoidance subscale and their age (p:0.008, r:-0.304) and monthly total income (p:0.005, r:-0.318), between the scores of PSI-Problem Orientation subscale and their age (p:0.036, r:-0.243), and between the total scores of PSI and their age (p:0.014, r:-0.284) and monthly total income (p:0.004, r:-0.333). The correlation analysis between the suicide ideation scale, PSI, and MPSSS scores in SAG individuals is presented in Table 4.

DISCUSSION

It is possible to mention many risk factors for those who attempt or commit suicide. Psychiatric disorders come first among these risk factors. In studies, it has been reported that the risk of suicide increases in many different mental disorders such as depressive disorder, bipolar disorder, psychotic disorders, and substance use disorder (22-23). Therefore, recognizing and treating the underlying psychiatric illness is crucial in preventing suicide and intervening in suicidal behavior. As expected, in our study, it was found that the anxiety and depression scores of individuals who attempted suicide were significantly higher compared to those who did not attempt.

Table 3: Comparison of Anxiety, Depression, Problem Solving Skills, Perceived Social Support Scores and Sub-Dimensions According to Age Groups in Suicide Attempted and Non Suicide Attempted Groups

	Age Groups			p value
	<30 Years	30-39 Years	≥40 Years	
	Mean±SD	Mean±SD	Mean±SD	
Suicide Attempted Group				
Beck Anxiety Scale	33,85±14,28	30,33±12,67	31,08±11,89	0,556
Beck Depression Scale	28,15±12,56	23,75±6,75	26,52±8,44	0,405
MPSSS- Family	13,35±5,86	14,04±5,06	14,96±4,68	0,456
MPSSS- Friends	13,12±6,56	15,21±4,89	14,92±5,68	0,382
MPSSS- A relative	11,54±7,34	11,96±6,39	12,44±5,64	0,412
MPSSS Total	38,00±15,90	41,21±9,78	42,32±10,78	0,361
Problem Solving Inventory	39,92±8,27	38,92±7,66	38,84±9,38	0,879
Approach Avoidance Style	62,15±9,28[a]	56,33±12,05	54,76±9,54	0,046*
Personal Control	21,15±4,27	20,29±3,26	19,36±3,68	0,114
Problem-Solving Confidence - TOTAL	131,92±16,60	124,21±19,23	122,32±17,97	0,168
Conditions of the Suicide Attempt	7,72±3,69	6,92±3,41	6,27±3,96	0,315
Self Assesment	6,25±2,75[a]	5,80±3,39	4,12±2,94	0,016*
Suicide Intent Scale-TOTAL	13,52±6,81	13,17±5,31	10,38±6,26	0,140
	Age Groups			p value
	<30 Years	30-39 Years	≥40 Years	
	Mean±SD	Mean±SD	Mean±SD	
Non Suicide Attempted Group				
Beck Anxiety Scale	18,41±10,82	17,71±10,02	19,83±11,10	0,924
Beck Depression Scale	19,15±8,18	15,17±5,21	18,92±5,56	0,075
MPSS- Family	21,93±3,98	23,50±2,67	22,21±3,47	0,180
MPSS- Friends	22,30±3,68	23,46±4,61	22,71±3,47	0,216
MPSS- A relative	21,93±5,38	23,54±4,88	22,04±3,59	0,121
MPSS Total	66,15±10,32[b]	70,50±11,51	66,96±8,22	0,047*
PSI	29,85±6,79	31,58±9,02	27,42±7,41	0,290
Approach Avoidance Style	45,19±8,42	43,04±9,29	41,71±8,29	0,255
Personal Control	15,74±3,88	14,54±3,49	13,58±3,88	0,186
Problem-Solving Confidence - TOTAL	98,96±15,71	97,50±15,13	90,46±14,32	0,094

*MPSSS: Multidimensional Perceived Social Support Scale; *: statistically significant; a :In post-hoc pairwise comparison, a statistically significant difference was found between the ≥40 years group. b :In post-hoc pairwise comparison, a statistically significant difference was found between the 30-39 years group.*

Table 4: Correlation Analysis between Suicide Intent Scale (SIS), Problem Solving Inventory (PSI) and Multidimensional Perceived Social Support Scale (MSPSS) Scores in Suicide Attempted Group

		Suicide Intent Scale Conditions	Suicide Intent Scale Self Assesment	Suicide Intent Scale TOTAL
Age	r*	0,139	0,225	0,183
	p	0,233	0,052	0,116
Education Level (Year)	r	0,226	0,069	0,167
	p	0,051	0,557	0,152
Montly Income	r	0,144	0,138	0,162
	p	0,217	0,238	0,165
Beck Anxiety Scale	r	0,128	-0,018	0,060
	p	0,274	0,881	0,608
Beck Depression	r	0,148	0,122	0,153
	p	0,204	0,297	0,189
MPSSS-Family	r	0,001	0,025	0,016
	p	0,992	0,829	0,892
MPSSS-Friends	r	-0,061	0,019	-0,025
	p	0,600	0,871	0,830
MPSSS-A Relative	r	-0,079	0,116	0,023
	p	0,501	0,321	0,846
MPSSS-TOTAL	r	-0,074	0,045	-0,012
	p	0,529	0,704	0,919
Problem- Solving Confidence	r	-0,097	-0,115	-0,115
	p	0,406	0,325	0,326
Approach Avoidance Style	r	-0,156	-0,154	-0,151
	p	0,181	0,187	0,196
Personal Control	r	-0,038	-0,098	-0,078
	p	0,744	0,402	0,504
Problem Solving Inventroy (PSI) TOTAL	r	-0,140	-0,171	-0,162
	p	0,231	0,143	0,165

		PSI-PSC†	PSI-AAS	PSI-PC	PSI-TOTAL
Age	r	-0,147	-0,304	-0,243	-0,284
	p	0,207	**0,008**	**0,036**	**0,014**
Education Level (Year)	r	0,002	0,045	0,225	0,045
	p	0,986	0,699	0,052	0,703
Montly Income (TL)	r	-0,149	-0,318	-0,192	-0,333
	p	0,203	**0,005**	0,098	**0,004**
Beck Anxiety Scale	r	0,199	0,169	0,157	0,195
	p	0,087	0,148	0,178	0,094
Beck Depression	r	0,073	-0,074	-0,062	-0,054
	p	0,535	0,531	0,597	0,644
MPSSS-Family	r	-0,167	-0,067	-0,020	-0,126
	p	0,152	0,567	0,863	0,281
MPSSS-Friends	r	0,018	-0,110	-0,097	-0,065
	p	0,875	0,347	0,406	0,579
MPSSS-A Relative	r	-0,063	-0,127	-0,036	-0,117
	p	0,593	0,278	0,759	0,317
MPSS-TOTAL	r	-0,046	-0,126	-0,110	-0,120
	p	0,693	0,281	0,348	0,303

r: Spearman correlation coefficient; MPSSS: Multidimensional Perceived Social Support Scale; †PSI-PSC: Problem Solving Inventory - Problem-Solving Confidence; ††PSI-AA: Problem Solving Inventory – Approach Avoidance ; †††PSI-PC: Problem Solving Inventory Personal Control

In previous studies conducted to understand the reasons for suicide, it has been reported that the risk of suicide increases in individuals with high social isolation or low social integration, especially those who experience negative relationships within the family, and those who perceive low social support (23-24). In a study, it was reported that individuals in the group who attempted suicide perceived themselves as more lonely, also they were in social isolation, and experienced more economic difficulties compared to the other group (25). Even after taking confounding factors into account, Holma et al. (26) concluded that major depressive disorder and the length of partial remission, along with previous suicide attempts and insufficient perceived social support, were significant predictors of suicide attempts. Similarly, in our study, it was found that the perceived social support of those who attempted suicide was significantly lower compared to those who did not. A person who is deprived of social support and perceives their surroundings as unloving and rejecting may be driven to suicidal behavior by psychologic, individual, and societal forces, that mostly based on an unconscious level, and making it easier for them to detach from life and engage in self-destructive actions. Our study found that all three aspects of social support were affected. In a study conducted with 283 individuals aged between 15-25 to evaluate suicide risk factors, it was found that the family dimension of social support is especially important in reducing suicide risk (27). Having someone in one's family who can provide emotional support, being able to talk about their problems, sharing their joy and sorrow, and feeling that their feelings are valued can be protective against suicide risk.

Individuals who struggle and engage in suicidal behavior have insufficient functional problem-solving skill. In a study conducted with patients who have attempted suicide and those who have not, as well as a control group, it was reported that problem-solving skills predicted suicide risk at different levels, especially among those who had attempted suicide in the past (29). Redley et al. found that individuals who frequently attempt suicide and engage in self-harm behavior have deficiencies in problem-solving abilities (29). In our study, it was also found that the problem-solving skills of individuals who attempted suicide were insufficient compared to those who did not. In a study with individuals aged between 13 and 62, it was found that problem solving skills were lower in the 13-24 age group with high suicidal risk (30). In our study, it was found that problem solving skills were less developed in the younger age group of the individuals who attempted suicide. In addition, it was determined that high monthly

income, being married, and being employed have positive effects on problem solving skills. In some suicidal actions, individuals with lower problem-solving skills may carry out the suicidal act as a call for help and a means of communication to interact with their environment, expressing their pain and hopelessness to those around them. In these suicidal actions, the primary goal may not be death and loss of consciousness, but rather a way to express problems to others. Based on these data and literature knowledge, it can be said that problem solving should not be considered as a natural born characteristic in suicide prevention and treatment interventions, and that this skill can be learned. It may be important to develop problem solving skills in high-risk individuals through interventions.

Our study should be considered with some limitations. Individuals were evaluated cross-sectionally in our study, and it was not possible to determine whether there was a difference in the change in risk factors between those who did not attempt suicide and those who did in terms of suicide development. The possible impact of risk factors on suicide attempts can be better evaluated with longitudinal follow-up studies. Secondly, the sample size of the study is limited to enable generalization of the data to suicide attempted individuals. Larger sample size studies are needed to investigate the possible relationship between problem-solving skills and perceived social support with suicidal intention. Additionally, individual characteristics such as personality traits, intelligence, and past traumatic life experiences, which may have an impact on individuals' problem-solving skills, were not evaluated in our study. These variables may also have a relationship with both suicide and factors that may affect suicide.

CONCLUSION

Suicide actions are not situations where a single factor, event, emotion or mental disorder is responsible. In suicide prevention or intervention plans, the individual's relationships with their family, friends, and individuals with whom they share emotional connections should be taken into account. Increasing perceived social support and improving problem-solving skills should be included in intervention plans. At a time when suicide remains an important public health issue worldwide, identifying and modifying suicide ideation, intention, attempt, or completed suicide risk factors is crucial in suicide prevention efforts.

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Conflict of interest

The authors declare that they have no competing interests.

Ethical approval

This study was approved by the Clinical Research Ethics Committee of Dr. Abdurrahman Yurtaslan Ankara Oncology Research and Training Hospital (approval number: 2014-12/134). Written and verbal informed consents were obtained for each participant.

Author contributions

S.A., C.O.Y., A.C.K. and A.Ç. conceived and designed the study. S.A. and A.Ç. collected the data. S.A. contributed the data. S.A. , C.O.Y. and A.C.K. performed the analysis and wrote the paper. A.C.K. and A.Ç. reviewed critically the paper. All authors read and approved the final manuscript.

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