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Analyzing the psychosocial and sociodemographic features of adolescents attempting suicide

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Abstract

Determinants related to suicide attempts for adolescents have been the subject of several studies. Here, we aimed to reveal the factors that constitute the idea of suicide by examining the depression-anxiety status and self-concept of adolescents, as well as their socio-demographic characteristics. A total of 100 adolescents between the ages of 12 and 18 who were admitted to İzmir Tepecik Teaching and Research Hospital between January 2013 and December 2015 due to a suicide attempt were included in the study. In addition to the questionnaire containing socio-demographic information and familial characteristics, the Beck depression scale, the state and trait anxiety inventory, and the Piers-Harris self-concept scale were filled out by the adolescents. Compared with the control group, adolescent suicide attempters report a greater rate of smoking and alcohol use, having a broken family, a suicide attempt history, and a family history of psychiatric disorders. In addition, higher levels of depression and anxiety and lower levels of self-concept were detected among the suicidal adolescents. The study results show that suicidal adolescents who have high levels of depression and anxiety, as well as low self-concept, may lead the adolescent to suicide attempts by reducing their capacity to cope with problems.

Keywords: adolescent depression, anxiety, self-concept, suicide attempt

1. Introduction

Adolescence is the transition period from childhood to adulthood, during which biological, psychological, mental, and social development and maturation occur (1). During this period, some adolescents experience difficulties and conflicts specific to this period due to reasons such as acceleration of cognitive development along with the identity formation process, an increase in impulsive needs and emotional intensity, recognition of preoedipal and oedipal conflicts, career choice, relationships with the opposite sex, separation from parents, and experiencing the individualization process (2).

Adolescents may adopt risky behaviors for many different reasons, such as adapting to their environment, proving themselves, and providing a special lifestyle for themselves. Suicide attempts are also among the risky behaviors (3).

Studies indicate that the primary triggers and causes of adolescents' suicide attempts encompass familial issues, parental authority dynamics, feelings of being unloved or unwanted, challenges related to the opposite sex such as rejection or estrangement, communication difficulties across various spheres (family, peers, school), feelings of loneliness, absence of siblings, genetic predispositions (particularly in mood disorders), and the influence of alcohol and substance abuse (4-6). In addition, physical health disorders, sexual, physical, and emotional abuse, violent behavior, searches for sexual identity, rape, pregnancy out of wedlock, hopelessness, loneliness, aggression, anger, asocial behavior, poor emotional control, perfectionism, excessive emotionality or inability to control emotions, lack of control in classes can lead to suicidal thoughts. It has been observed that threatening problems such as anxiety, test anxiety, failure, suicide or suicide attempts by a family member or friend, and depressive mood disorders have an impact on suicidal ideation, suicide attempts, and suicidal behavior (4-10).

'The self-concept is characterized as a collection of opinions about themselves derived from self-evaluation and input from other people. It is regarded as the primary factor that molds personality and is a measure of personal fulfillment and well-being (11). It has buffering effects on the impact of

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depression on suicide ideation in adolescents. That is, in the face of depression, a positive self-concept, together with a family environment with strong emotional connectedness, commitment, help, and support from family members, can alleviate the risk of thinking about committing suicide or at least expressing suicidal thoughts (12).

It is reported that the lifetime prevalence of suicide attempts in adolescents is between 3.5% and 11% (13). It is seen that 77.8% of adolescents who attempt suicide have a psychiatric disorder, and in the literature, this rate varies between 80 and 90% (4). Genetic factors are especially important in mood disorders (14). The suicide attempt rate in family members of adolescents who attempted suicide is 22%, and in their mothers, it is 50% (4).

This study aims to reveal some particular socio-demographic characteristics, depression, anxiety, and self-concept levels that may be associated with adolescent suicide attempts.

2. Materials and methods

2.1. Study Procedure

Adolescents between the ages of 12 and 18 who were admitted to the Pediatric Emergency Department of Tepecik Teaching and Research Hospital between January 2013 and December 2015 due to suicide attempts were included as the study group, and 70 adolescents of the same age group who were admitted to the pediatric outpatient clinics due to an upper respiratory tract infection, did not have any chronic illness and accepted to join the study were considered as a control group. During hospitalization, participants filled out a form containing socio-demographic and sociocultural information, as well as a form containing the Piers-Harris self-concept scale (15), state-trait anxiety inventory (16), and Beck depression scale (17). During the study period, 11 out of the 113 patients who presented with suicide attempts declined to participate, and two of them were excluded due to incomplete information. In the end, a hundred cases of suicide attempts were included in the study.

All voluntary adolescents with a suicide attempt were hospitalized and filled out the forms in their hospital rooms.

2.2. Data collection instruments

Sociodemographic form- A questionnaire containing socio-demographic information was applied to the adolescents in the study. Age, gender, school success (previous semester's grade point average), absenteeism, peer problems, having a romantic relationship, smoking, alcohol use, age, education level, profession, and smoking alcohol use of the parents, having a broken family, presence of domestic violence, household income level, family history of psychiatric diseases, family history of suicide attempts, and previous suicide attempts of the adolescents were questioned in the form. Also, the suicidal adolescents stated the stressors that may cause suicide attempts in their lives.

Beck depression scale- This scale is a multiple-choice, 20-question instrument used to measure the severity of depression (17). In addition to emotional symptoms such as hopelessness and guilt, physical symptoms such as fatigue and weight loss are also examined in the questions. On the emotion subscale, pessimism, past failures and mistakes, feelings of guilt, feelings of punishment, self-dislike, self-criticism, self-thoughts, and feelings of worthlessness are examined. On the somatic subscale, sadness, loss of pleasure, crying, agitation, apathy, indecision, loss of energy, changes in sleep patterns, irritability, changes in appetite, concentration difficulties, and fatigue are examined. The scores corresponding to the answers given in the 20 questions on the scale are (0/ 1/ 2/ 3/ 4) collected and recorded, and those who score between 10 and 16 are considered to have mild depressive symptoms, those who score between 17 and 29 have moderate depressive symptoms, and those who score between 30-63 have severe depressive symptoms. The validity and reliability of the scale in our language were determined by N. Hisli in 1989. The 'Cronbach's alpha value of the scale is 0.80 (18).

State-trait anxiety- State anxiety is the subjective fear that an individual feels due to the stressful situation they are in (16). Anxiety involving continuity, on the other hand, is the predisposition of an individual to a life of anxiety. Each scale consists of 20 items and can typically be completed within an average of 10 minutes. The total score value obtained from both scales varies between 20 and 80. A large score indicates a high level of anxiety, while a small score indicates a low level of anxiety. The average score level varies between 36 and 41. Validity and reliability in our language were determined by Öner N. The Cronbach's α internal consistency ratios have been found to be 0.96 and 0.90 for the state anxiety subscale and the continuous anxiety subscale, respectively (19).

The Piers-Harris self-concept scale- The Piers-Harris self-concept scale is an 80-item inventory requiring individual information to self-evaluate (15). The materials used are the questionnaire, response form, and answer key. There is an explanatory instruction at the beginning of the questionnaire. It takes about 20 minutes. Scoring is done using the answer key. Since there are 80 items on the scale, the obtained self-concept raw score varies between 0 and 80. Practices have generally shown that raw scores are between 25 and 75. Low scores indicate that the individual's self-concept (self-worth) is low or negative. High scores (especially very high ones) indicate that individuals have a high or positive self-concept. The validity and reliability of the inventory were determined by Öner N. Cronbach's of the Inventory α internal consistency ratio is 0.78 (20).

2.3. Statistical analysis

SPSS 18.0 (SPSS Inc., Chicago, IL, USA) statistical program was used to evaluate the obtained data. For numerical variables, mean ± standard deviation (SD) was given for those with a normal distribution, median (minimum-maximum) for those with an abnormal distribution, and categorical variables

were presented as numbers and percentages (%). Chi-square, Fisher's exact test, Student's t, and Mann-Whitney U tests were used to compare the data. In the final step, an additional binary regression analysis was performed on gender, peer problems, having a romantic relationship, smoking status, maternal smoking, parental marital status, household income, psychiatric disorders of the family, score of anxiety, depression, and self-concept.

3. Results

The average age of the adolescents with suicide attempts included in the study was 14.9±1.3, while the male/female ratio was 10/90. The average age of the cases in the control group was 15.4±1.4, while the male/female ratio was 25/45. The socio-demographic characteristics of the groups are given in Table 1.

Table 1. Socio-demographic characteristics of each group

N	Study group	Control group
Absenteeism [(mean ± SD) days]	5.1±6.6	4.51±6.97
Peer problems [n (%)]	17 (17)	4 (5.7)
Having a romantic relationship [n (%)]	47 (47)	28 (40)
Smoking [n (%)]	36 (36)	7 (10)
Alcohol use [n (%)]	12 (12)	1 (1.4)
Drug use [n (%)]	1 (1)	0 (0)

SD: standard deviation

There was no significant difference between the groups in terms of duration of school absenteeism, peer problems, or having a romantic relationship. Drug use was found to be higher in the suicide attempt group. While there was no difference between the cases with suicide attempts and the control group in terms of educational status and failing grades, a significant difference was detected in terms of school success (Table 2).

Table 2. Comparison of groups in terms of socio-demographic characteristics

		Study group n (%)	Control group n (%)	P value
Gender	Female	90 (66.7)	45 (33.3)	**<0.001**
	Male	10 (28.6)	25 (71.4)	
Education level	Literate	1 (50.0)	1 (50.0)	0.084
	Primary education 5	4 (80.0)	1 (20.0)	
	Primary education 8	31 (73.8)	11 (26.2)	
	High school	64 (52.9)	57 (41.2)	
School grades	Very good (85-100)	4 (80.0)	1 (20.0)	**<0.001**
	Good (70-84)	17 (100.0)	0 (0.0)	
	Moderate (55-69)	40 (78.4)	11 (21.6)	
	Poor (45-54)	26 (44.1)	33 (55.9)	
	Very poor (0-44)	13 (34.2)	25 (65.8)	
Class repetition	No	83 (56.5)	64 (43.5)	0.150
	Yes	17 (73.9)	6 (26.1)	
Absenteeism [(mean ± SD) days]		5,1±6,6	4.51±6.97	0.592
Peer problems [n (%)]	Yes	17 (17)	4 (5.7)	**0.033**
	No	83 (83)	66 (94.2)	
Having a romantic relationship [n (%)]	Yes	47 (47)	28 (40)	0.119
	No	53 (53)	42 (60)	
Cigarette	No	64 (50.4)	63 (49.6)	**<0.001**
	Yes	36 (83.7)	7 (16.3)	
Alcohol	No	88 (56.1)	69 (43.9)	**0.011**
	Yes	12 (92.3)	1 (7.7)	
Drugs	No	99 (58.6)	70 (41.4)	0.401
	Yes	1 (100.0)	0 (0.0)	
Mother-cigarette	No	44 (44.9)	54 (55.1)	**<0.001**
	Yes	56 (77.8)	16 (22.2)	
Father-cigarette	No	38 (55.1)	31 (44.9)	0.427
	Yes	62 (62.0)	38 (38.0)	
Mother-alcohol	No	97 (58.8)	68 (41.2)	0.957
	Yes	3 (60.0)	2 (40.0)	
Father-alcohol	No	77 (57.0)	58 (43.0)	0.330
	Yes	23 (67.6)	11 (32.4)	
Household income	<750 TL	16 (72.7)	6 (27.3)	**0.001**
	750-1500 TL	60 (69.0)	27 (31.0)	
	1500-3000 TL	22 (44.0)	28 (56.0)	
	>3000 TL	2 (18.2)	9 (81.8)	
Having a broken family		25 (83.3)	5 (16.7)	**0.011**
Domestic violence	No	91 (56.5)	70 (43.5)	**0.010**
	Yes	9 (100.0)	0 (0.0)	
Family history of psychiatric disorders	No	79 (54.9)	65 (45.1)	**0.013**
	Yes	21 (80.8)	5 (19.2)	
Family history of suicide attempt	No	99 (58.6)	70 (41.4)	0.401
	Yes	1 (100.0)	0 (0.0)	

While a significant difference was found when the two groups were compared in terms of maternal smoking, no difference was observed in terms of maternal alcohol use. There was no difference between the groups in terms of the father's smoking and alcohol use. There was no significant difference between the two groups regarding the number of siblings (p = 0.245), the number of people living at home (p = 0.341), and the education level and occupation of the mother and father.

There was a significant difference in terms of household income level (Table 2). When the two groups were compared, significant differences were detected in terms of the rate of broken (divorced parents) families (p = 0.036). The results of the Beck depression scale, the state and trait anxiety inventory, and the Piers-Harris self-concept scale filled out by the adolescents are shown in table 3.

Table 3. Comparison of depression, anxiety and self-concept scales

		Study group	Control group	P value
Beck depression inventory n (%)	No depression	12 (22.6)	41 (77.4)	**<0.001**
	Mild depression	19 (55.8)	15 (44.2)	
	Moderate depression	33 (73.3)	12 (26.7)	
	Severe depression	36 (94.7)	2 (5.3)	
State anxiety inventory scores (mean ± SD)		42.0±5.8	34.2±6.9	**<0.001***
Trait anxiety inventory scores (mean ± SD)		39.5±6.4	34.7±7.0	**<0.001***
Self-concept scale scores (mean ± SD)		42.2±9.0	59.8±8.5	**<0.001***

*Student t- test, SD: standard deviation

There was a significant difference between the two groups in terms of family history of psychiatric disease (p = 0.013). In the control group, no family history of suicide attempts was detected. In the suicide attempt group, nine adolescents (9%) had a history of suicide attempts before.

When the reasons that made adolescents think of the suicide attempt were questioned, thirty-seven adolescents (37%) cited familial (parental) problems, two adolescents (2%) cited anger at a friend, six adolescents (6%) cited school problems, and 44 adolescents (44%) cited problems in romantic relationships as the reason. It was determined that six adolescents (6%) stated other reasons (depression, etc.), and five adolescents (5%) did not specify a reason.

It was determined that 100 adolescents (100%) included in the study who had attempted suicide were discharged physically healthy under psychiatric control.

Regarding the results of the binary logistic regression analysis, maternal smoking and all levels of adolescent depression have increased the risk of adolescent suicide attempts. At the same time, higher scores on the self-concept scale have decreased the risk of adolescent suicide attempts (Table 4).

Table 4. Binary logistic regression analysis of factors influencing suicide attempt

	β	*S.E.*	Wald Statistics	*p*	OR	95% CI	
						Lower	Upper
Constant	0.005	0.452	0.001	0.991	1.005		
Maternal smoking	1.815	0.559	10.557	**0.001**	**6.144**	2.055	18.368
Depression							
Mild	1.305	0.728	3.215	0.073	3.688	0.886	15.353
Moderate	1.490	0.704	4.480	**0.034**	**4.439**	1.117	17.645
Severe	2.495	0.989	6.367	**0.012**	**12.121**	1.745	84.166
Self-concept scale scores	-0.179	0.033	28.867	**<0.001**	**0.836**	0.783	0.893

Variables entered on step 1: gender, problems with school friends, romantic relationship, smoking, maternal smoking, family status, household income, psychiatric disorders of family, depression scores, anxiety scale scores, self-concept scores. OR: Odds ratio, CI: Confidence interval. Model Summary: Hosmer and Lemeshov Test $\chi 2=2.004$; p=0.981; Nagelkerke R2=0.514

4. Discussion

Research findings revealed that adolescents who attempted suicide had a higher smoking status, alcohol consumption, belonging to a broken family, a suicide history, and parental psychiatric disorders. In addition, higher depression and a lower self-concept were detected in the suicide group. The regression analysis results showed a significant risk for adolescent suicide due to having a smoking mother, all levels of depression, and a low self-concept.

In our study, cases of suicide attempts were detected mostly in the middle adolescence period. In the separation-individuation process observed in middle adolescence, the family's overreaction or overprotection of the adolescent prolongs the process, and the adolescent may experience over-reactivity, depression, anxiety, externalizing behaviors, and a decrease in the sense of social competence due to authority conflict (21-23).

In this study, a significantly higher rate of female cases was detected in the suicide attempt group. Lots of studies show that, unlike completed suicides, suicide attempts that do not result in death are more common in girls (24). In our study, we did not detect any completed suicides. Since males are more likely

to attempt - suicide by using more lethal techniques, the rate of female suicide attempts with drug intake is found to be higher, like in our study (25-26).

All suicidal adolescents included in the study attempted suicide by taking drugs. It has been reported in the literature that the most common method of suicide attempt among adolescents is conscious excessive drug intake (27,28). The most important reasons why excessive drug intake is a widely used method are that it is easily attainable and feasible, and it is especially preferred in suicide attempts that do not result in death (29,30).

Academic scores were significantly higher in the suicide group. However, while there were six people (8.6%) in the control group who failed the class at least once, there were 17 people (17%) in the group who made suicide attempts. This issue can be about self-reporting of academic grades. Other possible reasons for this surprising finding may be variables affecting academic performance, such as temperament, character, or family factors, which we did not evaluate in this study (31). It is also known that depression is more common in people with perfectionism, which can be another reason for the higher academic performance of suicidal adolescents (32).

Substance abuse, violent and deviant behaviors, disordered eating, internalizing and depressed symptomology, as well as suicidal thoughts and actions, have all been linked to bad peer influence (33-35).

All of the suicidal adolescents who reported that romantic relationship inauthenticity was the reason for their suicide were female in our study. Feelings of shame, worthlessness, and insignificance are brought on by emotional connection instability and raise the risk of suicidal thoughts (28, 36, 37).

In our study, attempting suicide was found to be related to the use of tobacco and alcohol. These relationships have been previously studied, and it is possible that teens perceive these risky behaviors as a way to cope with or release stressors from their everyday lives or that using alcohol or tobacco is a symptom of a family or emotional issue that raises the likelihood of attempting suicide (38).

The mother's smoking rate was higher in the suicide attempt group. Maternal depressive symptoms are a significant predictor of mother-adolescent agreement about family cohesion (39). The higher perception of stress in mothers was related to higher stress perception, depressed mood, and suicidal ideation in adolescents (40).

Having a broken family and experiencing domestic violence were found to be significantly higher in the group with suicide attempts. Suicide attempts may be related to adolescent parent disagreements about family functioning (41-43). Emphasizing the significance of family in its diverse forms, this phase encapsulates the most intense and profound emotions experienced by humans. The context allows for the coexistence of hate and love, happiness and grief, and hopelessness and despair (44).

A family history of suicide attempts could not be evaluated statistically because it was detected only in one adolescent in the suicide attempt group. However, some studies argue that the presence of suicide attempts in the family genetically affects the adolescent (4, 14, 24). In a study examining suicide attempts in adolescence, researchers found that the presence of psychopathology in the family, a history of suicide or disharmony in the family, the loss of one of the parents, divorce, and parent-child disagreements may be risk factors for suicide attempts in adolescents (45).

In our study, the levels of depression and anxiety were higher, and self-concept was significantly lower in the group with suicide attempts. Protective variables are aspects of an individual's personality (like self-worth and self-concept) or their surroundings (such as their friendships, family, and support system) that help young people cope with difficult circumstances and remain strong (46). The subject's perception of themselves is referred to as their self-concept. It is significant in teenagers because it shows that the person has an appropriate level of physical, cognitive, behavioral, affective, and social integration (47). It has to do with how each person interprets the world (48), and it is also impacted by connections with others, societal norms, and values (11). There is a strong correlation between self-concept and satisfaction (49,50).

This study has several limitations. First, the answers were obtained based on self-reported questionnaires, which may be subject to bias. Second, the cross-sectional nature of the study prevented us from detecting cause-and-effect relationships between the variables. Third, the questionnaires do not have diagnostic values. Lastly, this hospital-based study included adolescents from a neighborhood with low socioeconomic status, limiting generalizability to diverse groups of adolescents. However, the value of the validated instruments that were performed in the study has given important scientific details about adolescent suicide. In addition, the questionnaires were performed anonymously, which provided us with sincere answers about suicidal adolescents.

In addition to socio-demographic characteristics and psychiatric diseases, low self-concept was found to be related to suicidal attempts. In the treatment and prevention approaches to suicide attempts, the adolescent's current psychiatric disorder should be evaluated, as well as increasing their self-concept. Programs based on evidence that emphasize improving adolescents' self-concept may help prevent suicide attempts.

Conflict of interest
All the authors declare no competing interests.

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Authors' contributions

Concept: G.A., K.E., M.H., Design: G.A., K.E., M.H., Data Collection or Processing: G.A., A.K., N.B., Analysis or Interpretation: G.A., K.E., T.İ., M.H., Literature Search: G.A., A.K., K.E., T.İ., Writing: G.A., A.K., K.E., T.İ.

Ethical Statement

Ethics committee approval was received for this study from the ethics committee of İzmir Tepecik Training and Research Hospital (30 June 2015, No:6).

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