Investigation of Social, Emotional, and Cognitive Factors with Effect on Suicidal Behaviour in Adolescents with Depression

Depresyonu Olan Ergenlerde İntihar Davranışını Etkileyen Sosyal, Emosyonel ve Kognitif Faktörlerin Araştırılması

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ABSTRACT

Introduction: Our study aimed at investigating social, emotional, and cognitive factors playing a role in the development of suicidal ideation in depressed adolescents and its turning into a suicide attempt.

Method: Sixty-three adolescents (48 female, 15 male) aged 12 to 18 years were included in the study. In face-to-face interviews, suicide ideation, suicide plans, and previous suicide attempts were evaluated, sociodemographic data were collected. Additionally, the Children's Depression Inventory, State-Trait Anxiety Inventory (STAI-I, II), Beck Hopelessness Scale, Coopersmith Self-Esteem Inventory, Multidimensional Scale of Perceived Social Support, Strengths and the Difficulties Questionnaire (SDQ) parent forms were applied. SPSS version 13.0 for Windows was used for statistical analysis.

Results: It has been established that in the last six months, 71.4% of cases (n=45) had suicidal ideation and 27% (n=17) attempted suicide. Factors associated with suicidal ideation in depressed adolescents were: high depression and anxiety levels, hopelessness and low self-esteem (p<0.05). Factors associated with suicide attempts were: separated family background, lower perceived family support and high rates of conduct difficulties (p<0.05). Patients with suicide attempt differed from patients with suicidal ideation but without suicide attempt in lower perceived family support only (p<0.05).

Discussion: It is thought that keeping in mind the factors associated with the development of suicidal ideation and its turning into a suicide attempt, will help clinicians in preventing suicide attempts in depressed adolescents. (*Archives of Neuropsychiatry* 2013; 50: 352-359)

Key words: Suicidal ideation, suicide attempt, major depressive disorder, adolescent, child psychiatry

Conflict of interest: The authors reported no conflict of interest related to this article.

ÖZET

Giriş: Çalışmamızda Major Depresif Bozukluğu olan ergenlerde intihar düşüncesinin gelişmesinde ve intihar girişimine dönüşmesinde rol oynayan sosyal, bilişsel ve emosyonel etkenlerin araştırılması amaçlanmıştır.

Yöntem: Çalışmaya major depresif bozukluk tanısı alan 12-18 yaş arası 63 ergen (48 kız, 15 erkek) hasta dahil edilmiştir. Hastalar ile yüz yüze görüşülmüş, hastaların intihar düşünceleri, intihar planları, geçmiş intihar girişimleri, sosyo-demografik değişkenler değerlendirilmiştir. Çocuklar İçin Depresyon Ölçeği, Durumluluk-Süreklilik Kaygı Envanteri (STAI-I, STAI-II), Beck Umutsuzluk Ölçeği, Coopersmith Benlik Saygısı Ölçeği, Çok Boyutlu Algılanan Sosyal Destek Ölçeği, Güçler ve Güçlükler Anketi Anne-Baba Formu uygulanmıştır. Çalışmanın istatistiksel analizinde SPSS for Windows 13.0 paket programı kullanılmıştır.

Bulgular: Olguların son 6 ay içerisinde %71,4'ünde (n=45) intihar düşüncesinin olduğu ve %27'sinin (n=17) intihar girişiminde bulunduğu saptanmıştır. Depresyonu olan ergenlerde intihar düşüncesi ile ilişkili etkenler: yüksek depresyon ve anksiyete düzeyleri, umutsuzluk, düşük benlik saygısı olarak saptanmıştır (p<0,05). İntihar girişimi ile ilişkili etkenler ise: dağılmış aileden gelme, yetersiz algılanan aile desteği ve yüksek oranda davranışsal sorunların varlığı olarak saptanmıştır (p<0,05). İntihar girişimi olan hastalarda, intihar düşüncesi olup girişimi olmayan hastalara göre saptanan tek fark; algılanan aile desteğinin daha düşük olması olmuştur (p<0,05).

Sonuç: İntihar düşüncesinin gelişmesi ve bu düşüncenin intihar girişimine dönüşmesi ile ilgili etkenlerin dikkate alınmasının, majör depresif bozukluğu olan ergenlerin intihar girişimlerini önlemede klinisyenlere yardımcı olacağı düşünülmektedir. (*Nöropsikiyatri Arşivi* 2013; 50: 352-359)

Anahtar kelimeler: İntihar düşüncesi, intihar girişimi, majör depresif bozukluk, ergen

Çıkar çatışması: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemişlerdir.

Introduction

Major Depressive Disorder (MDD) is a disorder which is observed considerably frequently in adolescents, leads to marked

distress and dysfunction, has a tendency to chronicity and recurrence and which can cause to serious outcomes including suicide attempt and substance abuse (1). In the childhood and adolescence, MDD is characterized with a chronic and extensive

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sorrow, anhedonia, distress or irritability, decreased interest in enjoyable activities and ordinary activities including communication with other people (2).

Epidemiological studies show that there is a strong relation between depression and suicide behavior both in adults and adolescents. It has been reported that depression increases the risk of suicide 3.5-4.5-fold compared to other psychiatric disorders and 22-36-fold compared to the general population in studies conducted with adults (3). Although the rates of non-fatal suicide attempt in patients with depression are not known exactly, it is estimated that this rate is 40% in the first episode of depression. It is observed that 25% of these patients repeat suicide attempt in the following one year. The prevalence of suicide ideation in adults with depression has been reported to range between 47% and 69% (4).

The results are also similar in studies conducted with adolescents. Studies have shown that both suicide attempt and suicidal ideation are observed commonly in adolescents with depression. In a study performed, suicide ideation was found in 60-70% of adolescents with depression and suicide attempt was found in 13%-39% (5). In a follow-up study performed by Barbe et al., it was shown that suicide ideation developed in the subsequent periods in 85% of children with depression, 32% attempted suicide in the adolescence and young adulthood, 20% had more than one suicide attempts and 2.5%-7% lost their lives with suicide in the young adulthood (6).

Although MDD is the most important risk factor for suicidal behavior, suicide ideation is found only in a portion of adolescents with depression and only a portion attempt suicide. The fact that only a portion of the individuals with depression display suicidal behavior directed clinicians to investigate the risk factors related with suicidal behavior in depression. In studies conducted with adolescents with depression, socio-demographic risk factors for suicidal behavior were found to include female gender, low socioeconomic level, familial problems, separated family, presence of psychopathology in the parents, low education level, school absenteeism/inability to work at a job regularly, exposure to intra-familial physical abuse and a previous history of suicide attempt in the patients of family (7,8,9). It has been reported that behavioral disorder, substance abuse, aggressive/impulsive personality characteristics, hopelessness, low self-respect, high level of anxiety and hostility are important risk factors (5,6,10,11,12).

When the literature is examined, it can be observed that many studies conducted with adolescents displaying suicide behavior included also individuals with other psychiatric disorders other than depressive disorder. There are a small number of studies investigating the risk factors for suicidal behavior in adolescents with depression and the risk factors for suicide attempt have been investigated in these studies. However, it is known that suicidal tendency has different appearances in individuals with depression. While a part of the patients never think about suicide, some think about suicide, but do not go into action. Some patients display suicide attempt. Therefore, our study aimed to investigate the risk factors for different appearances of suicidal tendency including suicidal ideation and suicide attempt separately in patients with MDD unlike present studies.

Method

The study patients were selected among the patients who presented consecutively to Uludağ University Medical Faculty Child Psychiatry outpatient clinic for the first time and in whom treatment was not initiated. After approval related with the study was obtained from the ethics committee, the patients who were thought to have MDD at the first evaluation among the patients who presented to the outpatient clinic were clinically interviewed by the first investigator in detail. As a result of DSM-IV-based clinical interview with both the patient and the parents which lasted at least 40 minutes, the patients who were diagnosed with MDD were included in the study after they were informed about the study and informed consent was obtained. The scales were filled in approximately 40 minutes after this second interview with the accompaniment of the second investigator. Clinical evaluation of 8 patients who were hospitalized in the clinic after assessment in the outpatient clinic was performed on the day of hospitalization or the following day.

Sixty-three patients between the ages of 12 and 18 years were accepted for the study. These subjects were composed of the patients who were diagnosed with MDD according to DSM-IV diagnostic criteria and scores at least 19 in the Children's Depression Inventory, who had a cognitive level to understand the scales and instructions which would be used in the study and who gave consent for participation in the study and whose guardians gave consent. Four patients were excluded from the study, since they scored below 19 in the Children's Depression Inventory, though they were diagnosed with MDD on DSM-IV-based clinical assessment. No patient refused to participate in the study.

Forms and Scales Used in the Study

Personal Information Form: With this form which was developed for this study by the investigators who conducted the study the sociodemographic properties, education information, family properties, parental education levels and presence of smoking and alcohol and substance abuse in the subjects included in the study were interrogated.

Suicidal Behaviour Assessment Form: This form was developed for this study by the investigators who conducted the study to evaluate suicidal ideation and suicide attempt. In this form, the severity of suicidal behavior was assessed between 0 and 5 with a Likert type scale. (0=None, 1=only being bored of life, 2=will to die, 3=suicide ideation, 4=suicide plan, 5=suicide attempt). In addition, this form also interrogated the number of suicide attempts and the methods of suicide attempts in order.

The Children's Depression Inventory-CDI: This scale is a scale which was developed by Kovacs in 1981 to detect depression in children and which is used in childhood depression (13). Its Turkish validity and reliability study was performed by Öy in 1991(14). The Children's Depression Inventory can be applied to children aged between 6 and 17 years. This scale which is composed of a total of 27 items is filled in by reading it to the child and by making the child read it. The highest score which can be obtained from the scale is 54. Nineteen has been recommended as the cut-off score.

The State-Trait Anxiety Inventory, STAI-I, STAI-II: This inventory was developed by Spielberger et al. in 1970 to measure state-trait anxiety levels (15). Its Turkish validity and reliability study was

performed by Öner and Le Compte in 1985 (16). Although it has been recommended to be used in individuals aged 14 years and above, it has been reported that it can be used for individuals who have a literacy level of secondary school (17). The total score which can be obtained from both scales ranges between 20 and 80 and the cut-off score is 45. A high score means that the level of anxiety is increased.

The Beck Hopelessness Scale Beck (BHS): The Beck Hopelessness Scale was developed by Beck et al. to quantitatively evaluate the degree of hope related with the future (18). Its Turkish validity and reliability study was performed by Seber and Durak (19,20). It is a 20-item scale which can be applied to adolescents and adults and which can be answered by the subjects themselves. The scores which can be obtained from the scale ranges between 0 and 20 and a high score shows that the level of hopelessness is high. The scale has no cut-off point.

The Coopersmith Self-Esteem Inventory (CSEI): The Coopersmith Self-Esteem Inventory is a measurement tool which was developed in 1967 by Stanley Coopersmith to evaluate the individual's attitude about himself/herself in different areas. The validity and reliability study of the short form of CSEI composed of 25 items was performed in high-school students in 1992 by Aksoy and in 1997 by Pişkin (21,22). A high score obtained from this inventory means that the individual's self-esteem is increased.

The Multidimensional Scale of Perceived Social Support (MSPSS): This is a short and easily applicable which subjectively evaluates the adequacy of social support obtained from three different sources. The recommended subscale structure includes the support given by a family member, friend and a person who has special value for the individual. The total score of the scale is obtained by adding the scores of all subscales. A high score means that perceived social support is high (23). Its validity and reliability study for the 12-22 year-age group for our country was performed by Çakır and Palabıyıkoglu (24).

The Strength and Difficulties Questionnaire-Parent Form (SDQ): The Strength and Difficulties Questionnaire (SDQ) was developed by Robert Goodman in 1997 (25,26,27). Its validity and reliability study was performed by Güvenir et al. (28). The validity and reliability study of its parent form was conducted with 250 parents who had children aged between 4 and 18 years. 25 questions included in the study are collected under 5 subtitles including attention deficit and hyperactivity, behavioral problems, emotional problems, peer problems and social behavior each including 5 questions. The first of these subtitles questions the difficulties experienced and social behavior questions strong aspects. Each subtitle can be assessed in itself and a separate score can be obtained for each of them or the "total strength score" can be calculated with the sum of the first four titles.

Statistical Analysis

SPSS for Windows 13.0 (Chicago, IL) package program was used in statistical analysis of the study. Comparison between two groups for continuous variables which showed a normal distribution was performed using independent sample t test which is one of the parametric tests. Comparison between two groups for continuous variables which did not show a normal distribution was performed using Mann-Whitney U test. Pearson chi-square test was used in comparison of categorical variables with groups. The relation

between continuous variables was tested by correlation analysis and relation with spearman correlation coefficient was examined. The results were evaluated in a confidence interval of 95% and a p value of ≤ 0.05 was considered significant.

Results

A total of 633 children and adolescents (48 girls (76.2%) and 15 boys (23.8%) aged between 12 and 18 years (16.01 ± 1.31) were included in our study. The sociodemographic properties of the victims are shown in (Table 1).

Results Related with Suicidal Behavior

During assessment, suicidal ideation was found in 19% (n=12) of the subjects and suicide plan was found in 4.8% (n=3). 6.3% (n=4) of the subjects reported that they were tired of life, 17.4% (n=11) reported that they wanted to die, but never thought of suicide, 28.5% (n=18) reported that they thought of suicide, but did not have a specific plan and attempt, 15.8% (n=10) reported that they thought of suicide and made a plan for it, but did not have a suicide attempt and 27% (n=17) reported that they had a suicide attempt in the last 6 months. 4.3% of the subjects (n=3) reported that they did not have any of these thoughts. According to these results, it was found that 71.4% of the subjects (n=45) had a suicidal ideation and 27% (n=17) had a suicide attempt in the last 6 months. It was found that all suicide attempts occurred following suicidal ideation.

In our study, it was found that 52.9% (n=9) of 17 subjects who attempted suicide in the last 6 months had one suicide attempt, 35.3% (n=6) had two suicide attempts (n=6) and 11.8% (n=2) had three suicide attempts. 77.8% of 27 suicide attempts in the last 6 months occurred with intake of drug or toxic substance, 14.8% occurred with cutting tools, 3.7% occurred by jumping off and 3.7% occurred by jumping in front of vehicles.

Correlation of the Severity of Suicidal Behavior with Sociodemographic Properties and Scale Scores

In our study, a negative correlation was found between the socioeconomic level of the family ($r=-0.273$, $p=0.030$) and the education level of the father ($r=-0.336$, $p=0.007$) and the severity of suicidal behavior. Accordingly, the severity of suicidal behavior was found to be higher in children of families with lower socioeconomic level and in children of fathers with lower education level.

The correlation results between suicidal behavior and the scores obtained from the scales used in the study are shown in (Table 2). As observed in the table, it was found that there was a positive correlation between the severity of suicidal behavior and depression ($r=0.455$, $p<0.001$), state anxiety ($r=0.342$, $p=0.006$), trait anxiety ($r=0.283$, $p=0.025$) and the level of hopelessness ($r=0.348$, $p=0.005$) and a negative correlation between the severity of suicidal behavior and self-esteem ($r=-0.320$, $p=0.011$), total social support ($r=0.307$, $p=0.014$) and family support score ($r=0.281$, $p=0.026$).

Factors Related with Suicidal Ideation: In the assessment performed, it was found that suicidal ideation developed in 45 (71.4%) of 63 subjects who had MDD in the last 6 months. When the patients who developed and did not develop suicidal ideation were compared, no statistically significant difference was found between the two groups in terms of gender ($\chi^2=0.220$, $p=0.640$), continuance of education appropriate for age ($\chi^2=3.66$, $p=0.092$), family type ($\chi^2=1.160$, $p=0.282$), alcohol and/or substance use

Table 1. Sociodemographic properties of the subjects

Age	16,01±1,31	(min:12 max:18)
Number of siblings	2,52±2,88	(min:1 max:6)
	n	%
Gender		
Female	48	76.2
Male	13	23.8
Edeucation status		
Attending primary school	5	7.9
Graduate of primary school	4	6.4
Abandoned high school	4	6.4
Attending high school	48	76.2
Attending university/academy	2	3.2
Whom does the subject live with?		
With the parents	53	84.1
With the mother	7	11.1
With the father	2	3.2
In institution	1	1.6
Family type		
Nuclear family	49	77.8
Extended family	6	9.5
DBroken family	8	12.7
Education level of the mothers		
Illiterate	1	1.6
Graduate of primary school	48	76.2
Lise mezunu	9	14.3
Üniversite mezunu	5	7.9
Education level of the fathers		
Graduate of primary school	33	52.4
Graduate of high school	24	38.1
Graduate of university	6	9.5
Socioeconomical level of the family		
Low	17	27.0
Moderate	40	63.5
High	6	9.5
Smoking		
Yes	15	23.8
No	48	76.2
Alcohol consumption		
Yes	11	17.5
No	52	82.5
Substance abuse		
Yes	3	4.8
No	60	95.2

($c2=1.03$, $p=0.310$) and alcohol and/or substance use in the family ($c2=2.70$, $p=0.101$).

Comparison of the two groups who did and did not develop suicidal ideation in terms of the scores they obtained from the scales used in the study is shown in Table 3. As observed in the table, a statistically significant difference was found between the two groups in terms of the scores obtained from CDI ($p<0.001$), STAI-I ($p=0.030$), STAI-II ($p=0.011$), BHS ($p=0.002$) ve CSES ($p<0.001$). Accordingly, the subjects with suicidal ideation had higher levels of depression, hopelessness, state and trait anxiety and lower self-esteem compared to the subjects who had no suicidal ideation. No statistically significant difference was found between the two groups in terms of other scale scores ($p>0.05$).

Factors Related with Suicide Attempt

In the assessment performed, it was found that 17 (27%) of 63 subjects who had MDD attempted suicide in the last 6 months. When the patients who did and did not attempt suicide were compared in terms of sociodemographic properties, no statistically significant difference was found between the two groups in terms of gender ($c2=0.487$, $p=0.485$), continuance of education appropriate for age ($c2=0.018$, $p=0.892$), alcohol and/or substance use ($c2=1.62$, $p=0.203$) and alcohol and/or substance use in the family ($c2=2.18$, $p=0.140$). In assessment performed in terms of family type, the rate of suicide attempt was found to be statistically significantly higher in the subjects who came from separated families ($x2=5.87$, $p=0.015$).

Table 2. Correlation between the severity of suicidal behavior and scale scores

SCALES	Severity of suicidal behavior	
	r	p
CDI	0.455	<0.001**
STAI-1	0.342	0.006**
STAI-2	0.283	0.025*
BHS	0.348	0.005**
CSEI	-0.320	0.011*
MSPSS		
Total	-0.307	0.014*
Family	-0.281	0.026*
Friend	-0.194	0.128
A special person	-0.191	0.134
SDQ Parental Form		
Total	0.150	0.240
Emotional problems	-0.090	0.482
Behavioral problems	0.180	0.158
Attention deficit and hyperactivity problems	0.214	0.092
Peer problems	0.166	0.195
Social behaviors	-0.059	0.647

p*: $p<0.05$, p**: $p<0.01$, CDI: Children's Depression Inventory, STAI-1:State Anxiety Inventory, STAI-II: Trait Anxiety Inventory, BHS: Beck Hopelessness Scale, CSEI: Coopersmith Self-Esteem Inventory, MSPSS: Multidimensional Scale of Perceived Social Support Scale

Comparison of the two groups in terms of the scores they obtained from the scales used in the study is shown in (Table 4). As observed in the table, a statistically significant difference was found between the two groups in terms of CDI ($p=0.019$), perceived total social support ($p=0.008$), perceived family support ($p=0.003$) and SDQ parental form behavioral problems subscale ($p=0.012$) scores. Accordingly, the subjects who had suicide attempt had higher depression level and more behavioral problems reported by their parents (bursts of anger, fight, lie, cheating, stealing, etc.) and lower perceived social support and family support compared to the subjects who had no suicide attempt. No statistically significant difference was found between the two groups in terms of other scale scores ($p>0.05$).

Comparison of the Subjects who had Suicidal Ideation without Suicide Attempt and with Suicide Attempt

When 28 subjects (44.4%) who developed suicidal ideation in the last 6 months, but did not attempt suicide were compared with 17 subjects (27%) who attempted suicide in terms of the scores obtained from the scales used in the study, a statistically significant difference was found only in perceived family support scores between the two groups ($p=0.033$). Accordingly, it was found that

the subjects who attempted suicide had lower perceived family support compared to the subjects who had suicidal ideation, but no suicide attempt. No statistically significant difference was found between the two groups in terms of other scale scores ($p>0.05$).

Discussion

In our study, it was aimed to investigate potential risk factors for suicidal behavior in adolescents with MDD and to determine the risk factors for suicidal ideation and suicide attempt separately. Therefore, the correlation between suicidal behavior and potential risk factors was examined in order to primarily detect the risk factors related with suicidal behavior. Subsequently, it was aimed to investigate the risk factors for suicidal ideation and suicide attempt separately.

When the literature is examined, it is observed that there is a strong relation between depression and suicidal behavior. In studies performed, suicidal ideation was found in 60%-70% of the adolescents with MDD and suicide attempt was found in 13%-39% (5). In our study, it was found similarly that suicidal ideation developed in 71.4% of the adolescents with depression and 27%

Table 3. Factors which affect suicidal ideation

SCALES	Suicidal ideation is present	Suicidal ideation is absent	t/z	p
	(n=45)	(n=18)		
	OP±SS	OP±SS		
CDI	28.78±5.76	22.78±2.37	4.26*	<0.001
STAI-I	54.02±9.34	45.50±10.92	3.11*	0.030
STAI-II	61.51±9.00	54.44±11.13	2.63*	0.011
BHS	12.71±4.96	8.50±3.97	3.21*	0.002
CSEI	40.87±12.05	56.22±11.71	-4.60*	<0.001
MSPSS				
Total	46.87±15.38	53.28±14.53	-1.52*	0.134
Family	14.96±6.68	17.83±5.14	-1.64*	0.106
Friend	15.91±7.40	18.23±6.25	-1.10**	0.273
A special person	15.78±7.32	16.00±8.57	-0.10*	0.918
SDQ Parental Form				
Total	21.05±5.78	19.94±5.34	0.70*	0.476
Emotional problems	6.69±2.25	7.56±2.23	-1.45**	0.148
Behavioral problems	4.22±2.14	3.61±1.88	-1.03**	0.302
ADHD problems	6.20±2.15	5.50±2.60	-1.13**	0.257
Peer problems	3.91±2.01	3.28±1.76	1.17*	0.248
Social behaviors	7.09±2.40	7.39±2.28	-0.48**	0.628

*Students t test t value, **Mann-Whitney U test z value, CDI: Children's Depression Inventory, STAI-1: State Anxiety Inventory, STAI-II: Trait Anxiety Inventory, BHS: Beck Hopelessness Scale, CSEI: Coopersmith Self-Esteem Inventory, MSPSS: Multidimensional Scale of Perceived Social Support

Table 4. Factors which affect suicide attempt

SCALES	Suicide attempt present	Suicide attempt absent	t/z	p
	(n=17)	(n=46)		
	OP±SS	OP±SS		
CDI	30.00±6.26	25.98±5.14	2.34**	0.019
STAI-I	54.94±10.37	50.35±10.35	1.56*	0.129
STAI-II	63.35±7.63	58.07±10.58	1.88*	0.64
BHS	13.29±4.73	10.85±5.05	-1.87**	0.061
CSEI	42.70±11.37	46.20±14.56	-0.89*	0.376
MSPSS				
Total	40.41±13.42	51.76±14.94	-2.75*	0.008
Family	11.94±6.90	17.20±5.61	-3.10*	0.003
Friend	14.06±6.83	17.54±7.07	-1.78*	0.085
A special person	13.82±7.88	16.59±7.49	-1.28*	0.205
SDQ parental Form				
Total problems	22.82±6.82	19.96±5.00	1.82*	0.073
Emotional problems	6.41±2.20	7.13±2.28	-1.21**	0.227
Behavioral problems	5.29±2.39	3.59±1.76	-2.52**	0.012
ADHD problems	6.88±1.90	5.67±2.35	-1.73**	0.083
Peer problems	4.53±2.06	3.43±1.85	-1.59**	0.111
Social behaviors	6.70±2.14	7.35±2.42	-1.32**	0.186

SSStudents t testi t value, **Mann-Whitney U test z value, CDI: Children's Depression Inventory, STAI-1: State Anxiety Inventory, STAI-II: Trait Anxiety Inventory, BHS: Beck Hopelessness Scale, CSEI: Coopersmith self-esteem Inventory, MSPSS: Multidimensional Scale of Perceived Social Support

attempted suicide in the last 6 months. The high rate of suicidal behavior in adolescents with depression suggests that clinicians who work with these subjects should absolutely evaluate the risk of suicide and should be very well familiar with potential risk factors for suicidal behavior.

In the correlation analysis performed in our study, a positive correlation was found between the severity of suicidal behavior and the severity of depression. In the literature, there are many studies showing that severe depressive disorder increases the risk of suicidal behavior (5,6). In our study in which the risks for suicidal ideation and suicide attempt were evaluated separately, it was found that the severity of depression was related with both suicidal ideation and suicide attempt. In the literature, the severity of depression has been reported to increase suicidal ideation (3), while there are contradictory results about the relation between the severity of depression and suicide attempt. While some studies show that there is a relation between the severity of depression and suicide attempt (4,29,30), some other studies did not show such a relation (3,31).

In our study, both state and trait anxiety levels were found to be related with suicidal behavior. Our results suggest that anxiety accompanying depression (predominantly state anxiety) increases the risk of suicidal ideation. Similarly, it was shown that anxiety accompanying depression increased the risk of especially suicidal ideation in many studies in the literature (11,32,33). It has been thought that depressive symptoms become more severe when anxiety accompanies depression and thus suicidal ideations are increased indirectly.

Beck et al. found that both depression and hopelessness were related with suicidal tendency and when hopelessness was controlled, the relation between depression and suicidal tendency disappeared, but the reverse was not true (34). In many studies performed subsequently, it was shown that hopelessness accompanying depression increased the risk of suicidal behavior (5,6,10). In our study, it was found that the severity of suicidal behavior was higher in adolescents who had a higher hopelessness level. Our results suggest that hopelessness is mostly related with suicidal ideation, but is not related with suicide attempt. Similarly, there are studies showing that hopelessness increases the risk of suicidal ideation, but is not related with suicide attempt (3,4). In the literature, there are contradictory results about the levels of hopelessness in MDD patients with and without suicidal attempt. In some studies, the level of hopelessness in depressive patients with suicide attempt was found to be higher compared to the patients without suicide attempt (30,31), while some other studies did not show such a relation (29,35). It is thought that hopelessness is important in development of suicidal ideation, can be reduced with specific methods including cognitive treatment and this may be an important tool in prevention of suicide.

Our results showed that self-esteem was related with suicidal behavior and adolescents with lower self-esteem had a more severe suicidal behavior. Similarly, the relation of low self-esteem with suicidal behavior was shown in many studies (5,10,36). In a study in which the effect of low self-esteem in the childhood on suicidal ideation in the adolescence and young adulthood was examined and the same participants were followed up from the age of 3 to the age of 21 years, it was shown that low-

self-esteem during childhood had an impact on suicidal ideation in the adolescence (37). In another study, it was found that high self-esteem was one of the protective factors against suicidal ideation in adolescents (38). In our study, the relation of low self-esteem in adolescents with depression with suicidal behavior was shown by correlation analysis. However, low self-esteem was found to be related with suicidal ideation, but not with suicide attempt. Similarly, in a study performed by Van Gastel et al. in which the risk factors for suicidal ideation and suicide attempt in depression were examined separately, low self-esteem was found to be related with suicidal ideation, but not with suicide attempt (3). Again, in a study performed by Aydemir et al., low self-esteem was not shown to be related with suicide attempt in patients with depression (35). Our study suggested that feelings of insignificance played an important role in development of suicidal ideation and therapeutic interviews directed to improve self-esteem and the underlying psychopathology would decrease suicidal behavior in children and adolescents with depression.

It is known that destructive behavioral disorders increase the risk of suicide by 3-6-fold in adolescents independent of depression, destructive behavioral disorder is present in approximately of the adolescents who attempt suicide and this risk increases further if substance abuse accompanies destructive behavioral disorder (39,40,41). In our study, it was found that adolescents with MDD who attempted suicide according to the report of the parents displayed behavioral problems with a higher rate. Similar to these results, behavioral problems accompanying depression were shown to be related with suicidal behavior in many studies (5,6,42). In adolescents with behavioral problems, it is thought that the increased frequency of suicide attempt may be related with increased hostility and impulsivity. In one study, the hostility scores of the adolescents who attempted suicide were found to be higher compared to controls (43), while impulsivity was found to be a factor which was independent from depression in another study (44). In addition, it has also been reported that stressful life events which increase the risk of suicidal behavior in adolescents with destructive behavioral disorder occur more frequently and may increase the risk (40).

In studies conducted in different settings and populations, it was found that broken or loosened family bonds were one of the most important factors which affected the prevalence of suicidal behavior in young people and it was reported that families of adolescents who showed suicidal behavior were less supportive and more conflictive and hostile attitudes were at the forefront (45). Inadequacy in the relation between the child and the parents, inadequacy in intra-familial communication, very high or low expectations of the parents and attitudes of the parents involving excessive control increase the risk of suicide attempt by 1.4-3.6-fold (46). It has been reported that there is a close relation between decreased perceived family support and suicide attempt and suicide attempt is observed with a high rate in individuals with low family and social support (47). The results of our study suggest that inadequate perceived social support and inadequate perceived family support may increase the risk of suicide attempt. In addition, the fact that adolescents of broken families attempted suicide more frequently suggested that this might be related with lower perceived family support in these subjects. In a study performed in

our country by Akbaş et al., children and adolescents who did and did not present to the hospital with suicide attempt were compared and it was found that the depressive patients who presented with suicide attempt came from broken families with a higher rate (8).

In our study, the groups who had suicidal ideation, but not suicide attempt in the last 6 months was compared with the group with suicide attempt and a statistically significant difference was found only in terms of perceived family support between the two groups. These results suggest that inadequate perceived family support may be the most important predictor of operationalization of suicidal ideation. Clinicians confront with adolescents who display suicidal behavior in the period when suicidal ideation is present or after suicide attempt. This result obtained in our study suggest that clinicians should include the family in the treatment and follow-up process to prevent suicide attempt when working with depressive adolescents who have suicidal ideation and adequate perceived family support should be supported.

Conclusively, increased severity of depression, increased state and trait anxiety levels, hopelessness and low self-esteem were found to be related with suicidal ideation. Coming from a broken family, low perceived social and family support and presence of behavioral problems with a high rate were found to be related with suicide attempt. A significant difference was found only in terms of perceived family support between the group who had suicidal ideation without suicide attempt and the group with suicide attempt. In the group with suicide attempt, perceived family support was found to be lower compared to the group with suicidal ideation without suicide attempt.

The limitations of our study included small sample size, lack of addressing comorbidity and the fact that some of the scales used had usage in a limited age group in adolescents. We think that considering the factors related with development of suicidal ideation in depressive adolescents and the transformation of this ideation to suicide attempt will help clinicians in preventing suicide attempt. These results should be supported with studies with larger sample sizes.

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