Gender differences in defense mechanisms, ways of coping with stress and sense of identity in adolescent suicide attempts

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The main aim of this study was to investigate the gender differences in defense mechanisms, ways of coping with stress and identity formation in relation to adolescent suicidal behavior. This study involved 64 adolescents between 12-17 years of age, who were admitted to the emergency service with a suicide attempt. They were evaluated with a semi-structured clinical interview (K-SADS), Ways of Coping Inventory (WCI), Defense Mechanisms Inventory (DMI) and Sense of Identity Assessment Form (SIAF). 60.9% (n = 39) of the adolescents were female, and 39.1% (n=25) were male. There were no statistically significant differences between the girls and the boys with respect to the clinical characteristics of the suicide attempt and the rate of psychiatric disorders. Of the 64 adolescents with suicide attempt, 47 (73.4%) had at least one, and 26 (40.6%) had more than one psychiatric disorder according to K-SADS. Disruptive behavior disorders were more frequent in males, whereas depression was more frequent in girls. The data indicated the importance of identity confusion, major depression and ADHD in adolescents with suicide attempt in both genders. 43.6% (n=17) of the girls and 36% (n=9) of the boys obtained scores higher than the cut-off point of SIAF indicating identity confusion. Professional help seeking and NSSI behaviors before the suicide attempt were more common in adolescents with identity confusion. While there were differences between genders with respect to the defense mechanisms used, no significant difference was found in terms of ways of coping. Evaluation of DMI scores revealed that the turning against object subscale score was significantly higher in boys compared to girls. While evaluating the adolescents at risk, their defense mechanisms, way of coping and sense of identity, as well as their psychiatric diagnosis should be assessed in detail in order to identify the suicidal thoughts and prevent possible suicide attempts.

Key words: suicidal behavior, adolescent, gender, defense mechanism, ways of coping, sense of identity.

Suicidal behavior in adolescents is an important public health problem today. Although the rate of suicidal behavior is reported to be low in childhood, suicidal thoughts and attempts are widespread in youth[1-3]. The prevalence of suicidal behavior in Turkey is lower than the prevalence reported in other countries, however it has been increasing especially in adolescents and young adults aged between 15-24 years[4]. Preventing the trend of increase of suicidal behavior in adolescents is only possible by determining the specific clinical characteristics. Numerous socio-demographical and psychological factors associated with suicidal behavior in adolescents were described. Suicidal thoughts or attempts in adolescents were found to be related to individual factors (gender, age, academic problems, interpersonal relationship problems, stressful life events, history of suicidal behavior)[5,6]; familial factors

(socio-economic level, chaotic environment, relationship problems in the family, loss of a parent, divorce, long-term separation from parents, psychiatric disorders in parents)[6]; and psychological factors (personality properties, low self-esteem, inadequacy in problem solving and coping abilities, autobiographical memory, self-disclosure, hopelessness, mental pain, self-object differentiation, low perceived social support, psychiatric disorders, etc.)[5-7].

Gender is one of the most important predictors of suicide attempts and completed suicide. Though there is evidence suggesting both different psychopathologies presenting in girls and boys and marked sex differences in suicidal behavior, very little is known about the factors underlying such differences. Aggression in young males and depression and/or posttraumatic stress disorder in females have increased risk of suicidality[8]. It was shown in a study that girls scored significantly higher on depression, lower on assertiveness and perceived social support from friends, whereas boys tended to score higher on self-esteem problems on the Suicide Probability Scale (SPS)[9]. Another study demonstrated that male attempters showed more antisocial behavior and used more repression and less reaction formation than female attempters[11]. Researches have consistently demonstrated that one of the best predictors of suicide attempt and completed suicide in patients with affective disorders is a history of suicide attempte specially in females[12,13].However, since only 30% to 40% of those who committed suicide had a previous attempt, it is necessary to identify other associated factors of suicidal behavior[14].

Most of the researchers interested in suicidal behavior make a common comment that people encountering stressful life events and having suicidal behavior might have low levels of functional problem solving ability. Some researchers clearly showed that when a patient with a low level of problem solving ability experienced a high number of traumatic life events, the risk of suicidal behavior was higher[15-18].During the last two decades, the scope of investigation regarding suicide risk has broadened and researchers have identified interpersonal stress as a major psychologically important factor for suicidal behavior. It has been noted that not all individuals contemplate or attempt suicide when exposed to the same stressors, suggesting that the way an individual copes with stress may ultimately determines the person's tendency for such thoughts and behaviors[14]. In addition, suicidal patients are often unable to differentiate between important and unimportant sources of distress and thus have difficulty finding practical solutions to the stressors in everyday life.

In psychodynamic theory, the different ways an individual responds to stressors are termed as defense mechanisms. Though an association between suicidal behavior and defense styles is possible, there are relatively few studies examining this relationship, especially those incorporating the influences of other associated factors on this relationship[14].Assuming the defense mechanisms to be coping strategies, the investigation of defense mechanisms used by adolescents with suicidal behavior might contribute to understand the particular psychological factor for this behavior. Compatible with the results of the studies done in other cultures, women used internalization defense mechanisms such as turning against the self, whereas men used aggressive defense mechanisms such as isolation and turning against object more in Turkey, as shown in the Norm study of the Defense Mechanisms Inventory[19]. However, defense mechanisms were not found to be related to gender in healthy Turkish adolescents in the same study. It was observed in limited studies that adolescents and adults who attempted suicide used immature and neurotic defenses more[20], and boys used more repression and less reaction formation than girls[10].

Suicidal behavior in adolescence might also be related to the identity formation which is the most important crisis in this period of life. Sense of identity might be accepted as a special part of the sense of self which means permanence in self-organization and functioning[11]. If the adolescent fails to establish a stable and consistent sense of identity, identity confusion[21] and problems in self-integration[11]arise. Identity confusion might be related to depression, alcohol-substance use disorder and risky sexual behavior in adolescence[22,23]. Problems in the self-permanence in adolescence were found to be related to increased risk of suicide, as

well; however, there is a paucity of the studies investigating the relationship between identity formation and suicide attempts[24].

There are many constructs associated with suicide; therefore many variables need to be taken into account while treating adolescents with this behavior. Considering suicide in adolescents as an unfunctional coping mechanism for stress, difficulties and negative life events, in part; associated coping strategies and defense mechanisms should be examined in adolescent patients with a suicidal behavior. Because of the relationship between the identity confusion and other psychopathologies in adolescence, identity confusion might be associated with suicidal behavior in this age group. Thus, the main aim of this study was to investigate the socio-demographical and psychological factors such as defense mechanisms, ways of coping with stress and sense of identity which might be related to adolescent suicidal behavior and the gender differences in these factors.

Material and Methods

Study design

This study involved 64 adolescents between 12-17 years of age, who were admitted to the emergency service at Hacettepe University Children's Hospital with a suicide attempt. The exclusion criteria for the study were the presence of a neurological disorder or clinically evaluated mental retardation in adolescents. Four patients who hanged or shot themselves or jumped off height were excluded from the study because of their general functional impairment or brain death. The first evaluation of the subjects was performed by a child and adolescent psychiatrist in the emergency service or in the intensive care unit after the life-threatening condition ceased. Risk factors related to the suicide attempt were evaluated and adolescents received psychiatric intervention according to the protocols of the Department of Child and Adolescent Psychiatry.The adolescents and their parents were informed about the study and written informed consents were obtained from both of them. The subjects were invited to an interview within 15 days of the suicide attempt. In the interview socio-demographical variables and clinical characteristics of the suicide attempt were evaluated by using the Socio-demographical and Clinical Information Form. The Turkish version of the Schedule for Affective Disorders and Schizophrenia for School Age Children, Present and Lifetime version (K-SADS-PL) was used to determine the present and lifetime psychopathologies of the patients. Defense mechanisms, coping styles, and identity formation of adolescents were evaluated by male and female versions of the Defense Mechanisms Inventory, Ways of Coping Inventory, and Sense of Identity Assessment Form, respectively.

Data collecting measures

Socio-demographical and Clinical Information Form

This form was developed by the authors and consisted of socio-demographical and clinical data. It focused on the socio-demographical variables such as age and gender of the patients; age, education level and employment conditions of the parents; family structure; and mental and physical diseases in adolescents and their families. To gather the information about the suicide attempt, stress factors related to the attemptand developmental factors were assessed. In addition, clinical characteristics of the suicide attempt (method used, when and where it happened, how and after how much time it was recognized, professional help seeking before the attempt, intervention processes etc.)were recorded.

Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version-Turkish Version, K-SADS-PL

K-SADS-PL[25]is a semi-structured interview which is used to determine the present and lifetime psychopathologies in children and adolescents. Validity and reliability study of the scale for the Turkish population has been made[26]. K-SADS-PL was applied to all adolescents and their parents by two researchers.

Defense Mechanisms Inventory, DMI

A total of five defense mechanisms which are turning against object, projection, principalization, turning against self, and reversal are evaluated in DMI with 10 stories[19,27]. Mean Cronbach's alpha reliability coefficient, indicating the internal consistency, as obtained from six measurements was found to be .72 (between .61-.80), and very high

values were obtained for test-retest reliability of the scale in several studies[27]. Adaptation study and validity/reliability of the DMI in the Turkish adolescents was carried out by Sorias et al. (1995)[19].

Ways of Coping Inventory, WCI

This scale, which was developed by Folkman and Lazarus[28]for adolescents and adults, aims to identify the cognitive and behavioral strategies employed by individuals for coping with general or specific stressful conditions[28].The original form of the scale includes 68 yes/no items indicating problem focused and emotion focused coping. The scale was revised in 1985 and was modified to have 66 four-point items, comprising of eight subscales, one indicating problem focused coping, six emotion-focused coping, and one both problem and emotion focused coping. Siva[29] adapted the scale to the Turkish sample, changed it to five-point Likert type, added 6 more items representing supernatural beliefs and fatalism and reported Cronbach's alpha reliability coefficient of the scale as .90. In the study conducted with university students, the scale was shown to have three independent hierarchical dimensions as problem focused, emotion focused and indirect coping (social support seeking) and the Cronbach's alpha coefficients for these dimensions were reported as .84, .86, and .82, respectively[30].

Sense of Identity Assessment Form, SIAF

The Sense of Identity Assessment Form was developed by Dereboy et al.[31] and based on Erikson's psychosocial theory to assess the sense of identity in Turkish adolescents. SIAF comprises 28 five-point likert type items examining different aspects of identity formation. Total score is determined by the summation of all scores given for each item. Higher scores indicate increased level of identity confusion. The cut-off point of the scaleindicatingidentity confusion is 70. The reliability and validity study was conducted on university students and the Cronbach's alpha reliability coefficient was determined as .89[31].

Statistical analyses

Data analysis was performed by using SPSS for Windows15.0. The Shapiro-Wilk test was used to determine the normality of the data. Homogeneity of variances was evaluated by the Levene test. While the continuous data were shown as mean ± SD, number of cases and percentages were used for categorical variables. The mean differences between the two groups were compared by Student's t test Categorical data (e.g. characteristics of suicide attempt, psychiatric diagnoses, etc.) were analyzed by Pearson's Chi-square or Fisher's exact test, where applicable. Degree of associations between continuous variables was tested by Pearson's correlation analysis.

Table I. Sociodemographic Characteristics of the Suicidal Adolescents

	Total (n=64) Mean ± SD	Females (n=39) Mean ± SD	Males (n=25) Mean ± SD	Statistics
Age	14.8 ± 1.4	14.9 ± 1.2	14.7 ± 1.7	t = 0.55; p = 0.61
Mother				
Age	39±5.9	40.0 ± 5.6	38.6 ± 6.5	t = 0.91; p=0.37
Duration of education (years)	8.4±4.4	8.8 ± 4.5	8.0 ± 4.4	t= 0.67; p=0.49
Father				
Age	44.3±5.8	44.3 ± 5.8	44.6 ± 6.2	t = -0.18; p=0.86
Duration of education (years)	10.0 ± 3.7	10.1 ± 3.6	9.8 ± 3.7	t= 0.33; p=0.75
Family structure	n (%)	n (%)	n (%)	
Nuclear	47(73.4)	30(76.9)	17(68.0)	χ^2 = 0.62; p=0.43
Single parent	10(15.6)	8(20.5)	2(8.0)	- ; p=0.29
Extended family	7(10.7)	1(2.6)	6(24.0)	-; p=0.01
Familial psychiatric history	22(34.4)	15(38.5)	7(28.0)	χ^2 = 0.74; p = 0.39

After adjustment for various demographical and clinical variables, the best predictors of defense mechanisms and ways of coping sub-dimension scores were evaluated by multiple linear regression analyses. Any variable with univariable test p value <.25 was accepted as a candidate for the multivariable model along with all variables having clinical importance. The coefficient of the regression was also calculated. In these analyses p<.05 was accepted as the statistical significance level.

Results

Characteristics of suicide attempt

Females comprised 60.9% (n=39) while males comprised 39.1% (n=25) of the study sample. The mean age of the adolescents was 14.8 ± 1.4 years (range 12-17). Socio-demographic characteristics of the study sample and characteristics of the suicide attempt in the adolescents are presented in Table I and Table II, respectively. The mean ages of the girls and the boys were similar (p=0.61). No significant differences were found between genders in terms of the mean age and mean education level of the parents, history of a psychiatric disorder in the adolescents and in the families, precipitating factors of the suicide attempt, presence of suicidal thoughts, help seeking behavior, suicidal thoughts shared with others and the method of the suicide attempt.

Psychiatric diagnoses

There was a history of a psychiatric disorder in 14 (21.9%; 7 female, 7 male) adolescents. A history of a psychiatric disorder in the families was found in 22 (34.4%; 15 female, 7 male) adolescents (Table II). Of the 64 adolescents with suicidal behavior, 47 (73.4%) had at least one, and 26 (40.6%) had more than one psychiatric disorder according to the K-SADS-PL. Twenty nine girls (74.3%) and 18 boys (72%) had at least one psychiatric disorder (Table III). There was no difference between genders in terms of having more than one diagnosis (16 girls 41%, 10 boys 40%; p=0.93). Disruptive behavior disorders were significantly more frequent in males (11 girls 28.2%, 13 boys 52.0%; p = 0.05). Major depression was more frequent in girls, however there was no significant difference between genders (p= 0.08). Mixed type ADHD was significantly higher in boys (p= .01).

Table II. Characteristics of Suicide Attempts

	Total (n=64) n (%)	Females (n=39) n (%)	Males (n=25) n (%)	Statistics χ^2 and p
NSSI behavior	24(37.5)	15(38.5)	9(36.0)	0.04; p = 0.84
Alcohol/substance use history	14(21.8)	6(15.4)	8(32.0)	2.46; p=0.12
Recurrent suicidal thoughts	19(29.6)	11(28.2)	8(32.0)	0.10; p=0.75
Professional help seeking	21(32.8)	12(30.8)	9(36.0)	0.18; p=0.66
Shared suicidal thoughts with others	36(56.2)	22(56.4)	14(56.0)	0.00; p=0.97
Previous suicide attempt	11(17.2)	8(20.5)	3(12.0)	- ; p=0.50
Precipitating stressful life events	53(82.8)	33(84.6)	20(80.0)	-; p=0.74
Conflict with the parents	23(35.9)	16(41)	7(28.0)	1.12; p=0.29
Trouble with friends	13(20.3)	6(15.4)	7(28.0)	1.50; p=0.22
Academic failure	11(17.2)	8(20.5)	3(12.0)	-; p=0.50
Argument with an intimate person	5(7.8)	2(5.1)	3(12.0)	-; p=0.37
Loss of an intimate person	1(1.5)	1(2.6)	0	-; p=1.00
Suicide method				
Drug overdose	60(93.7)	38(97.4)	22(88.0)	
Cutting wrists	3(4.6)	1(2.6)	2(8.0)	2.96; p=0.23
Ingestion of corrosive substances	1(1.5)	0	1(4.0)	
Place and circumstances of suicide Attempt				
At home	54(84.3)	34(87.2)	20(80.0)	-; p=0.49
Alone in the environment	23(35.9)	14(35.8)	9(36.0)	0.00; p=0.99

NSSI: non-suicidal self-injurious

Table III. Psychiatric Diagnoses in Females and Males

	All Cases (n=64)	Females (n=39)	Males (n=25)	χ^2 and p
	n (%)	n (%)	n (%)	
Psychiatric diagnosis	47 (73.4)**	29 (74.3)**	18 (72)**	
Major depression	18 (28.1)	14 (35.9)	4 (16.0)	2.98, p= 0.08
Bipolar affective disorder	2 (3.1)	2 (5.1)	0 (0)	-, p= 0.52
Disruptive behavior disorders	24 (37.5)	11 (28.2)	13 (52.0)	3.68, p = 0.05
ADHD	22 (34.3)	10 (25.6)	12 (48.0)	3.38, p= 0.07
Conduct disorder	4 (6.2)	2 (5.1)	2 (8.0)	-, p= 0.64
ODD	3 (4.6)	1 (2.6)	2 (8.0)	-, p= 0.55
Anxiety disorders	10 (15.6)	8 (20.5)	2 (8.0)	-, p= 0.29
Generalized anxiety disorder	4 (6.2)	4 (10.3)	0 (0)	-, p= 0.15
Social phobia	2 (3.1)	2 (5.1)	0 (0)	-, p= 0.52
Separation anxiety disorder	3 (4.6)	3 (7.7)	0 (0)	-, p= 0.27
PTSD	4 (6.2)	2 (5.1)	2 (8.0)	-, p= 0.64
OCD	1 (1.5)	1 (2.6)	0 (0)	-, p= 1.00
Alcohol/substance abuse	14 (21.8)	6 (15.3)	8(32.0)	2.46, p= 0.12
Tic disorders	3 (4.6)	3 (7.7)	0 (0)	-, p= 0.27
Enuresis	13 (20.3)	6 (15.4)	7 (28.0)	1.50, p= 0.22
Somatization disorder	2 (3.1)	1 (2.6)	1 (4.0)	-, p= 1.00

ADHD: attention deficit hyperactivity disorder, OCD: obsessive compulsive disorder, ODD: oppositional defiant disorder, PTSD: post-traumatic stress disorder. **41% of females (n=16) and 40% of males (n=10) have co-morbid psychiatric diagnoses.

Relationship between defense mechanisms and suicidal behavior

In adolescents with recurrent suicidal thoughts before the suicide attempt the 'turning against self'subscale scores of DMI were higher (mean=39.68, SD= 5.37) compared to adolescents without a recurrent suicidal thought (mean=36.57, SD=5.22)and the difference between the two groups was p=0.05. Evaluation of the scores of defense mechanisms revealed that 'turning against object' subscale scores were significantly higher in boys compared to girls (Table IV).

By univariable statistical analyses important predictors of the 'turning against object' defense mechanism were determined as age, gender, history of a psychiatric disorder in the adolescents and in the families, alcohol/substance abuse and seeking professional help before the suicide attempt. Then these predictor factors were examined with multivariate linear regression analysis. It was observed that gender predicted the 'turning against object' defense mechanism independently. Boys had an average of 6.54 (95% CI=0.749-12.326, p=0.028) times higher 'turning against object' subscale scores than girls. 10.9% of the variation in the 'turning against object' subscale scores was explained by variables in this model (R^2 = 0.109).

Relationship between coping strategies and suicidal behavior

There were no statistically significant differences between the boys and the girls with respect to coping strategies (Table IV). Adolescents with a psychiatric disorder (mean=84.58, SD=14.6) used problem focused coping less frequently than the adolescents without a psychiatric disorder (mean=94.13, SD=12.9; p=0.028).

The predictors of the emotion focused coping subscale of WCI such as age, education level of the parents, history of a psychiatric disorder in adolescents, the presence of non-suicidal self-injurious (NSSI) behavior before the suicide attempt and communicating about suicidal behavior with others were examined with multivariate linear regression analysis. It was found that the presence of a NSSI

behavior before the suicide attempt predicted the emotion focused coping. Adolescents with a NSSI behavior before the suicide attempt had an average of 5.817 (95% CI=0.022-11.612, p=0.049) times higher emotion focused coping subscale score compared to adolescents without a NSSI behavior.

Relationship between sense of identity and suicidal behavior

No significant difference was found between genders in terms of the mean SIAF scores, yet it should be noted that the mean score of the entire sample was very close to the cut-off point indicating identity confusion (mean 69.9 points, cut-off point 70). The mean SIAF score was 72.7±26.7 in girls and 65.4±17.5 in boys and 43.6% (n=17) of the girls, 36% (n=9) of the boys obtained scores higher than the cut-off point (Table IV). The mean SIAF scores were detected to be significantly higher in adolescents with professional help seeking before the suicide attempt (mean=80.38, SD=22.0) compared to adolescents without any help seeking behavior (mean=63.77, SD=22.7; p=0.009).Adolescents with a psychiatric disorder (mean=75.5, SD=22.5) or a NSSI behavior (Mean=79.7, SD=23.3) had significantly higher mean SIAF scores compared to adolescents without any psychiatric disorder (mean=51.07, SD=17.4; p=0.001) or NSSI behavior (mean=63.7, SD=22.0; p=0.012),respectively. Fourteen (53.8%) of adolescents with identity confusion (n=26) experienced NSSI behaviors before the suicide attempt and this finding was statistically significant compared to those of adolescents (26.3%, n=10) without identity confusion (n=38; p=0.025).

Discussion

In this study, the clinical characteristics and the risk factors of suicide attempt in adolescents who were admitted to a tertiary hospital were investigated. Since males and females have different risk factors and clinical characteristics of suicidal behavior, our research aimed to investigate whether these clinical characteristics and defense mechanisms, coping strategies and identity formation in adolescents who attempted suicide would differ with respect to gender.

The female/male ratio of suicide attempts was found as 3:2, and in accordance with the literature, girls were found to have more suicide

Table IV. Defense Mechanisms Inventory, Ways of Coping Inventory and Sense of Identity Assessment Form Scores in Females and Males

Scales	Females(n=39)	Males (n=25)	Mean difference (95% CI)	Statistics
Defense Mechanisms Inventory				
Turning against object	38.8 ± 11.3	44.5 ± 9.6	-5.7 (-11.5 – 0.1)	t=-1.98, p= 0.05
Projection	39.0 ± 5.5	38.9 ± 5.8	0.1 (-3.0 – 3.2)	t =0.06, p= 0.95
Principalization	43.6 ± 6.2	41.9 ± 5.4	1.7 (-1.5 – 4.9)	t =1.01, p= 0.31
Turning against self	38.6 ± 5.9	35.9 ± 4.3	2.7 (-0.2 – 5.6)	t =1.88, p= 0.06
Reversal	40.0 ± 10.7	38.5 ± 10.4	1.5 (-4.2 – 7.2)	t =0.52, p= 0.60
Ways of Coping Inventory				
Problem focused coping	3.06 ± .53	2.89 ± .45	0.17 (-0.10 – 0.44)	t =1.25, p= 0.22
Emotion focused coping	2.35 ± .52	2.22 ± .57	0.12 (-0.16 – 0.40)	t =.86, p= 0.12
Social support seeking	3.17 ± .68	2.88 ± .69	0.29 (-0.08 – 0.66)	t =.69, p= 0.11
Sense of Identity Assessment Form				
Point	72.7 ± 26.7	65.4 ± 17.5	7.3 (-5.6 – 20.2)	t =1.14, p= 0.26
Above 70 points	17 (43.6%)	9 (36.0%)	-	χ^2=0.36, p= 0.55

CI: Confidence Interval

attempts in this study. Recurrent suicidal thoughts and attempts were 3-9 times more in girls and death rates due to suicide were 2-4 times more in boys in the literature[32,33]. Consistent with the literature[5,6,7],in the present study,37.5% (n=24) of the adolescents with a suicide attempt had NSSI behaviors, 29.6% (n=19) recurrent suicidal thoughts, 17.2% (n=11) previous suicide attempts, 21.8% (n=14) alcohol/substance abuse, 35.9% (n=23) chaotic family environment, 34.4% (n=22) family history of a psychiatric disorder, 20.3% (n=13) trouble with friends and 17.2% (n=11) academic failure. There was no significant difference between genders with respect to the method used, precipitating factors, seeking professional help before the suicide attempt and communicating about suicidal behavior. Gender specific differences in terms of the suicide method, precipitating factors, and help seeking were reported previously[5,6,34]. 93.7% of the patients attempted suicide by taking drugs in this study. The homogeneity of the group in terms of the characteristics and the severity of the suicidal behavior may be responsible for the result of very few differentiating factors among genders.

In the present study, of the 64 adolescents with suicidal behavior, 47 (73.4%) had at least one, and 26 (40.6%) had more than one psychiatric disorder. The disruptive behavior disorders (37.5%; n=24), major depression (28.1%; n=18) and alcohol/substance abuse (21.8%; n=14) were the most frequent psychiatric disorders. These results are compatible with the results of other studies reporting psychiatric disorders, especially major depression, as the strongest risk factors for suicide attempt both in adolescents and in adults[1,9].In this study although it was revealed that major depression was higher in females, and disruptive behavior disorders and ADHD were higher in males, there were no significant differences between genders with regard to the rates of these disorders. However, gender ratio for ADHD changes in general and clinical population. While the male/female ratios of ADHD and major depression are given as 9:1[35] and 1:3[35,36] in the outpatient clinical studies respectively, in this study it was found it to be 2:1 for ADHD and there was no difference between genders (1:2) in terms of the major depression. In the view of these results, we might state that ADHD and major depression are associated with suicide attempts in both genders. In accordance with the results of this study, some studies demonstrated that major depression and disruptive behavior disorders occur frequently and with similar rates in both genders in adolescents who attempted suicide[9,10,32,34,37]. Although major depression was described as a predictor of the suicidal behavior only in girls, depression predicted suicide attempts in boys but not in girls in a study of Turkish adolescents[11].

In this study, we found that males used the "turning against object" which is an aggressive defense mechanism and females used the "turning against self" which is an introjective defense mechanism more frequently. In addition, adolescents with recurrent suicidal thoughts used the turning against self defense mechanism more frequently. These results indicate that the turning against self defense mechanism might be a risk factor for recurrent suicidal behavior in adolescents, especially in females who use this defense mechanism more frequently. This result might be suggested to investigate in further studies with larger samples. In general, psychoanalysts have traditionally viewed the turning of aggression against the self as the basic defense of the suicidal individual[38,39]. It was demonstrated that turning of aggression against the object and turning of aggression against the self were used more in people with suicide attempts compared to non-attempters[40,41]. The adolescents and adults who attempted suicide were found to haveused immature and neurotic defenses more[20], and girls used more turning against the self than boys. The results of this study are compatible with those of similar studies examining the relationship between the gender and the defense mechanisms in the literature[10,39,42,43]. Compatible with the results of the studies in other cultures, women used internalizing defense mechanisms such as turning against the self, whereas men used aggressive defense mechanisms such as isolation and turning against object more in Norm study of the Defense Mechanisms Inventory in Turkey[19]. However, defense mechanisms were not found to be related to gender in healthy Turkish adolescents in the same study[19]. There are limited studies investigating the gender differences in defense

mechanisms with respect to suicidal behavior in adolescents[10,20,39,42]to interpret the results of this study. More studies are needed to understand the role of defense mechanisms in adolescent suicidal behaviors.

In this study, 82.8% of adolescents (n=53) had stressful life events triggering the suicide attempts and 73.4% had psychiatric diagnosis. It can be suggested that adolescents with suicide attempts can not deal with distress efficiently and this situation may be predisposing. In this study no significant difference was detected between boys and girls with respect to ways of coping, although adolescents with a NSSI behavior before the suicide attempt used more emotion focused coping. There are very few studies investigating the gender differences in coping methods in the literature; however it was reported that as negative life events and their impacts increase, individuals tend to use emotion focused coping more frequently[44,45]. It was shown in many studies that more emotion-focused than problem-focused strategies were used to deal with stressful situations in suicidal adolescents[17,44-46]and problem-focused coping was associated with lower suicidality[47].

There was no gender difference in terms of sense of identity in this study, however the mean score of the entire sample was very close to the pathological cut-off point of the scale and 43.6% (n=17) of the girls and 36% (n=9) of the boys had identity confusion. Professional help seeking and NSSI behaviors before the suicide attempt were more common in adolescents with identity confusion. These results suggest that identity confusion might be an important risk factor for suicide attempt in both genders. It will be important to re-examine the sense of identity in adolescents with suicidal behavior in future studies. It might be stated that identity confusion hampers the functional coping with stress and probably contributes to the development of psychopathologies, particularly depression in adolescents[22,48,49]. Therefore, it might be important to question suicidal thoughts in adolescents with identity confusion.

In conclusion, defense mechanisms, ways of coping and sense of identity were evaluated and some gender specific differences were determined in adolescents with suicide attempt in this study. While there were differences between genders with respect to the defense mechanisms used, no significant difference was found in terms of ways of coping. The data indicated the importance of identity confusion, major depression and ADHD in adolescents with suicide attempt in both genders. While evaluating the adolescents at risk, their defense mechanisms, way of coping and sense of identity, as well as their psychiatric diagnosis, should be assessed in detail in order to identify the suicidal thoughts and prevent possible suicide attempts.

There are a few limitations to this study. Although the absence of a control group made it difficult to generalize the results for suicidal adolescents, we tried to compare the results with those of the previous studies of healthy adolescents in the literature. The homogeneity of the sample, with respect to the suicide method and unavailability of the severe suicide attempts, might be the cause of missing some of the gender specific differences. Investigation of the defense mechanisms, ways of coping and sense of identity with a larger adolescent sample with suicide attempts might provide further information regarding the gender specific differences.

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