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Childhood maltreatment and suicidal behavior among adults with attention deficit hyperactivity disorder

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Abstract

Childhood maltreatment (CM) is associated both with suicidal behavior and attention deficit hyperactivity disorder (ADHD). Yet not much is known about the relationship of CM and suicidal behavior in adults diagnosed with ADHD. This study aims to further investigate this potential risk. Adult ADHD Self-Report Scale (ASRS-V1.1), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Childhood Trauma Questionnaire (CTQ), Dissociative Experiences Scale (DES), A self-rating Questionnaire for Suicide Ideation (SIQ) and Suicidal Behavior Scale (SBS) were employed to 104 cases with adult ADHD, whose comorbid psychiatric disorders were examined according to the DSM-5 criteria. It was found that, while age and education level are significantly lower; the fraction of those who are single, as well as the DES, BDI, BAI, SIQ and SBS scores are significantly higher in the ADHD cases with CM history than those with no history of CM. In addition, SIQ and emotional abuse scores were found as significant predictors of SBS scores in adults with ADHD. These results suggest that investigating CM, as well as suicidal behaviors in adults diagnosed with ADHD can be useful in creating a treatment plan to prevent suicide attempts and suicide.

Keywords: Childhood maltreatment, suicidal behavior, attention deficit hyperactivity disorder, adult

Introduction

Attention deficit hyperactivity disorder (ADHD), a neurodevelopmental disorder that occurs before the age of 12, adversely affects functioning, and ADHD symptoms persist into adulthood in approximately 50% of cases [1-3]. A pooled prevalence rate of 2.5% for adult ADHD has been found [4]. In recent years, researchers have identified a relationship between adult ADHD and history of childhood maltreatment (CM) [5-8]. Childhood maltreatment which has adverse effects on children's physical and mental health or development, refers to physical, emotional, sexual abuse or physical, emotional neglect by an adult of a child [9]. While physical abuse is physical harm to the child's body, sexual abuse is any kind of sexual contact, and emotional abuse is humiliating, verbal aggression towards the child. Neglect experiences are the expression of not meeting the basic physical or emotional needs of the child, such as being loved and protected [9]. Childhood maltreatment and other childhood adverse

experiences like divorced parents [8] can be conceptualized as traumatic experiences, which is a significant predictor of ADHD symptoms in adulthood [5]. Childhood emotional abuse and neglect were found more frequent among adults diagnosed with ADHD than healthy controls [6]. Besides, ADHD was more prevalent in adults who suffered physical abuse during childhood than those without a history of maltreatment [8]. It is also widely acknowledged that a history of CM is linked to suicide [10]. In adults, all types of childhood abusive experiences are associated with suicidal ideation and risk of suicidal attempt, independently of the methodology of studies, sociodemographic characteristics, and clinical features [11].

Studies have also revealed a strong correlation between the symptoms of ADHD and suicidal behavior among adults, as well as in children and adolescents [12]. While one-fourth of suicidal children meets ADHD diagnosis, suicidal ideation was identified in more than half of adolescents and one-third of adults diagnosed with ADHD [12]. Some studies have determined that there is a direct relationship between suicidal behavior and ADHD symptoms [13,14] while some other studies have claimed that there is an indirect relationship by the presence of comorbid psychiatric disorders [15].

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Considering that the history of CM is correlated with both ADHD and suicide risk, examining characteristics of suicide and CM such as emotional, physical, sexual abuse, and emotional, and physical neglect in patients with ADHD may contribute to creating a treatment plan that helps prevent suicide attempts. This study aims to investigate CM in adults diagnosed with ADHD through a comparative analysis of sociodemographic and clinical characteristics of with and without a history of CM. The second aim of this study is to analyze the relationships between CM and suicidal behavior, and to identify the predictors of the SBS scores. It is hypothesized that the presence of a history of CM in adults diagnosed with ADHD increases the severity of suicidal behavior.

Materials and Methods

This study was conducted between June 2019 and November 2019, with 120 psychiatry clinic outpatients aged 18-55 years, who consecutively visited for routine control and were followed up at the outpatient clinic division of ADHD of the Psychiatry Department at Sisli Etfal Training and Research Hospital, İstanbul, Turkey; a general hospital with capacity of 600 inpatients, and an average of 400 visits per day to the psychiatry outpatient clinic. When the patients were first referred to the outpatient clinic division of ADHD, an experienced clinician (Dalkiran M) made the interviews and diagnosed the ADHD and comorbid psychiatric disorders based on the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) criteria. For the next step, the diagnosis was supported by the Structured Clinical Interview for DSM-V Disorders (SCID-V/CV), ten modules of SCID-5 were performed, and it took about an hour. Also, a socio-demographic data form which included questions on the demographic data, medical histories, a history of any psychiatric disorder in the family, a history of suicide attempts in the family, ongoing stimulant treatment, and past suicide attempts of the patients was used to collect the data obtained from the patients on admission. The inclusion criteria were as follows: i) being aged 18-55 years old ii) having at least a primary school degree; and, iii) having a major diagnosis of ADHD according to DSM-5 criteria. The exclusion criteria were diagnosis of presence of mental retardation, psychotic disorder, bipolar disorder, developmental disorder, and the presence of a serious neurological or metabolic disease. Five patients, who did not agree to participate in the study, and eleven patients, who did not complete the forms, were excluded from the study. After signing the informed consent, the remaining 104 patients (43 female patients, 61 male patients) who met the inclusion criteria, were included in the study. The ethics committee approval for the research was obtained from the Clinical Research Ethics Committee of Health Application and Research Center of Sisli Etfal Training and Research Hospital (Approval Date: June 11, 2019; Approval Number: 1273).

The severity of suicidal ideation and severity of suicidal behavior were determined by using the A Self-rating Questionnaire for Suicidal Ideation (SIQ), and the Suicidal Behavior Scale (SBS). Past suicidal attempts were investigated during the clinical interviews. The participants filled out the following on their own: Adult ADHD Self-Report Scale (ASRS-V1.1), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Childhood Trauma Questionnaire (CTQ), Dissociative Experiences Scale (DES), SIQ and SBS.

CM history was evaluated by an experienced clinician (Yildirim F) according to clinical interviews and the patients' responses in the Childhood Trauma Questionnaire (CTQ). The participating 104 patients with ADHD were separated into two groups according to their Childhood Trauma Questionnaire (CTQ) scores. Patients with abuse or neglect subscale scores higher than the cut-off point scores were included in the childhood maltreatment CM (+) group while others constituted the CT (-) group. The patients diagnosed with ADHD who were receiving stimulant treatment were evaluated during their non-treatment times.

For the next phase, sociodemographic variables (age, sex, education, marital status) and clinical variables (BDI, BAI, CTQ, DES, SIQ, SBS, ASRS scale scores) were compared between the two groups to identify the predictors of SBS scores in patients diagnosed with ADHD.

Measures

Sociodemographic Data Form: This form was prepared by the researchers for the objectives of the study. It included questions on the demographic data, medical history, history of psychiatric disorder in the family, a history of suicide attempt in the family, ongoing stimulant treatment and past suicidal behavior of the patients.

Structured Clinical Interview for DSM-5 Disorders-Clinical Version (SCID-5-CV): The clinician version of the interview's [16] validity and reliability study for Turkish was carried out by Elbir et al. [17].

Adult ADHD Self-Report Scale (ASRS v1.1): ASRS is developed by Kessler et al. [18]. A validity and reliability study of the ASRS for Turkish was carried out by Dogan et al. [19]. It includes 18 items; the first part of the test, including nine items, measure attention-deficit levels, while the second part evaluates hyperactivity levels. Cronbach's alpha coefficient was 0.88.

Beck Depression Inventory (BDI): BDI is a self-reported, Likert-type inventory with 21 items developed by Beck et al. [20]. The scale aims to measure the degree of depressive symptoms. A higher total score means higher depression severity. Its validity and reliability study for Turkish was carried out by Hisli [21], and the cut-off score was determined as 17. Cronbach's alpha coefficient was 0.80 [21].

Beck Anxiety Inventory (BAI): BAI is a self-report inventory developed by Beck et al. [22] used to determine the anxiety, in which the severity of anxiety rises with the score. Ulusoy et al. adopted this scale in Turkish. Cronbach's alpha coefficient was 0.93 [23].

Childhood Trauma Questionnaire (CTQ): CTQ is a self-report questionnaire developed by Bernstein et al. [9]. The Likert-type questionnaire has five subscales: emotional abuse (EA), physical abuse (PA), sexual abuse (SA), emotional neglect (EN), and physical neglect (PN). Items are scored between one and five. The validity and reliability of this 28-item questionnaire for Turkish were carried out by Sar et al. [24]. Each five-item subscale ranges from 5 (no history of abuse) to 25 (very extreme history of abuse). The cutoff points were found to be 5 for SA and PA subscales, 7 for

PN and EA, 12 for EN, and 35 for CTQ-Total. Cronbach's alpha coefficient was 0.93 [24].

Dissociative Experiences Scale (DES): This questionnaire developed by Bernstein and Putnam [25] consists of 28 questions that are used to screen for dissociative experiences and disorders and to measure their severity. While each item is scored on a scale from 0 to 100 and the overall score is calculated as the average of the 28 items. Yargic et al. [26] conducted the validity and reliability research of the scale for Turkish. Cronbach's alpha coefficient was 0.97 [26].

A Self-rating Questionnaire for Suicide Ideation (SIQ): This 17-item scale developed by Levine et al. [27] aims to determine the severity of suicidal ideation. In the validity and reliability study, it was found the SIQ was significantly correlated with the Hamilton depression scale ($p<0.001$), the Hopelessness scale ($p<0.001$), and the Suicidal intention scale ($p<0.001$). It consists of 17 questions that include parameters (uncontrolled anger, desire to harm oneself and others, hopelessness, thoughts of death, feelings of guilt) that increase the risk of suicide. The final score that can be obtained from SIQ can be between 0 to 17; a higher total score signifies more severe suicide ideation. Dilbaz et al. conducted the validity and reliability research of SIQ for Turkish [28].

Suicidal Behavior Scale (SBS): This scale developed by Linehan and Nielsen [29] is composed of four questions and investigates suicide plan and attempt, suicidal ideation, suicide threat, and the possibility of future suicidal behavior. Bayam et al. conducted the validity and reliability research of SBS for Turkish [30]. The final score that can be obtained from the scale can be between 0 and 14; the highest score obtained has been stated to be the severest suicidal behavior. Cronbach's alpha coefficient was 0.73.

Statistical analysis

Data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) software for Windows 22.0 (IBM, U.S.A). The Shapiro-Wilk test was used for testing the normality of the distributions of the parameters. When evaluating the data, descriptive statistical methods (mean, standard deviation) were used. In addition to descriptive statistical methods in the study, normally-distributed samples were compared using the Student's t-test, while the non-normally distributed samples were compared using the Mann-Whitney U test. The Fisher's Exact, Fisher-Freeman-Halton, and Yates's Continuity Correction tests were used in the comparisons of the qualitative data. Spearman correlation coefficient was used in the assessment of the relationships between the scale scores. Non-normal variables were reported using median (min-max) and normal variables were reported using mean $\pm$ standard deviation. Categorical variables were reported as n (%) for the descriptive statistics. Linear Regression Analysis was performed to determine the predictors of the SBS total score. The status of SBS total score was considered as the dependent variable and the BDI, BAI, SIQ, DES, CTQ-total and subtotal scores, ASRS- total and subtotal scores, age, gender, comorbidity, and presence of past suicidal attempt were considered as the independent variables. The model was accepted to be statistically significant (R^2 : 0.703, $p<0.05$).

Results

The participants' ages were between 18 and 55, and the mean age was 25.13 ± 6.8 . The study was carried out with 104 patients, including 41.3% ($n=43$) female and 58.7% ($n=61$) male patients. 9.6% ($n=10$) of all cases had a history of a past suicide attempts at least once in a lifetime. Among the 10 cases who had a history of past suicide attempts; 4.8% had a history of overdosing on medication, 1.9% had a history of jumping from heights, 1% had a history of exposure to toxic substances, and 1.9% had a history of cutting and stabbing. While 1% ($n=1$) of the 10 cases had a planned suicide attempt, 8.7 % ($n=9$) had an unplanned suicide attempt. All of the past suicide attempts could be traced back over a 2-year period.

While 60.6% ($n=63$) of all cases had no comorbid psychiatric disorder, 39.4% ($n=41$) had any psychiatric disorder comorbidity. Among all cases, major depressive disorder 18.3 % ($n=19$), generalized anxiety disorder 3.8 % ($n=4$), social anxiety disorder 1 % ($n=1$), trichotillomania 1 % ($n=1$), onychophagia 1.9 % ($n=2$), binge eating disorder 1 % ($n=1$), multiple comorbidity of psychiatric disorders 9.6 % ($n=10$), alcohol use disorder 1 % ($n=1$), adjustment disorder 1 % ($n=1$), separation anxiety disorder 1 % ($n=1$), eating disorder not otherwise specified 1 % ($n=1$) was determined.

In this study, history of any childhood maltreatment (CM) was found in 67.3% ($n=70$) of the cases. These traumatic experiences included physical abuse in 27.9% ($n=29$), emotional abuse in 47.1% ($n=49$), sexual abuse in 28.8% ($n=30$), physical neglect in 32.7% ($n=34$), and emotional neglect in 38.5% ($n=40$) of the cases.

Table 1 summarizes the comparison of the sociodemographic characteristics of the CM (+) and CM (-) participants. The CM (+) group's mean age was determined to be significantly ($p<0.05$) lower than that of the CM (-). The education levels of CM (+) participants were lower than the CM (-) group ($p<0.05$) and there were a significantly ($p<0.05$) higher number of single individuals in the CM (+) group. There were no significant differences between the two ($p>0.05$) in terms of participants' sex, family history of a psychiatric disorder, family history of suicidal attempt, ongoing stimulant treatment, or past suicide attempts.

In Table 2, the mean scores of clinical scales of the participants are compared according to their CM background. The CM (+) group's BDI, BAI, DES, SBS, and SIQ mean scores and CTQ EA, PA, SA, PN, and EN subscales and CTQ-Total mean scores were significantly higher ($p<0.05$) compared to the CM (-) group. There were no significant differences between the two groups concerning the age of ADHD diagnosis or the ASRS total scores, the Attention Deficit subscale scores or, Hyperactivity subscale scores ($p>0.05$).

Spearman correlation coefficient revealed the statistically significant ($p<0,05$) correlation between SBS-Total score and BDI ($r:0.472$), BAI ($r:0.497$), DES ($r:0.295$), CTQ-Total ($r:0.377$), CTQ-EA ($r:0.407$), CTQ-PA ($r:0.201$), CTQ-EN ($r:0.316$), CTQ-SA ($r:0.304$) subscale scores, except the CTQ-PN subscale score ($r:0.118$, $p>0.05$). No significant correlations ($p>0,05$) were found between total scores of SBS and ASRS-v1.1 attention deficit subscale scores ($r:0,002$, $p>0,05$) or, ASRS-v1.1 hyperactivity subscale scores ($r: 0,122$, $p>0,05$).

Table 3 presents the findings of stepwise fourth-step regression analysis, where SBS total score was considered as the dependent variable and age, sex, history of past suicide attempts, comorbidity, BDI, BAI, DES, SIQ, CTQ-total and subscale scores, ASRS-total and subscale scores were considered as the independent variables,

it was found that the SIQ scores and CTQ-EA subscale scores were significantly ($p<0.05$) effective on the total scores of SBS. The effects of the other parameters on the total score of SBS were found not to be significant ($p>0.05$). The model was statistically significant, and the R-squared value was determined as 0.703.

Table 1. Demographic characteristics of 104 ADHD outpatients in terms of childhood maltreatment

		A history of CM		Test Statistics	P
		None	Present		
Age (years) (mean±SD)		27.29±7.42	24.09±6.27	t:2.304	¹ 0.023*
Sex n (%)	Female	9 (26.5)	34 (48.6)	X ² :3.743	² 0.055
	Male	25 (73.5)	36 (51.4)		
Education n (%)	Middle School	1 (2.9)	0 (0)	X ² :9.605	³ 0.005*
	High School	1 (2.9)	17 (24.3)		
	University	32 (94.1)	53 (75.7)		
Marital status n (%)	Married	4 (11.8)	2 (2.9)	X ² :9.011	³ 0.003*
	Single	27 (79.4)	68 (97.1)		
	Widowed, Separated	3 (8.8)	0 (0)		
A history of psychiatric disorder in the family n (%)	Present	5 (14.7)	24 (34.3)	X ² :3.443	² 0.064
	None	29 (85.3)	46 (65.7)		
A history of suicide in the family n (%)	Present	3 (8.8)	6 (8.6)	X ² :0.002	⁴ 0.615
	None	31 (91.2)	64 (91.4)		
Ongoing stimulant treatment n (%)	None	12 (35.3)	36 (51.4)	X ² :1.792	² 0.181
	Present	22 (64.7)	34 (48.6)		
Past suicidal attempt n (%)	Present	1 (2.9)	9 (12.9)	X ² :2.589	⁴ 0.100
	None	33 (97.1)	61 (87.1)		

* $p<0.05$, ¹Student t-test, ²Continuity (Yates) Correction, ³Fisher-Freeman-Halton Test, ⁴Fisher's Exact Test

Table 2. Clinical characteristics of 104 ADHD adult outpatients in terms of childhood maltreatment.

		A history of CM		p
		None	Present	
BDI median (min-max)		7 (1-32)	14.5(0-53)	¹ 0.001*
BAI median (min-max)		6.5 (0-35)	14.5(0-60)	¹ 0.001*
CTQ median (min-max)	CTQ-EA	5 (5-7)	9(5-25)	¹ $p<0.001^{**}$
	CTQ-PA	5 (5-7)	5(5-14)	¹ $p<0.001^{**}$
	CTQ-PN	5 (5-7)	7(4-15)	¹ $p<0.001^{**}$
	CTQ-EN	8.5 (5-12)	13.5(5-21)	¹ $p<0.001^{**}$
	CTQ-SA	5 (5-5)	5(5-18)	¹ $p<0.001^{**}$
	CTQ-T	29 (25-36)	42(28-73)	¹ $p<0.001^{**}$
DES median(min-max)		12.5 (1-55)	20(1-87)	¹ 0.018*
SSI median (min-max)		1.5 (0-8)	4(0-15)	¹ $p<0.001^{**}$
SBS median (min-max)	SBS-1	0 (0-2)	0(0-5)	¹ 0.004*
	SBS-2	0 (0-2)	0(0-4)	¹ 0.060
	SBS-3	0 (0-1)	0(0-1)	¹ 0.058
	SBS-4	0 (0-1)	0.5(0-3)	¹ 0.003*
	SBS-T	0 (0-6)	1(0-12)	¹ 0.002*
ASRS (mean±SD)	ASRS-T	49.5±11.23	46.54±11.29	² 0.212
	ASRS-AS	17.76±4.76	16.26±4.67	² 0.128
	ASRS-HS	31.68±7.8	30.29±7.5	² 0.383
Age of ADHD diagnosis n (%)	Childhood	11(32.4)	25(35.7)	³ 0.906
	Adulthood	23(67.6)	45(64.3)	

* $p<0.05$, ** $p<0.001$, ¹Mann-Whitney U Test, ²Student t-test, ³Continuity (Yates) Correction.

BDI: Beck Depression Inventory, BAI: Beck Anxiety Inventory, CTQ: Childhood Trauma Questionnaire, EA: Emotional Abuse Subscale, PA: Physical Abuse Subscale, PN: Physical Neglect Subscale, EN: Emotional Neglect Subscale, SA: Sexual Abuse Subscale, T: Total, DES: Dissociative Experiences Scale, SSI: Scale for Suicide Ideation, SBS: Suicidal Behavior Scale, T: Total Score ASRS: Adult ADHD Self-Report Scale, T: Total Score AS: Attention Score, HS: Hyperactivity Score, ADHD: Attention Deficit Hyperactivity Disorder

Table 3. Linear regression analysis of the factors which are predicting SBS in 104 ADHD outpatients.

SBS	B	SE	β ta	t	p	95% CI	
						Lower Bound	Upper Bound
(Constant)	-0.719	0.470		-1.531	0.129	-1.651	0.213
SSI	0.444	0.068	0.550	6.491	0.000**	0.308	0.579
CTQ-EA	0.131	0.056	0.198	2.330	0.022*	0.019	0.243

*p<0.05, **p<0.001.

SBS: Suicidal Behavior Scale, SSI: Scale for Suicide Ideation, CTQ: Childhood Trauma Questionnaire, EA: Emotional Abuse Subscale

Discussion

One of the most important findings of this study is that, while age and education level were found to be significantly lower; being single, DES, BDI, BAI, SIQ, and SBS scores were found to be significantly higher in the ADHD cases with a history of CM compared to those with no CM history. Previous studies have reported that both ADHD [31] and the history of CM [32] are related to difficulties in the education and working life of the individual, and both groups have lower functionality. Based on the findings of our study, adults with ADHD in the CM (+) group are more depressed, have higher anxiety levels, are more prone to dissociative processes, have more frequent suicidal thoughts and more severe suicidal behaviors compared to the CM (-) group. Our study supports the findings of a 10-year follow-up study [33] that revealed more suicide attempts, higher anxiety and depression scores, and more eating disorder symptoms in female patients with ADHD who had any experience of abuse (PA, SA) or neglect. Unlike this study, our study also included male individuals. CM leads to cognitive deficits related to problem-solving and memory [34]. From this point of view, we can argue that individuals with ADHD with a history of CM may have difficulties in resolving their problems due to past traumatic memories and may not be able to use adaptive coping mechanisms against accompanying clinical conditions such as depression, anxiety, and suicide ideation. Then, they may use non-adaptive coping mechanisms and therefore seek help and visit the hospital at an earlier age. On the other hand, there was no significant difference between CM (+) and CM (-) groups in terms of past suicide attempts. This result may be due to the relatively small number of cases in our study population (n=104), and this may have affected the correct statistical evaluation. In addition, past suicide attempts, which mostly occurred suddenly and unplanned in our study, may be associated with impulsivity, one of the main diagnostic features of ADHD, rather than a history of maltreatment. It has been revealed that high levels of impulsivity in women with ADHD are associated with both suicide attempts and non-suicidal self-harming behavior [35].

The relationship between ADHD and suicidal behaviors or childhood maltreatment is a well-known fact [10-13]. Some studies have emphasized that the relationship between ADHD and suicidal behavior can be explained by shared genetic factors [13] or the relationship between suicide and ADHD is mediated by comorbid disorders in both sexes and all age groups [12]. Taylor et al. reported that suicidal ideation and suicidal behavior are associated with the severity of ADHD, while comorbid diagnoses and emotion-oriented coping attitudes mediate this relationship [36]. Besides, self-destructive behavior and suicide attempts were found significantly higher in women diagnosed with ADHD [35,37]. In addition, female sex, younger age, childhood adversities, and presence of mental disorders were found as some

of the risk factors for suicidal behavior [38]. Like these studies, in our study, we also investigated the effects of age, sex, ADHD symptoms level, psychiatric comorbidity, anxiety, depression and dissociation levels, SIQ, CTQ total and subscale scores, and past suicide attempts on the SBS total scores. Unlike these studies, current ADHD symptoms level, comorbidity, age, or sex did not predict SBS total scores in our study. Furthermore, we found that particularly the SIQ scores, as well as the emotional abuse scores, predict the SBS scores in individuals with ADHD. To our knowledge, there is no study focusing on the relationship between childhood abuse/ neglect and suicidal behavior in a population of men and women diagnosed with primary ADHD, in Turkey. A study carried out with women with binge eating disorders, particularly childhood EA and SA were found to be linked with lifetime suicide attempts [39]. Harford et al. found that childhood physical, emotional, and sexual abuse were important risk factors for suicide attempts and violent behavior [40].

The findings of our study support these studies revealing the relationship between a history of CM and suicidal ideation, suicidal behavior, and suicide attempt [10,11,39,40]. Besides, disorders with impulsive features such as ADHD are strong predictors of both suicidal ideation and the transition from suicidal ideation to suicide attempt [41]. In the light of these studies, we may propose that suicidal ideation and a history of emotional abuse in childhood may increase the severity of suicidal behavior among adults diagnosed with ADHD.

Limitations

The findings of this study may not be generalized as its sample included a relatively small number of cases. One of the important limitations of the study is not evaluating personality traits that might be attributed to suicidal behavior. Another limitation of our study is that we could not use the DSM 5 compatible version of ASRS, as the Turkish validity and reliability of the scale have not yet been determined. Nevertheless, the changes in DSM 5 would not affect the result of the scale. Moreover, increasing age and retrospective assessment may lead to false positives for adverse childhood experiences. Further prospective longitudinal studies that explore the interaction of CM with other variables in terms of ADHD diagnosis are required to minimize the risk of suicide and to designate the treatment protocols.

Conclusion

A history of a CM is common in adults diagnosed with ADHD. Besides, suicidal ideation and emotional abuse are important predictors of suicidal behavior severity in this group of patients. It is stated that symptoms of ADHD may contribute to a stressful home environment in childhood and may lead to child abuse, and thus predispose to other psychiatric disorders [7] and suicidal

behavior [10]. Moreover, being exposed to CM maybe a causal risk factor for a lifetime diagnosis of ADHD [5]. Among adult ADHD patients, questioning the history of CM, emotional abuse, maybe a guide in determining suicide ideation and suicidal behavior and contribute to creating a treatment plan, as well as preventing suicide attempts and suicide.

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Conflict of interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

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Ethical approval

The ethics committee approval for the research was granted by the Clinical Research Ethics Committee of the Sisli Etfal Training and Research Hospital's Health Application and Research Center (Approval Date: June 11, 2019; Approval Number: 1273).

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