

Original article / Araştırma**The mediating effects of psychache and dissociation in the relationship between childhood trauma and suicide attempts****Mehmet Emin DEMİRKOL,¹ Kerim UĞUR,² Lut TAMAM¹****ABSTRACT**

Objectives: Childhood maltreatment, including physical, sexual, and emotional abuse and neglect, is a common experience worldwide. The association between childhood maltreatment and suicide has also been well established. This study aimed to investigate the mediator roles of psychache and dissociation in the effect of childhood maltreatment on suicide. **Methods:** This cross-sectional study included 198 major depressive disorder patients admitted to Çukurova University School of Medicine Balcalı Hospital and diagnosed with major depressive disorder according to DSM-5 criteria. The patients were grouped as those who attempted (97 patients) or did not attempt suicide (101 patients). Sociodemographic data form, Beck Depression Inventory (BDI), Childhood Trauma Questionnaire (CTQ), Dissociative Experiences Scale (DES), and Psychache Scale (PS) were used for data collection. **Results:** The mean BDI, median DES, median CTQ total, and mean PS scores in the suicide group were higher than those in the non-suicide group ($p<0.001$, for each). In multivariate logistic regression analysis, only DES predicted suicide attempts. Psychache and dissociation were full mediators in the effect of CTQ total score on suicide. **Conclusion:** Childhood maltreatment is a strong predictor of suicide attempts; psychache and dissociation play mediator roles in this relationship. Searching for psychache and dissociation in depressive patients who had childhood trauma history will help direct specific therapeutic interventions to prevent suicide attempts. (*Anatolian Journal of Psychiatry* 2020; 21(5):453-460)

Keywords: childhood trauma, psychache, dissociation, suicide

Çocukluk çağı travmaları ve intihar girişimleri arasındaki ilişkide psikolojik acı ve dissosiyasyonun aracı etkisi**ÖZ**

Amaç: Fiziksel, cinsel, duygusal ihmal ve istismarı içeren çocukluk çağı travmaları tüm dünyada yaygın bir sorundur ve çeşitli çalışmalarla intihar ile ilişkilendirilmiştir. Bu çalışmada çocukluk çağı travmaları ve intihar girişimleri arasındaki ilişkide psikolojik acı ve dissosiyasyon kavramlarının aracı etkisinin araştırılması amaçlanmıştır. **Yöntem:** Bu kesitsel çalışmaya Çukurova Üniversitesi Tıp Fakültesi Balcalı Hastanesi'ne başvuran, DSM-5 tanı ölçütlerine göre majör depresif bozukluk tanısı konan 198 erişkin hasta alınmıştır. Hastalar intihar girişiminde bulunanlar (97 hasta) ve bulunmayanlar (101 hasta) olarak gruplandırılmıştır. Katılımcılara Sosyodemografik Veri Formu, Beck Depresyon Ölçeği (BDÖ), Çocukluk Çağ Travmaları Ölçeği (ÇÇTO), Dissosiyatif Yaşantılar Ölçeği (DYÖ) ve Psikolojik Acı Ölçeği (PAÖ) uygulanmıştır. **Sonuçlar:** İntihar girişimi olan grupta ortalama BDÖ, PAÖ puanları ve ortanca DYÖ, ÇÇTO puanları intihar girişimi olmayanlara göre daha yüksek saptanmıştır. Çoklu regresyon analizi sonuçlarına göre dissosiyasyon puanları intihar girişimlerini anlamlı şekilde yordamaktadır. Çocukluk çağı travmaları ve intihar girişimleri arasındaki ilişkide dissosiyasyon ve psikolojik acının tam aracı etkisi gösterilmiştir. **Tartışma:** Çocukluk çağı travmaları intihar girişimlerinin güçlü bir yordayıcısıdır, psikolojik acı ve dissosiyasyon kavramları

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bu ilişkide aracı rol üstlenmektedir. Çocukluk çağı travması olan depresif hastalarda psikolojik acı ve dissosiyasyon kavramlarının araştırılması ve özgün tedavi yöntemlerinin uygulanması intihar girişimlerinin önlenmesine yardımcı olacaktır. (Anadolu Psikiyatri Derg 2020; 21(5):453-460)

Anahtar sözcükler: Çocukluk çağı travması, psikolojik acı, dissosiyasyon, intihar

INTRODUCTION

According to the World Health Organization, 800,000 deaths occur every year due to suicide.¹ Increasing suicide rates are a growing public health concern for both developed and developing countries. This alarming increase has led to the acceptance of suicide prevention as a global imperative.² Childhood maltreatment, including emotional, physical, and sexual abuse and neglect, is a common experience worldwide.³ Childhood trauma may lead to several adverse consequences such as lower educational levels, lower general health, and higher rates for criminality and psychiatric disorders.^{4,5} Childhood trauma may also lead to suicidal ideation and behavior at all ages.⁶ Certain mediators like inadequate social support and lack of problem-solving skills have been identified for the relationship between childhood maltreatment and suicide attempts.⁷

A formal description for dissociation may be as 'a process whereby certain mental functions which are ordinarily integrated with other functions presumably operate in a more compartmentalized or automatic way usually outside the sphere of conscious awareness or memory recall'.⁸ Suicidal thoughts and a history of suicide attempts are frequent among dissociative patients.⁹ Previous studies have revealed that dissociation was a mediator in the relationship between childhood trauma and suicidal and self-destructive behavior.¹⁰ Also, an association was found between dissociation and suicidality, which diminished or eliminated after controlling for childhood trauma.^{11,12}

Psychological pain, which is also named as psychache, may be defined as the introspective experience of several negative emotions like shame, guilt, loneliness, despair, and grief.¹³ Psychache was suggested to be one of the most important predictors of suicide.¹⁴ The role of psychache as a mediator in the relationship between childhood traumatic experiences and suicidal ideation has been investigated in college students recently, and childhood trauma has been found to have both direct and indirect effects through psychache on suicidal ideation.¹⁵ Levinger et al.¹⁶ examined the importance of psychache and dissociation together in youth

suicidality and found both contributed to suicidality. Ford and Gomez¹⁷ claimed that studies in different cultures and different age groups would help elucidate this issue.

The main point in reducing the risk of suicide is to find and treat the underlying cause.¹⁸ Psychache and dissociation are treatable psychological concepts.^{19,20} Identifying the effects of these concepts on suicide attempts can help at-risk individuals. This study aimed to evaluate the mediating effects of psychache and dissociation in the relationship between childhood trauma and suicide attempts in adults.

METHODS

Sample

Non-Interventional Trials Ethics Committee of Çukurova University Medical School approved the study. All participants signed written informed consent form before the study. The first author performed psychiatric interviews with the patients to make diagnoses according to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria.²¹

This cross-sectional study involved depressive patients between the ages of 18 and 70 years who were admitted to Balcalı Hospital of Çukurova University Medical School and did or did not have suicide attempts. The initial screening involved 217 patients, and 15 of them were excluded after the psychiatric interviews because of the confounding effects of comorbid psychiatric disorders on suicide (six patients had obsessive-compulsive disorder, seven had anxiety disorders, two had dementia). Four patients refused to fill out the forms, the final analysis included 198 patients.

Procedure

It took 60-75 minutes of each participant to complete the scales and sociodemographic form and to go through the psychiatric interview. The researcher explained the items that could not be understood by the participants. Any action that tended to end someone's own life was accepted as a suicide attempt.

Power analysis

A pilot study with ten subjects for each group was performed to determine the sample size to test the hypothesis in which Psychache Scale (PS) and Dissociative Experiences Scale (DES) scores mediate the relationship between Childhood Traumas Questionnaire (CTQ) scores and suicide attempts. One of the five subscales of CTQ was taken for power analysis. Results from the pilot study suggested that 37 subjects were needed to perform a study with 80% power and 5% type 1 error.

Measures

Beck Depression Inventory (BDI): This self-report scale was to assess the severity of depression. It includes Likert-type questions. The possible total scores from the scale range from 0 to 63; the severity of depression increases with increasing scores.²² Hisli²³ found the Cronbach's alpha value as 0.80 in the validity and reliability study of the Turkish version.

Childhood Trauma Questionnaire (CTQ): This self-report scale includes 28 Likert-type questions and evaluates abuse and neglect experiences retrospectively in five subscales as physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse.²⁴ Sar et al.²⁵ demonstrated the validity and reliability of the Turkish version in adults, and found the Cronbach alpha value for as 0.93.

Psychache Scale (PS): This self-report scale includes 13 Likert type questions that evaluate the intensity and frequency of psychological pain. The answers are ranging from 'strongly disagree' to 'strongly agree' or from 'never' to 'always.' The level of psychological pain increases with higher scores from the scale.²⁶ Demirkol et al.²⁷ performed the validity and reliability study of the Turkish version, and found the Cronbach alpha value as 0.98.

Dissociative Experiences Scale (DES): This 28-item self-report scale was developed by Bernstein et al.²⁸ It quantitatively evaluates dissociative experiences. Each item is scored from 0% (never) to 100% (always). The possibility of a dissociative disorder is higher for those with higher scores. Yargic et al.²⁹ performed the validity and reliability study of the Turkish version, and found the Cronbach alpha coefficient as 0.91.

Statistics

Descriptive statistics for continuous variables were given as mean±standard deviation or median and interquartile range depending on the

distribution of data. Categorical variables were summarized as number and percentage. A chi-square test was used for the comparisons of categorical variables regarding the presence of suicide. For continuous variables, independent samples *t*-test was used when the distribution was normal, and the Mann-Whitney U test was used when the distribution was not normal. Univariate and multivariate logistic regression were used to assess the risk factors that affect suicide attempts of the patients. CTQ total score was not included in the multiple regression model due to the multicollinearity problem. Jamovi and JASP software were used for these analyses.

Mediation analysis was carried out with MPLUS 7.4 package program. Bootstrap and mean and variance adjusted weighted least squares (WLSMV) parameter prediction methods were used for mediation analysis. The cut-off value for the significance of all statistical procedures was set as *p*=0.05.

RESULTS

Ninety-seven of 198 depressive patients with suicide attempts formed the suicide group, and 101 patients without suicide attempts formed the non-suicide group. Sixty-eight patients (70.1%) in the suicide group and 77 patients (76.2%) in the non-suicide group were females. The sex ratios of the groups were similar (*p*=0.416). The mean age was also similar in suicide (35.6±11.2) and non-suicide groups (37.2±11.0) (*p*=0.320). The percentages for marriage, employment, and the mean years of education were also similar in the two groups. The median duration of illness (3.0 [1.0-8.0]) was longer in the suicide group than in non-suicide group (1.0 [1.0-3.0]) (*p*<0.001).

The mean BDI, median DES, median CTQ total, and mean PS scores in the suicide group were higher than those in the non-suicide group (*p*<0.001, for each). The median scores of CTQ physical abuse, CTQ physical neglect, CTQ sexual abuse, CTQ emotional neglect, and CTQ emotional abuse subscales were also higher in the suicide group than in the non-suicide group (*p*<0.05, for each) (Table 1).

Univariate and multiple logistic regression analyses were performed to evaluate the risk factors that affect suicide risk. In univariate analysis, DES total, PS, CTQ total, and all five subscales of CTQ significantly predicted the suicide attempts. In multiple logistic regression analysis,

Table 1. Comparison of the suicide and the non-suicide groups according to the scale scores

	Suicide attempts		p
	No (n=101)	Yes (n=97)	
BDI, Mean \pm SD	26.2 \pm 10.9	37.3 \pm 11.8	<0.001^a
DES (Median [IQR])	18.9 [9.6-31.0]	35.3 [15.0-54.6]	<0.001^b
PS, Mean \pm SD	39.9 \pm 13.3	46.9 \pm 12.5	<0.001^a
CTQ emotional neglect (median [IQR])	10.0 [5.0-13.0]	11.0 [8.0-17.0]	0.028^b
CTQ emotional abuse (median [IQR])	5.0 [5.0-9.0]	9.0 [5.0-16.0]	0.001^b
CTQ sexual abuse (median [IQR])	5.0 [5.0-5.0]	5.0 [5.0-8.0]	<0.001^b
CTQ physical abuse (median [IQR])	6.0 [5.0-7.0]	7.0 [5.0-10.0]	0.002^b
CTQ physical abuse (median [IQR])	5.0 [5.0-5.0]	5.0 [5.0-9.0]	0.003^b
CTQ total (median [IQR])	33.0 [25.0-39.0]	42.0 [32.0-60.0]	<0.001^b

^a: Independent Samples t-test; Descriptive statistics were given as mean \pm SD.^b: Mann Whitney U test; Descriptive statistics were given as median [IQR].

BDI: Beck Depression Inventory; CTQ: Childhood Trauma Questionnaire; DES : Dissociative Experiences Scale; IQR: Interquartile Range; PS ; Psychache Scale ; SD: Standard Deviation.

Table 2. Logistic regression analysis for the factors that may predict suicide attempts

	OR (95%CI)	Univariate LR		Multiple LR	
		p	OR (95%CI)	p	
DES	1.03 [1.02-1.05]	<0.001	1.03 [1.01-1.05]	0.004	
PS	1.04 [1.02-1.07]	<0.001	1.01 [0.98-1.04]	0.493	
CTQ emotional neglect	1.06 [1.01-1.11]	0.024	1.02 [0.94-1.12]	0.590	
CTQ emotional abuse	1.11 [1.05-1.18]	<0.001	1.06 [0.95-1.19]	0.299	
CTQ sexual abuse	1.14 [1.04-1.24]	0.005	1.10 [0.99-1.24]	0.080	
CTQ physical neglect	1.11 [1.01-1.22]	0.024	0.93 [0.8-1.08]	0.350	
CTQ physical abuse	1.11 [1.02-1.2]	0.013	0.95 [0.84-1.08]	0.467	
CTQ total	1.03 [1.01-1.05]	0.001	-	-	

LR: Logistic Regression; OR: Odds Ratio; CI: Confidence Interval; CTQ: Childhood Trauma Questionnaire; DES: Dissociative Experiences Scale; PS: Psychache Scale.

only DES ($p<0.005$) was a significant predictor of attempted suicide (Table 2).

Mediation analyses were used to analyze the mediator effects of psychache and dissociation in the relationship between CTQ total and subscale scores and suicide attempts. The direct effects of CTQ total and subscale scores on suicide were analyzed first without adding media-

tors to the model. In this model, CTQ total and subscale scores affected suicide positively and significantly. The obtained path coefficients were between 0.175-0.359 ($p<0.05$) and explained variances were between 0.031 and 0.129. After the evaluation of direct effects, mediators were added to the model separately, and direct and indirect effects were analyzed. Results about the

Table 3. Mediator roles of psychache and dissociation in the effect of CTQ total score on suicide attempts

Mediator	Path a β	Path b β	Path c' β	Indirect effects β
Psychache	0.345***	0.279***	0.131	0.096**
Dissociation	0.176**	0.373***	0.161	0.066*

Path a: CTQ total → mediator; Path b: mediator → suicide attempt; Path c: CTQ total → suicide attempt; $\beta=0.227^{**}$, $p=0.006$, $R^2=0.052$; *: $p<0.05$; **: $p<0.01$; ***: $p<0.001$; CTQ : Childhood Trauma Questionnaire.

mediator roles of psychache and dissociation in the relationship between CTQ total score and suicide attempts were given in Table 3. Accordingly, the CTQ total score predicted psychache and dissociation significantly and positively. The direct effect of CTQ on suicide attempts was positive but not significant. Before the addition of mediators to the model, the direct effect of CTQ on suicide attempts was significant ($p<0.01$); after addition of mediators to the model indirect effects were significant ($p<0.01$ and $p<0.05$) and direct effects were not significant ($p>0.05$). Therefore we found that psychache and dissociation were full mediators on the effect of CTQ total score on suicide.

The mediator roles of psychache and dissociation on the effect of CTQ subscale scores on suicide attempts were also analyzed. Path diagrams, including standardized path coefficients and p values, were given in Figure 1 and Figure 2. Psychache had full mediator roles on the effects of emotional neglect, emotional abuse, and physical abuse on suicide and partial mediator roles on the effect of sexual abuse and physical neglect on suicide. Dissociation had full mediator roles on the effects of emotional abuse and physical abuse on suicide and a partial mediator role on the effect of sexual abuse and physical neglect on suicide. Dissociation had no mediator role in the effect of emotional neglect on suicide.

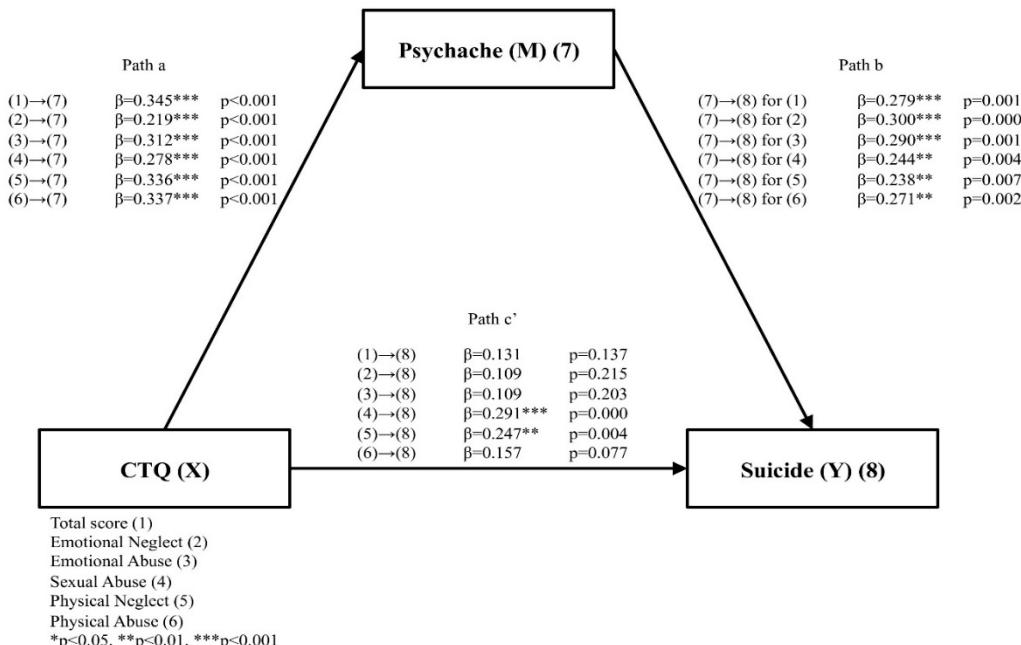


Figure 1. The mediator role of psychache on the effect of CTQ total and subscales on suicide attempts

DISCUSSION

The main finding of this study was that both psychache and dissociation mediated the association between childhood traumas and suicide attempts separately in depressive patients. A relationship between childhood traumas and suicidal thoughts has long been identified. Brown et al.³⁰ followed 776 randomly selected children for 17 years and found that adolescents and young adults with a history of childhood maltreatment had three times more risk for depression and suicide compared with individuals who did not have such a history. Eisenberg et al.³¹ investi-

gated 83.731 students and found a relationship between childhood sexual abuse and suicidal behaviors. Childhood physical abuse was also related to suicidal thoughts and attempts.^{32,33} All five types of childhood trauma (physical abuse, physical neglect, emotional abuse, emotional neglect, and sexual abuse) were more common in patients with a history of suicide attempt than those without such a history in our study. A recent study in the Korean population found that childhood sexual abuse was superior in predicting suicide attempts compared to other childhood traumas.³³ Our multivariate regression analysis showed no such difference between

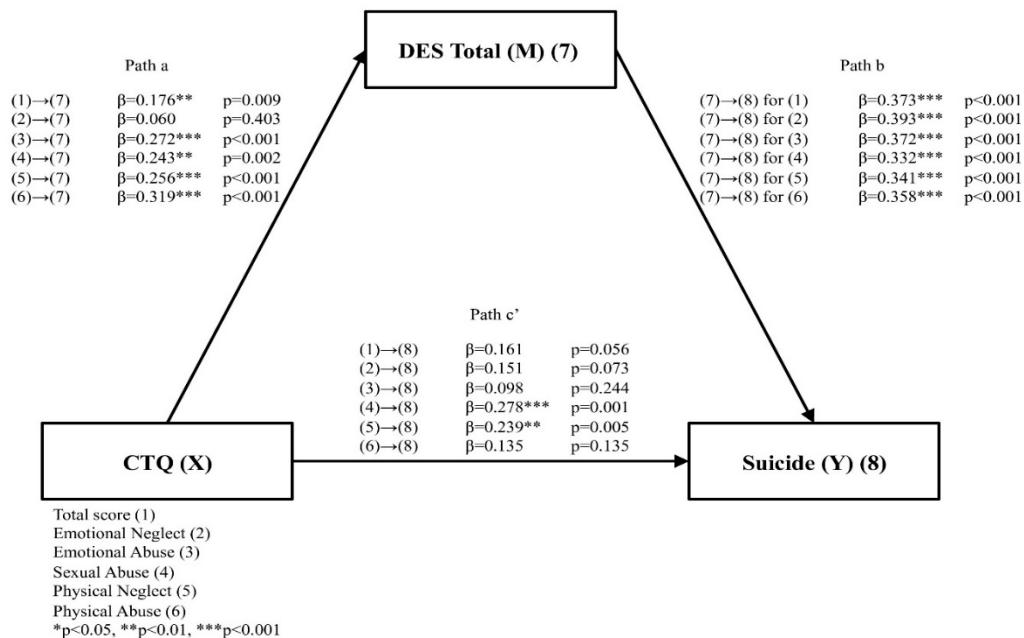


Figure 2. The mediator role of dissociation on the effect of CTQ total and subscales on suicide attempts.

childhood traumas. Our results that we found in the Turkish population different from the Korean study support the hypothesis that different coping strategies can be used against several types of trauma in various cultures.³⁴

We found that dissociation was a mediator in the relationship between childhood traumas and suicide attempts. In addition to the total CTQ score, dissociation had full mediator roles on the effects of emotional abuse and physical abuse on suicide and partial mediator roles on the effect of sexual abuse and physical neglect on suicide. Previous trials have found increased rates of suicide attempts and non-suicidal self-injury (NSSI) in dissociative patients compared with other psychiatric disorders.⁹ A few previous trials investigated the mediator role of dissociation in the relationship between childhood trauma and suicidality. Swannell et al.³⁵ found that dissociation was a mediator in the relationship between child maltreatment and self-injurious behaviors. Shenk et al.³⁶ investigated the mediator roles of dissociative symptoms in the relationship between childhood maltreatment and NSSI. They found a mediator role after controlling for depression and psychological dysregulation. According to these findings in the literature, dissociation has a strong mediator role in the relationship between child maltreatment and various forms of deliberate self-harm. Although the findings regarding subtypes of childhood maltreatment are

varied, the effect of sexual abuse seems to be the most consistent one.

In our study, psychache was the other mediator in the relationship between childhood trauma and suicidal attempts. Psychache also had full mediator roles on the effects of emotional neglect, emotional abuse, and physical abuse on suicide and partial mediator roles on the effect of sexual abuse and physical neglect on suicide attempts. The full mediator roles of psychache are not surprising because, in a 4-year follow-up study, Montemarano et al.¹⁴ found that depression and other psychological factors affect suicidality through psychache. Similar to our findings, previous literature also suggested a strong mediator role for psychache in the relationship between childhood trauma or its subtypes with suicidal ideation. Zarrati et al.¹⁵ examined suicide ideation in 371 college students and found that childhood trauma has both direct and indirect influences (through psychache) on suicide ideation. These influences were also true for the five subtypes of childhood traumas. Li et al.³⁷ studied 2259 Chinese high school students and found a mediator role of psychache in the relationship between emotional abuse and suicidal ideation. Both of these studies investigated suicidal ideation in a nonclinical sample. Our study extends these findings to a clinical sample and emphasizes the crucial role of psychache in the development of suicidal behavior.

Our results also have crucial therapeutic implications for depressive patients with a history of childhood trauma. Previous studies have revealed that dialectical behavioral therapy, sensorimotor psychotherapy, acceptance and commitment therapy, and mindfulness-based therapeutic implications would be beneficial in the treatment of dissociative symptoms.³⁸⁻⁴¹ Zou et al.²⁰ provided support for the efficacy of psychological pain theory-based cognitive therapy in reducing the suicide risk in depressive patients. The demonstration of the mediating effects of psychache and dissociation between childhood trauma and suicide attempts and choosing the appropriate therapy method may help to prevent suicide attempts.

Several limitations of this study may be listed. The wide age range of the patients included poses a limitation to our study because the effect of the trauma may decrease as the duration after the trauma increases. Mediation analysis is gen-

erally used to assess longitudinal processes, so our cross-sectional design can be regarded as another limitation. We tested alternative hypotheses of mediation to overcome this issue. Also, the patients are only from a tertiary psychiatry clinic, which limits the generalization of the results. In future research, psychache may be evaluated with brain imaging methods, and trials may focus on tolerance for psychache in addition to psychache intensity. The main strength of this study is the sample being a clinical one rather than being college students.

In conclusion, childhood maltreatment is strongly associated with lifelong suicide attempts. Psychache and dissociation play full mediator roles in this relationship. Searching for psychache and dissociation in depressive patients who had childhood trauma history will help to identify a group under risk for suicide and to direct specific therapeutic interventions on this patient group.

Authors' contributions: M.E.D.: finding the subject, literature review, conducting research, applying scales, statistical analysis, writing the manuscript; K.U.: finding the subject, literature review, writing the manuscript; L.T.: finding the subject, literature review, conducting research, statistical analysis, writing the manuscript.

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