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Dissociation as a mediator of interpersonal trauma and depression: adulthood versus childhood interpersonal traumas[3]

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Abstract

Extensive research has established that interpersonal trauma is related to depression and dissociation severity. Extending prior research, this study found that childhood and adulthood interpersonal traumas are related to depressive symptoms and examined the role of dissociative process as a mediator. Two hundred eighty-nine adult participants retrospectively reported on traumatic experiences and current symptoms of dissociation and depression, indicating that both childhood and adulthood interpersonal traumas are related to the severity of depression. However, childhood interpersonal trauma was associated with a higher level of dissociative symptoms. Moreover, it was suggested that dissociation serves as a pathway through which childhood interpersonal trauma influences depression, although this relationship was not observed for adulthood interpersonal trauma. In conclusion, this study highlights the potential role of dissociation in the development and maintenance of depression, particularly among individuals who have experienced childhood interpersonal trauma. These findings suggest that interventions targeting dissociation show potential for mitigating retrospective depression, especially for survivors of childhood interpersonal trauma.

Keywords Childhood interpersonal trauma, Adulthood interpersonal trauma, Depression, Dissociation

Introduction

Extensive research has found that exposure to traumas causes various fatal stress-inducing psychological illnesses and behavioral problems, including suicide attempts, psychosis, alcohol use disorder, and depressive symptoms [15, 21, 23, 24, 27, 29, 38, 39]. Depression is thoroughly intertwined with post-traumatic stress disorder (PTSD) (Elhai et al., [12]) and is a common symptom relating to these disorders and behavioral problems, especially PTSD [8]. Traumatic events are distinguished into two types: impersonal, such as natural disasters and car accidents, and interpersonal, such as assaults, battering, maltreatment, and neglect [2]. Substantial research has established that each type of traumatic event—interpersonal or impersonal—affects psychological illness differently. In particular, interpersonal trauma is the key factor influencing psychological illness, especially depression severity [14, 17]. Interpersonal trauma has been reported to have a particularly negative impact; it decreases individuals' sense of safety, a fundamental element for survival and mental health, by reducing predictability regarding safety [13]. Moreover, it impairs trust, thereby affecting interpersonal interactions, and induces feelings of worthlessness, guilt, and increased shame [3]. Thus, an interpersonal traumatic experience is not only an event that increases individuals' psychological discomfort; it may also damage and thereby limit the social

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support system available to them to protect against such discomfort in everyday life.

Findings have also suggested that interpersonal traumatic events experienced in early life may be more devastating than those experienced in adulthood because children are less able to coherently organize their responses to stressful circumstances [43]. The stress caused by those experiences may be more likely to cause adverse brain development, engendering psychiatric disorders [11]. Further, some research has indicated that childhood interpersonal traumatic events are related to a higher level of depression than events first experienced in adulthood. For example, individuals with a history of sexual assault in childhood tended to report and exhibit more significant depressive symptoms in later life compared to those who experienced abuse in adulthood [7]. Individuals who had experienced childhood abuse were also likelier to report a more severe level of depression and anxiety [25].

In contrast, a previous study found that childhood interpersonal trauma led to depression in later life in fewer than 50% of participants even when exposed to repeated and multiple traumas [1]. This research suggests that personal features, such as psychological processes, mediate the relationship between interpersonal traumatic events and the severity of depression. Additionally, the literature has emphasized that interpersonal trauma in early life can negatively affect interpersonal working models of both the self and others and hamper the development of effective defensive mechanisms, potentially enhancing the severity of depressive symptoms. The vulnerability to depression in individuals exposed to stressful events in early life is more likely to reduce psychological resources for processing distressing events, both cognitively and emotionally. Dissociation is one of the major factors that impede the process of psychological distress [28, 37]. Several studies have proposed a strong association between childhood abuse experience and a high level of dissociative symptoms [6, 20, 30]. Research has shown a link between the experience of childhood abuse by a family member and an increment in the severity of dissociation compared to the experience of assault and abuse in adulthood among a sample of psychiatric patients [43]. Therefore, children may be more likely to use the dissociative process to cope with unpleasant emotions resulting from traumatic events such as parental abuse or neglect, especially when parents cannot help their children develop the regulating capacity to process intense emotional distress [36]. Children may thus find it temporarily efficient to avoid psychological distress from overwhelming their cognitive processes by adopting passive avoidance, disengaging from reality, and compartmentalizing the memories and feelings derived from trauma [42]. However, excessive dissociation activation can become a primary coping strategy for alleviating stress, thus promoting psychopathology [4, 10]. Both psychologically and neurobiologically, overly activated dissociation may interfere with cognitive and emotional processing, impeding the integration of information related to the mental, behavioral, and physical states associated with trauma and increasing the risk of psychopathology [18, 26, 40]. In addition, previous studies have indicated that patients with pathological dissociation reported severe major depressive symptoms at the time of study and in the past [34], Tutkun et al., 1998). These findings indicate that dissociation is key to understanding severe depressive symptoms. However, limited evidence on the effect of time of exposure to interpersonal trauma shows that different psychobiological processes, such as dissociation, are used to cope with psychological distress.

The current study proves the impact of interpersonal traumas in childhood and adulthood and dissociation on depression. The present study aims to (1) examine adulthood and childhood interpersonal trauma as independent variables influencing the severity of depression and (2) explore the mediating role of dissociation on the association between interpersonal trauma and depression.

Materials and methods

Participants

The data of 289 outpatients with psychiatric disorder, suggestive of experience of traumatic events, at Hanyang University Guri Hospital were collected in this retrospective study. The range of participants' age was 18–64 years. We analyzed pooled psychological assessment data, including sociodemographic information. Participants were recruited through consecutive sampling, and corresponding written informed consent was obtained by attending psychiatric nurses or psychiatrists. Inclusion criteria were as follows: Korean proficiency in reading and writing and a principal diagnosis of a psychiatric disorder according to the DSM-5. Exclusion criteria were a diagnosis of intellectual disability, cognitive or neurological disorder, and psychosis.

Measures

Trauma History Screen. A trauma history screen is a self-questionnaire evaluating a lifetime history of 14 potentially traumatic events [9]. The respondents indicated whether they have experienced a particular event ("yes" or "no"), described what happened in detail, and stated the time of first occurrence and the frequency of exposure to these events. We divided age data into two ranges: childhood (≤ 18) and adulthood (< 18). The questionnaire includes stressful events in two domains: interpersonal trauma (assault, rape, sexually molested, tormenting) and

impersonal trauma (accident, natural disaster, loss of a loved one, witnessing death or injury). Because the study focused on interpersonal trauma, we analyzed the subscales that most explicitly reflected this type of trauma.

Beck Depression Inventory-II. The Beck Depression Inventory-II (BDI-II) is a self-assessment measuring depressive symptoms and symptom severity with 21 items on a 4-point Likert scale. The respondents assigned a score that best described their state during the week before the study [5].

Dissociative Experiences Scale-Taxon. The Dissociative Experiences Scale-Taxon (DES-T) measures dissociative symptoms [41]. The DES-T, a shorter version of the DES, is a validated scale consisting of eight items sensitive to pathological dissociation and validated [32, 22]. Respondents selected a percent frequency for eight dissociative symptoms from 0 to 100%, in intervals of 10%, shown using the visual analog scale. Cronbach's alpha for DES-T in the present study was 0.86.

Statistical analysis

We conducted a mediation analysis to test our hypothesis that dissociation mediated the effect of interpersonal trauma on depression. Statistical analysis was conducted with SPSS 25.0 for Windows (IBM Co., Armonk, NY, USA). [33] PROCESS macro for SPSS was used to conduct a bias-corrected bootstrapping procedure utilizing 5,000 samples to compute estimates for both the paths from independent variable to mediator and from mediator to the outcome, including the indirect effect. All statistical tests were two-tailed, and statistical significance was set at $p < 0.05$. Analysis of missing data for the measures indicated that data were missing randomly (i.e., the 3 cases with missing data were not correlated with any of the measures). Missing items were handled by mean substitution if the scale had at least 90% item completion.

Results

Descriptions

Table 1 presents the demographic variables. The mean participants' age was 40.0 years, and the mean number of education years was 12 years. One hundred eighty-five participants (49.6%) were married, and 145 (37.3%) had an annual household income of less than $20,000. Overall, 217 (75.1%) participants reported experiencing lifetime trauma, 84 (29.1%) reported childhood interpersonal trauma, and 81 (28.0%) reported adulthood interpersonal trauma (Tables 1 and 2).

Table 1 Demographic characteristics of the participants with and without a history of lifetime trauma ($N = 289$)

	Total Sample ($N = 289$), *n* (%)
Demographic characteristic	
Mean, age (SD)	40.04 (14.92)
Education	12.69 (3.02)
Annual household income	
<$20,000	145 (37.3)
$20,000–$39,999	126 (32.4)
$40,000–$59,999	59 (15.2)
>$60,000	40 (10.3)
Gender	
Male	163 (43.7)
Female	210 (56.3)
Marital status	
Married	185 (49.6)
Divorced	42 (11.3)
Widowed	10 (2.7)
Never married	136 (36.5)
Lifetime trauma	
Any lifetime trauma	217 (75.1)
Any impersonal trauma	192 (66.4)
Any interpersonal trauma	
Childhood interpersonal trauma	84 (29.1)
Adulthood interpersonal trauma	81 (28.0)

Table 2 Clinical characteristics of psychiatric outpatients ($N = 289$)

	Total Sample ($N = 289$), Mean (SD)
Trauma History Screen	
Childhood interpersonal trauma frequency	2.9 (5.94)
Adulthood interpersonal trauma frequency	2.78 (5.70)
Beck Depression Inventory-II	27.85 (13.04)
DES-Taxon	13 (17.71)

Correlations

As reported in Table 3, correlation analyses indicated that childhood interpersonal trauma is related to high adulthood interpersonal trauma, depressive symptoms, and dissociation.

Mediation analysis

As reported in Table 4, regression analyses demonstrated that childhood interpersonal trauma was directly associated with a higher level of depression and dissociation while accounting for sociodemographics such as age, sex, education, level of income, impersonal trauma, and adulthood interpersonal trauma. Furthermore, interpersonal trauma exposure in adulthood was directly associated with higher levels of depressive symptoms

Table 3 Correlation between the types of interpersonal traumas and dissociation and depression

	Dissociation	Depression
Childhood Interpersonal Trauma	0.33*	0.30*
Adulthood Interpersonal Trauma	0.10*	0.19*
T1: Childhood physical assault/ abuse	0.21*	0.33*
T2: Adult physical assault/abuse	0.31*	0.42*
T3: Sexual assault/abuse	0.28*	0.31*
T4: Threatened with weapon	0.33*	0.38*
T5: Traumatic bereavement	0.29*	0.37*
Dissociation	-	0.58*
Depression	0.50*	-

*$p < 0.01$

but not with dissociation while accounting for sociodemographics, impersonal trauma, and childhood interpersonal trauma. Additionally, a higher frequency of interpersonal trauma in childhood was indirectly related to higher levels of depressive symptoms through a higher level of dissociation while accounting for sociodemographics. Conversely, a higher frequency of exposure to interpersonal trauma in adulthood was not indirectly related to a higher level of depression through dissociation (Figs. 1 and 2).

Discussion

The present study explored the association between childhood and adulthood trauma, dissociation, and depression in psychiatric outpatients. We found that interpersonal trauma history in both childhood and adulthood can predict depression. This study examined childhood and adulthood interpersonal traumas separately as these types of trauma appear to have differing impacts on dissociation as a potential mediator, with childhood trauma exhibiting a stronger influence. In general, substantial research has revealed that individuals reporting childhood trauma are more likely to utilize dissociation to respond to stress [6, 20, 30]. Childhood trauma may be rooted in the development and reinforcement of utilizing dissociation while becoming an adult,

Table 4 Path coefficients of variables

	Childhood trauma				Adulthood trauma			
Paths	Standardized coefficients	SE	LL95%CI	UL95%CI	Standardized coefficients	SE	LL95%CI	UL95%CI
Direct effects								
Trauma → depression	0.14*	1.05	0.07	0.21	0.11*	0.96	0.06	0.16
Trauma → dissociation	0.29*	1.52	0.25	0.33	0.04*	1.45	-0.01	0.09
Dissociation → depression	0.45*	0.04	0.49	0.41	0.45*	0.04	0.51	0.39
Indirect effects								
Trauma → dissociation → depression	0.13*	0.03	0.07	0.20	0.18	0.02	-0.03	0.07
Total effect								
Trauma → depression	3.14*	1.05	4.51	1.77	2.48*	0.96	1.46	3.50

*$p < 0.01$

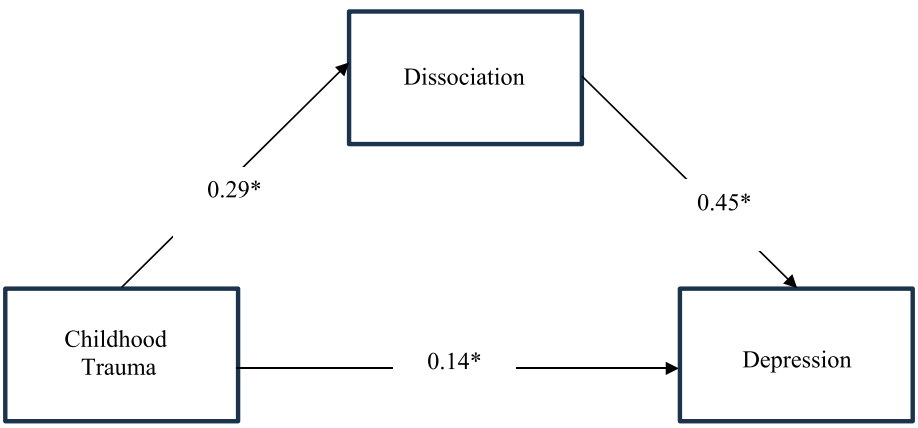

Fig. 1 Mediating effect of dissociation on the relationship between childhood trauma and depression

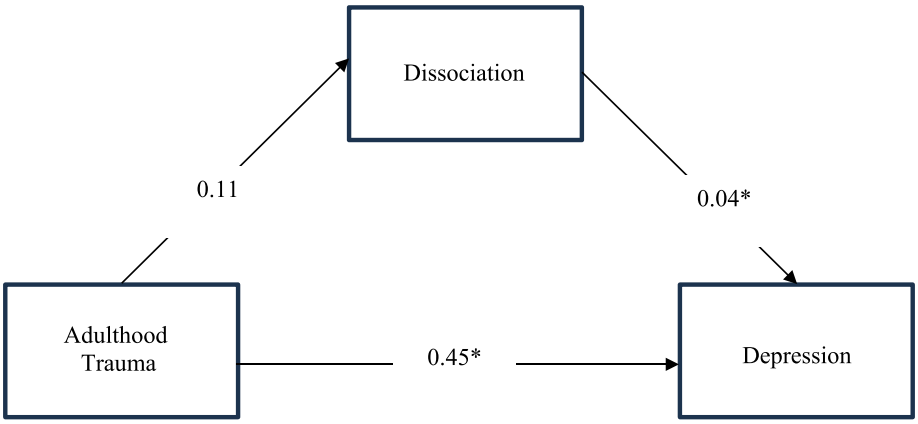

Fig. 2 Mediating effect of dissociation on the relationship between adulthood trauma and depression

which could exacerbate depressive symptoms. The present study also discovered that dissociation significantly mediates the relationship between childhood and trauma and depression. However, accounting for dissociation rendered the effect of adulthood trauma insignificant. According to Schimmenti [35], individuals who experienced trauma from close relationships, such as family and classmates, tended to exhibit a higher level of dissociation and depression, whereas individuals who experienced or witnessed trauma inflicted by nonfamily members likely showed a milder level of dissociation. This study found that childhood interpersonal trauma is likelier to occur in intimate relationships, and survivors tend to use dissociation to cope with stressful events. In comparison, adulthood interpersonal trauma has a relatively lower risk of being inflicted in intimate relationships.

The findings of this study are consistent with previous research that observed a significant positive correlation between dissociation, depressive symptoms, and maladaptive emotion regulation strategies in later adulthood [16]. As such, interpersonal trauma experienced in childhood causes changes in neuroanatomical and neuroendocrine sensitivity, leading to increased activation of the hypothalamus–pituitary–adrenal (HPA) axis even until adulthood; this supports the conclusion that dissociation is the main defensive mechanism used for coping with stressful events [19]. Notably, while dissociation may initially serve as a defense mechanism, it can ultimately perpetuate psychological distress [31]. Therefore, among individuals with a history of childhood interpersonal trauma, dissociation may be considered an important factor in preventing and treating depression.

This study has several limitations. First, the data collected were based on self-reported measures. Therefore, despite utilizing reliable psychometrics, it is difficult to guarantee the credibility of patients' reports. Second, causal inference cannot be made due to the study's cross-sectional nature although confounding variables are controlled as covariates in the statistical analysis and the relationships between variables are proved based on previous research. Thus, longitudinal studies should be conducted to advance this line of research.

Despite these limitations, this research highlighted several important points. The depressive symptoms in individuals exposed to both childhood and adulthood interpersonal traumas are a predictor. The present study emphasized dissociation as a key intervention target for preventing and treating depression in individuals who experienced interpersonal trauma during childhood and adulthood. For survivors of childhood interpersonal trauma, the severity of depressive symptoms can be reduced by utilizing the dissociative process to cope with stress and psychological distress.

In terms of intervention, dissociation may be critical for predicting a high level of depression among individuals with childhood interpersonal trauma. Reducing dissociation among survivors of childhood interpersonal traumatic experiences and encouraging positive alternative coping strategies may be an effective strategy for improving mental health. The current study has several strengths. Its balanced representation of male and female adults allows for greater generalizability than previous studies. Moreover, the study participants comprised psychiatric outpatients with severe psychiatric illness; this demographic is preferable to college students with negligible depression severity.

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Authors' contributions
Seungyun Shim: Writing – review & editing, Writing – original draft, Methodology, Investication, Formal analysis, Conceptualization. Deaho Kim: Writing—review & editing, Conceptualization, Eunkyung Kim: Writing—review & editing, Writing—original draft, Supervision, Methodology, Conceptualization.

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Data availability
The datasets supporting the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
The research project described in this document has received Institutional Review Board (IRB) approval from the Ethical Council of the Hanyang University Guri Hospital. Written informed consent was obtained from all participants.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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References

1. Anda RF, Felitti VJ, Bremner JD, Walker JD, Whitfield CH, Perry BD, Dube SR, Giles WH. The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from neurobiology and epidemiology. Eur Arch Psychiatry Clin Neurosci. 2006;256(3):174–86. https://doi.org/10.1007/s00406-005-0624-4.
2. Allen JG. Traumatic relationships and Serious Mental disorders. Chichester, UK: Wiley; 2001.
3. Baker DE, Hill H, Chamberlain K, Hurd L, Karlsson M, Zielinski M. Interpersonal vs. non-interpersonal cumulative traumas and psychiatric symptoms in treatment-seeking incarcerated women. J Trauma Dissociation. 2021;22(3):249–64. https://doi.org/10.1080/15299732.2020.1760172.
4. Banyard VL, Williams LM, Siegel JA. Understanding links among childhood trauma, dissociation, and women's mental health. Am J Orthopsychiatry. 2001;71(3):311–21. https://doi.org/10.1037/0002-9432.71.3.311.
5. Beck AT, Steer RA, Brown G. Beck depression inventory–II. Psychol Assess. 1996. https://doi.org/10.1037/t00742-000.
6. Becker-Blease KA, Deater-Deckard K, Eley T, Freyd JJ, Stevenson J, Plomin R. A genetic analysis of individual differences in dissociative behaviors in childhood and adolescence. J Child Psychol Psychiatry. 2004;45(3):522–32. https://doi.org/10.1111/j.1469-7610.2004.00242.x.
7. Burnam MA, Stein JA, Golding JM, Siegel JM, Sorenson SB, Forsythe AB, Telles CA. Sexual assault and mental disorders in a community population. J Consult Clin Psychol. 1988;56(6):843–50. https://doi.org/10.1037/0022-006X.56.6.843.
8. Campbell DG, Felker BL, Liu CF, Yano EM, Kirchner JE, Chan D, Rubenstein LV, Chaney EF. Prevalence of depression–PTSD comorbidity: implications for clinical practice guidelines and primary care-based interventions. J Gen Intern Med. 2007;22(6):711–8. https://doi.org/10.1007/s11606-006-0101-4.
9. Carlson EB, Smith SR, Palmieri PA, Dalenberg C, Ruzek JI, Kimerling R, Burling TA, Spain DA. Development and validation of a brief self-report measure of trauma exposure: the Trauma history screen. Psychol Assess. 2011;23(2):463–77. https://doi.org/10.1037/a0022294.
10. Cloitre M, Stovall-McClough KC, Miranda R, Chemtob CM. Therapeutic alliance, negative mood regulation, and treatment outcome in child abuse-related posttraumatic stress disorder. J Consult Clin Psychol. 2004;72(3):411–6. https://doi.org/10.1037/0022-006X.72.3.411.
11. De Bellis MD, Keshavan MS, Shifflett H, Iyengar S, Beers SR, Hall J, Moritz G. Brain structures in pediatric maltreatment-related posttraumatic stress disorder: a sociodemographically matched study. Biol Psychiatry. 2002;52(11):1066–78. https://doi.org/10.1016/S0006-3223(02)01459-2.
12. Elhai JD, Gold SN, Mateus LF, Astaphan TA. Scale 8 elevations on the MMPI-2 among women survivors of childhood sexual abuse: evaluating post-traumatic stress, depression, and dissociation as predictors. J Fam Violence. 2001;16(1):47–57. https://doi.org/10.1023/A:1026576425986.
13. Forbes D, Fletcher S, Parslow R, Phelps A, Meaghan O, Bryant RA. Trauma at the hands of another: longitudinal study of differences in the posttraumatic stress disorder symptom profile following interpersonal compared with noninterpersonal trauma. J Clin Psychiatry. 2012;73(3). https://doi.org/10.4088/JCP.10m06640.
14. Fowler JC, Allen JG, Oldham JM, Frueh BC. Exposure to interpersonal trauma, attachment insecurity, and depression severity. J Affect Disord. 2013;149(1–3):313–8. https://doi.org/10.1016/j.jad.2013.01.045.
15. Hardy A, Fowler D, Freeman D, Smith B, Steel C, Evans J, Garety P, Kuipers E, Bebbington P, Dunn G. Trauma and hallucinatory experience in psychosis. J Nerv Ment Dis. 2005;193(8):501–7.
16. Haselgruber A, Knefel M, Sölva K, Lueger-Schuster B. Foster children's complex psychopathology in the context of cumulative childhood trauma: the interplay of ICD-11 complex PTSD, dissociation, depression, and emotion regulation. J Affect Disord. 2021;282:372–80. https://doi.org/10.1016/j.jad.2020.12.116.
17. Hassija CM, Jakupcak M, Maguen S, Shipherd JC. The influence of combat and interpersonal trauma on PTSD, depression, and alcohol misuse in U.S. Gulf War and OEF/OIF women veterans. J Trauma Stress. 2012;25(2):216–9. https://doi.org/10.1002/jts.21686.
18. Heim C, Nemeroff CB. The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies. Biol Psychiatry. 2001;49(12):1023–39. https://doi.org/10.1016/S0006-3223(01)01157-X.
19. Heim C, Newport DJ, Mletzko T, Miller AH, Nemeroff CB. The link between childhood trauma and depression: insights from HPA axis studies in humans. Psychoneuroendocrinology. 2008;33(6):693–710. https://doi.org/10.1016/j.psyneuen.2008.03.008.
20. Hulette AC, Freyd JJ, Pears KC, Kim HK, Fisher PA, Becker-Blease KA. Dissociation and posttraumatic symptoms in maltreated preschool children. J Child Adolesc Trauma. 2008;1(2):93–108. https://doi.org/10.1080/19361520802083980.
21. Jurkovich GJ, Rivara FP, Gurney JG, Fligner C, Ries R, Mueller BA, Copass M. The effect of acute alcohol intoxication and chronic alcohol abuse on outcome from trauma. JAMA. 1993;270(1):51–6. https://doi.org/10.1001/jama.1993.03510010057029.
22. Kim Y, Kim S, Kim D, Kim E, Kim J, Choi N. The association between childhood interpersonal trauma and psychiatric symptom complexity, and the mediating impact of dissociation. Anxiety Mood. 2022;18(2):72–9. https://doi.org/10.24986/anxmod.2022.18.2.005.
23. LeBouthillier DM, McMillan KA, Thibodeau MA, Asmundson GJ. Types and number of traumas associated with suicidal ideation and suicide attempts in PTSD: findings from a U.S. nationally representative sample. J Trauma Stress. 2015;28(3):183–90. https://doi.org/10.1002/jts.22010.
24. Mandelli L, Petrelli C, Serretti A. The role of specific early trauma in adult depression: a meta-analysis of published literature. Childhood trauma and adult depression. Eur Psychiatry. 2015;30(6):665–80. https://doi.org/10.1016/j.eurpsy.2015.04.007.
25. McCauley J, Kern DE, Kolodner K, Dill L, Schroeder AF, DeChant HK, Ryden J, Derogatis LR, Bass EB. Clinical characteristics of women with a history of childhood abuse: unhealed wounds. JAMA. 1997;277(17):1362–8. https://doi.org/10.1001/jama.1997.03540410040028.
26. McLaughlin KA, Koenen KC, Bromet EJ, Karam EG, Liu H, Petukhova M, Ruscio AM, Sampson NA, Stein DJ, Aguilar-Gaxiola S, Alonso J, Borges G, Demyttenaere K, Dinolova RV, Ferry F, Florescu S, de Girolamo G, Gureje O, Kawakami N, Lee S, Navarro-Mateu F, Piazza M, Pennell BE, Posada-Villa J, Ten Have M, Viana MC, Kessler RC. Childhood adversities and post-traumatic stress disorder: evidence for stress sensitisation in the world mental health surveys. Br J Psychiatry. 2017;211(5):280–8. https://doi.org/10.1192/bjp.bp.116.197640.
27. Morrison AP, Frame L, Larkin W. Relationships between trauma and psychosis: a review and integration. Br J Clin Psychol. 2003;42(4):331–53. https://doi.org/10.1348/014466503322528892.
28. Nijenhuis ERS. Boundaries on the concepts of dissociation and dissociative parts of the personality: required and viable. Psichiatr Psicoter. 2015;34(1):55–85.

29. O'Donnell ML, Creamer M, Pattison P. Posttraumatic stress disorder and depression following trauma: understanding comorbidity. Am J Psychiatry. 2004;161(8):1390–6.
30. Ogawa JR, Sroufe LA, Weinfield NS, Carlson EA, Egeland B. Development and the fragmented self: longitudinal study of dissociative symptomatology in a nonclinical sample. Dev Psychopathol. 1997;9(4):855–79. https://doi.org/10.1017/S0954579497001478.
31. Özsoy F, Taşcı İ. Defense mechanisms, dissociation, alexithymia and childhood traumas in chronic migraine patients. J Rat-Emo Cognitive-Behav Ther. 2021;39(1):101–13. https://doi.org/10.1007/s10942-020-00357-0.
32. Pitzer C, Freyberger H, Brähler E, Beutel ME, Stieglitz R. Psychometric evaluation of the dissociative experiences Scale-Taxon (DES-T). Medizinische Psychologie. 2015;65:134–9.
33. Preacher KJ, Hayes AF. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behav Res Methods. 2008;40(3):879–91. https://doi.org/10.3758/BRM.40.3.879.
34. Schalinski I, Teicher MH, Nischk D, Hinderer E, Müller O, Rockstroh B. Type and timing of adverse childhood experiences differentially affect severity of PTSD, dissociative and depressive symptoms in adult inpatients. B M C Psychiatry. 2016;16(1):295. https://doi.org/10.1186/s12888-016-1004-5.
35. Schimmenti A. The trauma factor: examining the relationships among different types of trauma, dissociation, and psychopathology. J Trauma Dissociation. 2018;19(5):552–71. https://doi.org/10.1080/15299732.2017.1402400.
36. Schimmenti A, Caretti V. Linking the overwhelming with the unbearable: developmental trauma, dissociation, and the disconnected self. Psychoanal Psychol. 2016;33(1):106–28. https://doi.org/10.1037/a0038019.
37. Silberg JL, Dallam S. Dissociation in children and adolescents: at the crossroads. In: Dell PF, O'Neil JA, editors. Dissociation and the dissociative disorders: DSM-V and Beyond. New York: Routledge/Taylor & Francis Group; 2009. p. 67–81.
38. Stanley IH, Hom MA, Boffa JW, Stage DL, Joiner TE. PTSD from a suicide attempt: an empirical investigation among suicide attempt survivors. J Clin Psychol. 2019;75(10):1879–95. https://doi.org/10.1002/jclp.22833.
39. Stewart SH. Alcohol abuse in individuals exposed to trauma: a critical review. Psychol Bull. 1996;120(1):83–112. https://doi.org/10.1037/0033-2909.120.1.83.
40. Tsai J, Armour C, Southwick SM, Pietrzak RH. Dissociative subtype of DSM-5 posttraumatic stress disorder in U.S. veterans. J Psychiatr Res. 2015;66–67:67–74. https://doi.org/10.1016/j.jpsychires.2015.04.017.
41. Waller N, Putnam FW, Carlson EB. Types of dissociation and dissociative types: a taxometric analysis of dissociative experiences. Psychol Methods. 1996;1(3):300–21. https://doi.org/10.1037/1082-989X.1.3.300.
42. Zlotnick C, Shea MT, Pearlstein T, Simpson E, Costello E, Begin A. The relationship between dissociative symptoms, alexithymia, impulsivity, sexual abuse, and self-mutilation. Compr Psychiatry. 1996;37(1):12–6. https://doi.org/10.1016/s0010-440x(96)90044-9.
43. Zlotnick C, Johnson J, Kohn R, Vicente B, Rioseco P, Saldivia S. Childhood trauma, trauma in adulthood, and psychiatric diagnoses: results from a community sample. Compr Psychiatry. 2008;49(2):163–9. https://doi.org/10.1016/j.comppsych.2007.08.007.

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