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REVIEW ARTICLE

Emotion dysregulation and trauma in youth: a perpetuum mobile

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Summary

Both emotion dysregulation (ED) and traumatic experiences, especially interpersonalnal trauma in childhood, are being increasingly recognized as transdiagnostic risk factors for mental disorders during developmental age as well as later in life. The aim of this review is to explore the existing data regarding the potentially bidirectional relationship between ED and trauma, focusing on the way they could maintain each other to create a "perpetuum mobile" that shapes the mental health outcomes of youth. There is relatively consistent evidence that developmental traumatic experiences, especially child maltreatment, have adverse effects on ED, through various psychological mechanisms (such as social learning, interpretation of social cues, attachment, active invalidation of their emotional experiences) as well as neurobiological mechanisms (such as structural and functional abnormalities of the emotion-regulation-related neural areas caused by aberrant stimulation, stress-response system hyperactivity, and involvement of other physiological systems). In turn, certain evidence indicate that ED may maintain and worsen trauma by impairing trauma processing and eliciting trauma-related symptoms and conditions, as well as by inducing new interpersonal traumatic exposures via factors such as shame, mental disorders and proneness to aggressive behaviors. This potential "perpetuum mobile" could be active not only during a person's lifetime, but possibly spread through generations via different mechanisms. More research is needed to explore the nature of this complex relationship, and especially the ways ED in youth sets the ground for further maintenance of trauma. It is challenging to empirically conclude what the true direction of this relationship in different studies is, implying the need for methodological rigor in future investigations. Practical implications refer to all levels of prevention when it comes to both youth exposure to trauma and ED, but also to stopping the potential "perpetuum mobile", by preventive actions in both directions.

Keywords: developmental trauma, emotion dysregulation, interplay, adolescents, youth

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INTRODUCTION

The developmental age is a turbulent period comprising dramatic physical, cognitive, emotional, and social transformations (1). The interplay between biological aspects of maturation and the dynamics of environmental experiences results in vulnerability to the mental health difficulties (Mastorci, 2024). It is approximated that among all lifetime mental disorders, 50% begin by the age of 14, and 75% by the age of 24 (2,3), with the highest prevalence for depression, anxiety, and externalizing disorders (4). Mental disorders in youth may be associated with significant adverse consequences. They affect the current functioning as well as the development itself (for review see in (5)), increasing the risk for mental disorders in adult life (6). Mental health in youth shows dynamic course with often unclear or overlapping presentations of mental problems. Mental disorders at this age may be difficult to distinguish from common variations in developmental changes (7), while various psychiatric disorders can have varying developmental trajectories such as remission, diagnostic shift to another disorder, or comorbidity (8). This dynamic nature and low stability refers especially to disorders other than neurodevelopmental (8). Therefore, the transdiagnostic perspective on mental health disorders in warranted, in order to identify which pathological processes cut across different disorders (9). In terms of practical implications, such transdiagnostic factor could be a target of interventions aimed to address multiple diagnostic representations.

Emotion regulation (ER) has been proposed as one of the promising transdiagnostic factors, implied in the development and maintenance of multiple psychopathological outcomes in youth (10). It is defined as the process by which individuals influence their emotions, as well as their own experience of their emotions (11). It involves modifying various components of emotions, such as their intensity, duration and expression, in order to adapt to situational demands (11). *Emotion dysregulation (ED)* occurs when individuals experience difficulties in restoring their emotional balance and therefore are involved in prolonged, intense emotional states (12). ED is associated with a wide array of internalizing and externalizing mental health problems and psychiatric conditions in developmental period and in adulthood (13, 14). It has been indicated that mental health outcomes may be dependent on the type of ER strategies a person predominantly uses. The adaptive strategies such as cognitive reappraisal have been linked to lower levels of psychological distress and better emotional resilience (11), whereas the maladaptive strategies, such as rumination or suppression, are associated with increased risks of anxiety, depression, and other psychological disorders. It is suggested that an important role is played by the experiential avoidance, a response pattern that refers to the general unwillingness to remain in contact with particular private experiences that acts as a functional dimension through the use of maladaptive avoidance strategies (15). The effectiveness of the ER can also reflect on the long-term well-being, through affecting social relationships, career success, and overall quality of life, with those who excel in ER tending to form healthier interpersonal relationships and manage work-related stress more effectively (11), demonstrating better classroom behaviors and achieving stronger academic outcomes, while early disruptions in ER may contribute to academic challenges, particularly among children exposed to early adversities (14,16). Emotion dysregulation has also been associated with physical health outcomes. Inability to efficiently regulate emotions may result in chronic stress, negatively affecting the immune system, cardiovascular health, and overall physical well-being. In reverse, effective ER may have a buffering role in stress-related physiological responses, promoting superior health outcomes (11).

Traumatic experiences are increasingly being recognized as a transdiagnostic risk factor for mental disorders (17,18). They refer to experiences that have a high potential for harm (19), and resulting in toxic stress. Trauma exposure has a particularly detrimental effect when it happens early in life due to heightened brain plasticity which occurs in childhood and adolescence (20). It has been shown that the individuals who have experienced psychological trauma are at a nearly threefold higher risk of developing mental health disorders compared to those without such experiences, such as anxiety disorders, mood disorders, psychotic disorders and personality disorders (18). Child maltreatment represents a specifically detrimental traumatic risk factors associated with a variety of different mental health dysfunctions and disorders (21). The individuals who were maltreated in childhood show higher odds of hospital admissions for psychiatris disorders by the age of 30, including schizophrenia, bipolar disorder, depression, anxiety and PTSD (22). Developmental trauma such as child maltreatment has been associated with various mechanisms through which it adversely affects mental development and health outcomes. Among psychological mechanisms, child maltreatment has been associated with impaired development of secure attachment, mentalization, social and cognitive learning, etc (for review see in (21)). Important neurobiological mechanisms refer to the neural structures important for socio-emotional processes being affected by the abberant stimulation resulting from child maltreatment experiences, by chronic sensitization of stress-response system, of immunological system (23), and other systems such as oxytocin (for review see in (21)). The dysfunctional activity of some of the aforementioned physiological systems has also been associated with various physical health consequences of child maltreatment (for review see in (21)). Distressing and conflictuous relationships with parents have shown to predict mental disorders such as depression and anxiety even in emerging adulthood (24).

In addition to exploring some of the key transdiagnostic factors, it is of importance to take *their interplay* into account. Indeed, it is suggested that integrating the role of context into ER research is crucial, since empirical work has not fully embraced this perspective, leaving significant gaps in our understanding—particularly regarding its connection to trauma and subsequent psychopathology (25). On one hand, as mentioned earlier, child maltreatment has repeatedly shown adverse effects on the mental health and development, which could lead to ED, suggesting ED as an adverse consequence of traumatic experiences. On the other hand, ED is a concept with dynamic course through development, and could possibly, vice versa, give context to the experience and further processing of trauma, as well as increase risk of further exposure to traumatic experiences. While the effects of developmental trauma on ED are considerably supported by research, the data is scarce on the reverse direction of this relationship.

This narrative review aims to address this question by exploring various findings on the current understanding of the relationship between emotion dysregulation and traumatic experiences, in the way they could maintain each other over time to jointly create a "perpetuum mobile" that shapes the mental health trajectory of children and adolescents.

EMOTION DYSREGULATION AS A CONSEQUENCE OF TRAUMATIC EXPERIENCE

Emotions can be regulated through ER mechanisms corresponding to each phase of the emotion generation process. A person can decide which situations to approach or avoid to influence potential emotional outcomes (*situation selection),* change the aspects of a situation to alter its emotional impact (*situation modification),* direct attention toward or away from emotional triggers (*attentional deployment),* reappraise or reinterpret a situation to change its emotional meaning (*cognitive change),* and finally, one can influence behavioral, experiential, or physiological responses to an emotion after it has been fully generated (*response modulation*) (11). The development of adaptive ER abilities is facilitated by the interaction of multiple skills such as the awareness of emotions, the ability to identify and label emotions, to interpret emotion-related body sensations correctly, to understand the prompts of emotions, to support oneself in distress, furthermore the ability to actively modify negative emotions to feel better, to accept emotions, to be resilient and to tolerate negative emotions, and the ability to confront emotionally distressing situations in order to attain important goals (for review see in (26)).

How does ER develop?

The ER develops across the lifespan, being affected by biological maturation, social experiences and environmental factors. Multiple subsystems interact and influence the emotional development, including caregiver–child, co-parental, and sibling relationships. The development of ER includes several milestones. In infancy and early childhood, a child relies heavily on caregivers for external regulation of emotions, such as soothing when distressed. As children grow, they start developing internal regulation skills, such as distraction or simple cognitive strategies, often modeled and supported by caregivers and social interactions. In middle childhood and adolescence, more sophisticated ER strategies develop under the influence of cognitive and social development, such as cognitive reappraisal. In adolescence, ER is faced with the increased emotional challenges resulting from hormonal changes, experiences with peers, and identity formation. When an individual reaches full adulthood, with various life experiences and having an opportunity for refining cognitive strategies, the ER shows greater stability and adaptability. Older adults may use selective attentional deployment, focusing more on positive aspects of situations to maintain emotional well-being (11). The ER strategies can be seen as extrinsic, when one's emotion regulation is helped by external factors (other individuals), such as a caregiver soothing a distressed child; and intrinsic, when individuals regulate their own emotions to meet personal or external demands (11). From infancy to adulthood, therefore, the ER develops from more extrinsic, to more intrinsic (27).

Early trauma - when ER development goes wrong

Throughout childhood, adolescence, and transitioning to adulthood, the development of patterns for regulating emotions may be disrupted, by both innate vulnerabilities and adverse experiences, resulting in emotional imbalance and increased risk for mental health problems (11,14). Early exposure to traumatic events, and especially the interpersonal trauma in childhood such as child maltreatment, has been related to various conditions with emotional dysregulation as a core feature that could underlie this risk (28). Existing literature gives considerable support to the association between child maltreatment and ED throughout lifetime (29-37), including using fewer ER strategies, less acceptance of one's emotions and less emotion clarity, as well as a greater use of maladaptive strategies such as suppression and rumination, mediating general psychopathology risk (38). There are different hypotheses on the underlying mechanisms of the relationship between early trauma and EDR, both psychological and biological. Some of them will be presented in the following text.

Psychological mechanisms

A meta-analytic review on effects of maltreatment on coping and ER in childhood and adolescence (32) confirmed association between child maltreatment and poor ER, as well as increased avoidance, emotional suppression, and expression of negative emotions in response to stress. Defects in acquiring ER strategies and coping against the psychosocial problem development were associated with the decreased exposure to healthy models of ER and coping, and increased exposure to the examples of maladaptive stress response such as aggressive behavior (39). This implies the importance of the *social learning mechanism* (for review see in (21)). In case of child abuse, parents model maladaptive strategies in emotionally challenging situations, resulting in children possibly using similar problematic strategies, while in case of neglect, parents fail to provide the ER modeling at all, leaving neglected children with poorer understanding of emotions and with poor repertoire of ER strategies (40). It is noted that early-life maltreatment may actually create a double effect in terms that children experience the stressors that are far beyond their developmental ability to cope, while at the same time lacking the input of adequate stimuli of modelling appropriate responses to stress (41). This could result in children reaching out to the maladaptive strategies that may bring short-term relief but may increase the psychosocial risk in the long run, when the children apply them in normative situations of lower threat (41). Eventually, the situations of such developmentally challenging stressor, result in youth not only failing to acquire adaptive ER strategies, but learning the maladaptive strategies as well, imposing the increased risk of further psychosocial problems. This is in line with the finding showing that coping and ER may act as important mediators in the relationship between child maltreatment and the psychopathology (42). Studies show that deficits in caregiver responsiveness may inflict the development in interpersonal communication and *interpretation of social cues*. The data point out that maltreated children, independently of the type of maltreatment, have delays or deficits understanding and regulating emotions, and that they anticipate negative reactions if they show sadness and anger (28). This may be in close relationship with the development of *secure attachment*, which is regarded as essential for developing adaptive ER. Attachment (43) refers to an internal representation of the self and others in significant interpersonal relationships, starting with the attachment patterns with the caregivers and representing a "blueprint" for interpersonal relationships throughout life. Studies have found that maltreated children have disorganized attachment and negative internal representations of the caregiver, while also having ED and decreased social competence. In response to angry adult interactions simulation, maltreated children significantly more manifested problems with ER, associated with anxious and depressed symptoms as well as behavioral problems (44). Although all types of childhood maltreatment experiences fail to provide benevolent interpersonal environment, some data show that emotional maltreatment may be specific due to the experience of chronic active *invalidation of their emotional experiences*, which can lead to poor ER strategies later in life, especially emotional inhibition or avoidance (for review see (45)).

Biological mechanisms

It is suggested that, especially after repeated childhood trauma, the disruption of ER skill acquisition may result from the neurobiological effects of maltreatment (46). These mechanisms include molecular modifications of the stress response systems, further affecting neurogenesis, myelination, neuronal morphology, and synaptogenesis in brain regions important for ER. This results in attenuated structural development of the hippocampus, amygdala, left neocortex and corpus callosum as well as functional changes in the development of the left hemisphere, decreased integration between the hemispheres, increased limbic irritability, and decreased functional activity of the cerebellar vermis (for review see in (21,28)). The aforementioned neural structures, important for socio-emotional processing, emotion regulation and executive functions (the future "social brain") are the structures with extensive postnatal development and at the same time, the structures that are most sensitive to the effects of stress due to the high density of glucocorticoid receptors. Therefore, these areas are adversely affected by both aberrant neurostimulation resulting from child maltreatment, and by the toxic effects of cortisol, mostly mediated by glutamate (for review see in (21)). Other mechanisms that could affect these structures may be related to the possible sensitization of the immune system by child maltreatment, building a chronic low-grade inflammation and resulting in inflammatory cytokines crossing the blood– brain barrier; additionally, the development of the key structures could be affected by lower levels of oxytocin as a consequence of child maltreatment (for review see in (21)).

EMOTION DYSREGULATION AS A CONTRIBUTOR TO FURTHER TRAUMA

Processing trauma and contributing to trauma-related symptoms

While there is a number of findings confirming and exploring EDR as a consequence of developmental trauma, the data on the opposite direction of this relationship is insufficient. Most of the findings relate to the EDR effects on the processing of trauma and further development of

trauma-related conditions such as posttraumatic stress disorder (PTSD) and other symptoms and conditions (45,47-50). It is shown that posttraumatic EDR acts as a predictor of PTSD after trauma exposure (50). Posttraumatic symptoms were associated with the *lack of acceptance of emotional experiences, lack of emotional clarity, limited access to strategies and difficulties in goal-directed behavior and abstaining from impulsive behaviors while being upset* (51). Other findings further indicate that different facets of EDR predict different trauma-related conditions. Lack of emotional clarity predicted PTSD symptoms, speaking in favor of a potential mechanism inducing worsening symptoms. On the other hand, lack of regulation strategies, has been suggested as a marker of helplessness in post-traumatic depression (47). ED after traumatic experience has been shown to associate with the *ability to recover from posttraumatic symptoms*, even after controlling for the effects of symptoms (48), and it acted as a mediator between PTSD symptomatology and *dissociation symptoms* (52). The manifestations of EDR may, in fact, be seen as k*ey substrate of the complex trauma* since they represent the core features of complex PTSD in ICD-11 (53), and can also be closely related to the manifestations of borderline personality disorder (BPD) (54) and of developmental trauma disorder that was proposed but not included in DSM-V (55).

Interpersonal dysfunctions as a source of new trauma exposures

ER is a precondition of adequately navigating emotional responses in interpersonal communication. Therefore, ED may be associated to interpersonal dysfunctions and consequent exposure to stimuli that induce toxic stress. In addition to the aforementioned association of *insecure attachment* and interpersonal distress, it has been shown that ER is predictive of *shame and guilt proneness*, with higher use of maladaptive strategies and lower use of adaptive strategies being associated with shame-proneness, while the opposite pattern being associated with guilt-proneness. Shame and guilt are both negatively valenced emotions induced in similar situations, but shame has shown to be more detrimental since it includes in inferior and worthless views of self, and a tendency to hide or escape, and is predictive of various mental health conditions (for review see in (56)) potentially affecting interpersonal relationships. It is shown that EDR may act as a mediator between traumatic experiences in childhood and various *mental health problems*. This goes for early traumatic exposures, but even later in development, during emerging adulthood (18-24 years of age) it has been found that, for example, distressing relationships among youth and parents have predicted the occurrence and the severity of depression though maladaptive ER strategy as a mediator (57). Mental disorders may be associated with daily dysfunctionality as well as stigma, which could expose youth to distressing interpersonal situations. *Proneness to aggression* associated with ED, as found in certain studies (58,59), could be another mechanism contributing to interpersonal dysfunctiong leading to possible trauma exposure to both the person with ED and the person aggression is aimed at. As a neurobiological correlate, the altered thickness in superior frontal gyrus mediated the association between ED and physical aggression (60). Furthermore, as already mentioned EDR has been one of the core features in *BPD*, marked by both aggressive behaviors and interpersonal stress in the affected person. One of the consequences of ED being associated to aggression proneness, could be related to *intergenerational child maltreatment*, where ED has been hypothesized as one of the mechanisms between the child maltreatment history, and parental aggressive behavior towards child in the next generation (for review see in (21,61)). The intergenerational effects could also be mediated by the epigenetic markers of stress-response system dysregulation, found even in fetuses of parents who were child abuse victims (for review see in (21)).

CONCLUSION: MAINTAINING (AND STOPPING) A PERPETUUM MOBILE

"Perpetuum mobile" is a machine that moves endlessly, so that it produces more energy than was invested in it (62). Despite attempts, such a machine does not exist in the world of physics yet, as it defies the first and second law of thermodynamics. However, in the realm of youth mental health problems, could ED and trauma make each other survive through time, as a true perpetuum mobile?

Studies consistently indicate the adverse effects of developmental traumatic experiences, especially child maltreatment, on emotion dysregulation in adolescence and adulthood, through various psychological mechanisms (such as social learning, interpretation of social cues, attachment, active invalidation of their emotional experiences) as well as neurobiological mechanisms (such as structural and functional abnormalities of the ER-related neural areas caused by aberrant stimulation, stress-response system hyperactivity, and involvement of other physiological systems). In turn, some evidence indicate that emotion dysregulation may maintain and worsen trauma through the adverse contribution to trauma processing and eliciting trauma-related symptoms and disorders, as well as to opening doors to new interpersonal traumatic exposures via factors such as shame, mental disorders and proneness to aggressive behaviors. This potential "perpetuum mobile" could be active not only during a person's lifetime, but could possibly spread through generations via various mechanisms.

In terms of scientific implications, more research is needed to explore the nature of this complex relationship, and especially the ways emotion dysregulation in youth sets the ground for further maintenance of trauma

throughout one's lifespan and through generations. Furthermore, since emotion dysregulation can be both a consequence and a risk factor when it comes to trauma, the "ex post" assessment makes it difficult to clarify the true direction of this relationship (63); hence, rigorous methodological criteria are needed in future investigations. Practical implications refer to all levels of prevention when it comes to both youth exposure to trauma and emotion dysregulation, but also to stopping the potential "perpetuum mobile", by preventive actions in both directions. This could include the screening for emotion regulation patterns and difficulties among youth who have suffered trauma, as well as screening for previous but also current victimization among youth with emotion dysregulation. Finally, timely treating both trauma outcomes (including intergenerational effects) and emotion regulation difficulties is warranted, because both are modifiable by contemporary approaches (trauma-informed care, trauma-focused CBT (64), emotion-regulation-based transdiagnostic therapies (65)), built upon a good therapeutic relationship – an important platform for healing interpersonal wounds.

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REFERENCES

1. Mastorci F, Lazzeri MFL, Vassalle C, Pingitore A. The Transition from Childhood to Adolescence: Between Health and Vulnerability. Children (Basel) 2024;11(8):989. doi: 10.3390/children11080989. PMID: 39201923
2. Kessler RC, Amminger GP, Aguilar-Gaxiola S, Alonso J, Lee S, Ustün TB. Age of onset of mental disorders: a review of recent literature. Curr Opin Psychiatry 2007;20(4):359-64. doi: 10.1097/YCO.0b013e32816ebc8c. PMID: 17551351
3. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005;62(6):593-602. doi: 10.1001/archpsyc.62.6.593. Erratum in: Arch Gen Psychiatry. 2005;62(7):768. Merikangas, Kathleen R [added]. PMID: 15939837.
4. UNICEF. Mental health. New York: United Nations Children's Fund (UNICEF); 2019 [cited 2025 Mar 16]. Available from: https://data.unicef.org/topic/child-health/mental-health/
5. Mitković Vončina M, Pešić D, Munjiza Jovanović A, Radovanović A, Pejović Milovančević M. Youth mental health – psychosocial interventions at the heart of prevention and treatment (article in Serbian). In: Proceedings of 10th Forum of the Institute of Mental Health. Institute of Mental Health, Belgrade 2023; pp. 73-92.
6. Mulraney M, Coghill D, Bishop C, Mehmed Y, Sciberras E, Sawyer M, et al. A systematic review of the persistence of childhood mental health problems into adulthood. Neurosci Biobehav Rev 2021;129:182-205. doi: 10.1016/j.neubiorev.2021.07.030. PMID: 34363845.
7. Mason MJ, Aplasca A, Morales-Theodore R, Zaharakis N, Linker J. Psychiatric Comorbidity and Complications. Child Adolesc Psychiatr Clin N Am 2016;25(3):521-32. doi: 10.1016/j.chc.2016.02.007. PMID: 27338972.
8. Girela-Serrano B, Miguélez-Fernández C, Abascal-Peiró S, Peñuelas-Calvo I, Jiménez-Muñoz L, Moreno M, et al. Diagnostic trajectories of mental disorders in children and adolescents: a cohort study. Eur Child Adolesc Psychiatry 2024;33(5):1481-94. doi: 10.1007/s00787-023-02254-0. PMID: 37422547.
9. Aldao A. Introduction to the special issue: emotion regulation as a transdiagnostic process. Cogn Ther Res 2016;40(3):257-261. doi: 10.1007/s10608-016-9764-2.
10. Fernandez KC, Jazaieri H, Gross JJ. Emotion Regulation: A Transdiagnostic Perspective on a New RDoC Domain. Cognit Ther Res 2016;40(3):426-440. doi: 10.1007/s10608-016-9772-2. PMID: 27524846.
11. Gross JJ. Emotion regulation: taking stock and moving forward. Emotion 2013;13(3):359-65. doi: 10.1037/a0032135. PMID: 23527510.
12. Sheppes G, Suri G, Gross JJ. Emotion regulation and psychopathology. Annu Rev Clin Psychol 2015;11:379-405. doi: 10.1146/annurev-clinpsy-032814-112739. PMID: 25581242.
13. Košutić Ž, Mitković-Vončina M, Dukanac V, Lazarević M, Dobroslavić-Raković I, Šoljaga M, Peulić A, Đurić M, Pešić D, Bradić Z, Lečić-Toševski D. Attachment and emotional regulation in adolescents with depression. Vojnosanitetski pregled 2019;76(2):129-135. https://doiserbia.nb.rs/img/doi/0042-8450/2019/0042-84501700060K.pdf
14. Heleniak C, Jenness JL, Stoep AV, McCauley E, McLaughlin KA. Childhood Maltreatment Exposure and Disruptions in Emotion Regulation: A Transdiagnostic Pathway to Adolescent Internalizing and Externalizing Psychopathology. Cognit Ther Res 2016;40(3):394-415. doi: 10.1007/s10608-015-9735-z. PMID: 27695145.
15. Fernández-Rodríguez C, Paz-Caballero D, González-Fernández S, Pérez-Álvarez M. Activation vs. Experiential Avoidance as a Transdiagnostic Condition of Emotional Distress: An Empirical Study. Front Psychol 2018;9:1618. doi: 10.3389/fpsyg.2018.01618. PMID: 30233461.
16. Graziano PA, Reavis RD, Keane SP, Calkins SD. The Role of Emotion Regulation and Children's Early Academic Success. J Sch Psychol 2007;45(1):3-19. doi: 10.1016/j.jsp.2006.09.002. PMID: 21179384.
17. McLaughlin KA, Colich NL, Rodman AM, Weissman DG. Mechanisms linking childhood trauma exposure and psychopathology: a transdiagnostic model of risk and resilience. BMC Med 2020;18(1):96. doi: 10.1186/s12916-020-01561-6. PMID: 32238167.
18. Hogg B, Gardoki-Souto I, Valiente-Gómez A, Rosa AR, Fortea L, Radua J, et al. Psychological trauma as a transdiagnostic risk factor for mental disorder: an umbrella meta-analysis. Eur Arch Psychiatry Clin Neurosci 2023;273(2):397-410. doi: 10.1007/s00406-022-01495-5. PMID: 36208317.
19. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington, D.C.: American Psychiatric Press; 2013.

20. Kolb B, Gibb R. Searching for the principles of brain plasticity and behavior. Cortex 2014;58:251-60. doi: 10.1016/j.cortex.2013.11.012. PMID: 24457097.
21. Mitkovic Voncina M, Pejovic Milovancevic M, Mandic Maravic V, Lecic Tosevski D. Timeline of Intergenerational Child Maltreatment: the Mind-Brain-Body Interplay. Curr Psychiatry Rep 2017;19(8):50. doi: 10.1007/s11920-017-0805-7. PMID: 28664328.
22. Kisely S, Leske S, Ogilvie J, Thompson C, Siskind D, Allard T. A longitudinal birth cohort study of child maltreatment and mental disorders using linked statewide child protection and administrative health data for 83,050 Queensland residents from 1983 to 2014. Epidemiol Psychiatr Sci 2024;33:e69. doi: 10.1017/S204579602400074X. Erratum in: Epidemiol Psychiatr Sci 2024;33:e77. doi: 10.1017/S2045796024000805. PMID: 39563143; PMCID: PMC11669797.
23. Jovanovic AM, Mitkovic-Voncina M, Kostic M, Jeremic M, Todorovic J, Popadic D, et al. Childhood maltreatment correlates with higher concentration of transforming growth factor beta (TGF-β) in adult patients with major depressive disorder. Psychiatry Res 2021;301:113987. doi: 10.1016/j.psychres.2021.113987. PMID: 34023675.
24. Mitkovic Voncina M, Kosutic Z, Pesic D, Todorovic D, Peulic A, Lazarevic M, et al. Family and Personality Predictors of Clinical Depression and Anxiety in Emerging Adults: Common, Distinctive, or a Vulnerability Continuum? J Nerv Ment Dis. 2018;206(7):537-543. doi: 10.1097/NMD.0000000000000839. PMID: 29905664.
25. Aldao A. The Future of Emotion Regulation Research: Capturing Context. Perspect Psychol Sci 2013;8(2):155-72. doi: 10.1177/1745691612459518. PMID: 26172497.
26. Berking M, Wupperman P, Reichardt A, Pejic T, Dippel A, Znoj H. Emotion-regulation skills as a treatment target in psychotherapy. Behav Res Ther 2008;46(11):1230-7. doi: 10.1016/j.brat.2008.08.005. PMID: 18835479.
27. Young KS, Sandman CF, Craske MG. Positive and Negative Emotion Regulation in Adolescence: Links to Anxiety and Depression. Brain Sci 2019;9(4):76. doi: 10.3390/brainsci9040076. PMID: 30934877.
28. Dvir Y, Ford JD, Hill M, Frazier JA. Childhood maltreatment, emotional dysregulation, and psychiatric comorbidities. Harv Rev Psychiatry 2014;22(3):149-61. doi: 10.1097/HRP.0000000000000014. PMID: 24704784.
29. San Martín-González N, Moya-Higueras J, Eixarch E, Castro-Quintas Á, Marques-Feixa L, Crispi F, et al. Intergenerational effects of maternal childhood maltreatment on newborns' stress regulation: The role of maternal depressive symptoms. Child Abuse Negl 2024;155:106968. doi: 10.1016/j.chiabu.2024.106968. PMID: 39116554.
30. Marques-Feixa L, Moya-Higueras J, Romero S, Santamarina-Pérez P, San Martín-Gonzalez N, Mas A, et al. Complex post-traumatic stress disorder (CPTSD) of ICD-11 in youths with childhood maltreatment: Associations with age of exposure and clinical outcomes. J Affect Disord 2023;332:92-104. doi: 10.1016/j.jad.2023.03.088. PMID: 37004905.
31. Cicchetti, D., & Toth, S. L. (2016). Child maltreatment and developmental psychopathology: A multilevel perspective. In D. Cicchetti (Ed.), Developmental psychopathology: Maladaptation and psychopathology (3rd ed.). John Wiley & Sons, Inc., New Jersey 2016; pp. 457–512. https://doi.org/10.1002/9781119125556.devpsy311
32. Gruhn MA, Compas BE. Effects of maltreatment on coping and emotion regulation in childhood and adolescence: A meta-analytic review. Child Abuse Negl 2020;103:104446. doi: 10.1016/j.chiabu.2020.104446. PMID: 32200195.
33. Lavi I, Katz LF, Ozer EJ, Gross JJ. Emotion Reactivity and Regulation in Maltreated Children: A Meta-Analysis. Child Dev 2019;90(5):1503-1524. doi: 10.1111/cdev.13272. PMID: 31281975.
34. Liu RT. Childhood Maltreatment and Impulsivity: A Meta-Analysis and Recommendations for Future Study. J Abnorm Child Psychol 2019;47(2):221-243. doi: 10.1007/s10802-018-0445-3. PMID: 29845580
35. Luke N, Banerjee R. Differentiated associations between childhood maltreatment experiences and social understanding: a meta-analysis and systematic review. Dev Rev 2013;33(1):1-28. doi: 10.1016/j.dr.2012.10.001.
36. Warmingham JM, Russotti J, Handley ED, Toth SL, Cicchetti D. Childhood attachment security mediates the effect of childhood maltreatment chronicity on emotion regulation patterns in emerging adulthood. Attach Hum Dev 2023;25(3-4):437-459. doi: 10.1080/14616734.2023.2234891. PMID: 37470397.
37. Gratz K., RoemerL. Multidimensional Assessment of Emotion Regulation and Dysregulation: Development, Factor Structure, and Initial Validation of the Difficulties in Emotion Regulation Scale. Journal of Psychopathology and Behavioral Assessment 2004;26:41–54. https://doi.org/10.1023/B:JOBA.0000007455.08539.94.
38. Weissman DG, Bitran D, Miller AB, Schaefer JD, Sheridan MA, McLaughlin KA. Difficulties with emotion regulation as a transdiagnostic mechanism linking child maltreatment with the emergence of psychopathology. Dev Psychopathol 2019;31(3):899-915. doi: 10.1017/S0954579419000348. PMID: 30957738.
39. Kim J, Cicchetti D. Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. J Child Psychol Psychiatry 2010;51(6):706-16. doi: 10.1111/j.1469-7610.2009.02202.x. PMID: 20050965.
40. Berzenski SR. Distinct emotion regulation skills explain psychopathology and problems in social relationships following childhood emotional abuse and neglect. Dev Psychopathol 2019;31(2):483-496. doi: 10.1017/S0954579418000020. PMID: 29562947.
41. Abaied JL, Rudolph KD. Maternal influences on youth responses to peer stress. Dev Psychol 2011;47(6):1776-85. doi: 10.1037/a0025439. PMID: 21910532.
42. Jennissen S, Holl J, Mai H, Wolff S, Barnow S. Emotion dysregulation mediates the relationship between child maltreatment and psychopathology: A structural equation model. Child Abuse Negl 2016;62:51-62. doi: 10.1016/j.chiabu.2016.10.015. PMID: 27794242.
43. Bowlby J. A secure base: parent-child attachment and healthy human development. Basic Books, New York1988.
44. Maughan A, Cicchetti D. Impact of child maltreatment and interadult violence on children's emotion regulation abilities and socioemotional adjustment. Child Dev 2002;73(5):1525-42. doi: 10.1111/1467-8624.00488. PMID: 12361317.
45. Burns EE, Jackson JL, Harding HG. Child maltreatment, emotion regulation, and posttraumatic stress: the impact of emotional abuse. J Aggress Maltreat Trauma 2010;19(8):801-819. doi: 10.1080/10926771.2010.522947.
46. Cicchetti D, Rogosch FA. Adaptive coping under conditions of extreme stress: Multilevel influences on the determinants of resilience in maltreated children. New Dir Child Adolesc De. 2009;2009(124):47-59. doi: 10.1002/cd.242. PMID: 19536787.
47. Timmer-Murillo S, Schramm AT, Geier TJ, Mcleod E, Larson CL, deRoon-Cassini TA. Facets of emotion dysregulation differentially predict depression and PTSD symptom severity following traumatic injury. Eur J Psychotraumatol 2023;14(2):2193524. doi: 10.1080/20008066.2023.2193524. PMID: 36988588.
48. Bardeen JR, Kumpula MJ, Orcutt HK. Emotion regulation difficulties as a prospective predictor of posttraumatic stress symptoms following a mass shooting. J Anxiety Disord 2013;27(2):188-96. doi: 10.1016/j.janxdis.2013.01.003. Epub 2013 Feb 13. PMID: 23454838.
49. Mirabile M, Gnatt I, Sharp JL, Mackelprang JL. Shame and Emotion Dysregulation as Pathways to Posttraumatic Stress Symptoms Among Women With a History of Interpersonal Trauma. J Interpers Violence 2024;39(7-8):1853-1876. doi: 10.1177/08862605231211924. PMID: 37942893.
50. Forbes CN, Tull MT, Rapport D, Xie H, Kaminski B, Wang X. Emotion Dysregulation Prospectively Predicts Posttraumatic Stress Disorder Symptom Severity 3 Months After Trauma Exposure. J Trauma Stress 2020;33(6):1007-1016. doi: 10.1002/jts.22551. PMID: 32529732.
51. Tull MT, Barrett HM, McMillan ES, Roemer L. A preliminary investigation of the relationship between emotion regulation difficulties and posttraumatic stress symptoms. Behav Ther 2007;38(3):303-13. doi: 10.1016/j.beth.2006.10.001. PMID: 17697854.
52. Powers A, Cross D, Fani N, Bradley B. PTSD, emotion dysregulation, and dissociative symptoms in a highly traumatized sample. J Psy-

chiatr Res 2015;61:174-9. doi: 10.1016/j.jpsychires.2014.12.011. PMID: 25573648.

53. International Classification of Diseases, Eleventh Revision (ICD-11), World Health Organization (WHO) 2019/2021. Available from: https://icd.who.int/browse11. Licensed under Creative Commons Attribution-NoDerivatives 3.0 IGO licence (CC BY-ND 3.0 IGO).
54. Fossati A, Gratz KL, Maffei C, Borroni S. Impulsivity dimensions, emotion dysregulation, and borderline personality disorder features among Italian nonclinical adolescents. Borderline Personal Disord Emot Dysregul 2014;1:5. doi: 10.1186/2051-6673-1-5. PMID: 26401289.
55. Van der Kolk BA, et al. Proposal to include a developmental trauma disorder diagnosis for children and adolescents in DSM-V [unpublished manuscript]. 2009 [cited 2011 May 20]. Available from: http://www.cathymalchiodi.com/dtd_nctsn.pdf.
56. Szentágotai-Tătar A, Miu AC. Correction: Individual Differences in Emotion Regulation, Childhood Trauma and Proneness to Shame and Guilt in Adolescence. PLoS One. 2017;25;12(1):e0171151. doi: 10.1371/journal.pone.0171151. Erratum for: PLoS One. 2016; 29;11(11):e0167299. doi: 10.1371/journal.pone.0167299. PMID: 28122023;
57. Mitković Vončina M, Košutić Ž, Raković Dobroslavić I, Đurić M. Conflict communication with parents and depression in postadolescence: emotional regulation as a mediator (article in Serbian). Psihijatrija Danas 2021;53(1):89-102.
58. Herts KL, McLaughlin KA, Hatzenbuehler ML. Emotion dysregulation as a mechanism linking stress exposure to adolescent aggressive behavior. J Abnorm Child Psychol 2012;40(7):1111-22. doi: 10.1007/s10802-012-9629-4. PMID: 22466516.
59. Darmadi IR, Badayai ARA. The relationship between emotional dysregulation and aggressive behavior among adolescents. Int J Acad Res Bus Soc Sci 2021;11(6):1054-1064.
60. Bounoua N, Spielberg JM, Sadeh N. Clarifying the synergistic effects of emotion dysregulation and inhibitory control on physical aggression. HumBrain Mapp 2022;1;43(17):5358-5369. doi: 10.1002/hbm.26012. PMID: 35838011.
61. Mitkovic Voncina M, Lecic Tosevski D, Pejovic Milovancevic M, Popovic Deusic S. Linking child maltreatment history with child abuse potential: relative roles of maltreatment types. Arch Biol Sci 2014; 66(4):1681-7.
62. Angrist S. Perpetual motion machines. Sci Am 1968;218(1):115-122. doi: 10.1038/scientificamerican0168-114.
63. Conti L, Fantasia S, Violi M, Dell'Oste V, Pedrinelli V, Carmassi C. Emotional Dysregulation and Post-Traumatic Stress Symptoms: Which Interaction in Adolescents and Young Adults? A Systematic Review. Brain Sci 2023;18;13(12):1730. doi: 10.3390/brainsci13121730. PMID: 38137178.
64. Orygen, The National Centre of Excellence in Youth Mental Health. What is trauma-informed care and how is it implemented in youth healthcare settings? Orygen, The National Centre of Excellence in Youth Mental Health; 2018 [cited 2025 Mar 16]. Available from: https://www.orygen.org.au/Training/Resources/Trauma/Clinical-practice-points/What-is-trauma-informed-care-and-how-is-it-impleme/orygen_Trauma_informed_care_CPP.
65. Helland SS, Mellblom AV, Kjøbli J, Wentzel-Larsen T, Espenes K, Engell T, et al. Elements in Mental Health Interventions Associated with Effects on Emotion Regulation in Adolescents: A Meta-Analysis. Adm Policy Ment Health 2022;49(6):1004-18. doi: 10.1007/s10488-022-01213-2. PMID: 35987830.

EMOCIONALNA DISREGULACIJA I TRAUMA MLADIH: PERPETUUM MOBILE

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Sažetak

Emocionalna disregulacija (ED) i traumatska iskustva, posebno interpersonalna trauma u detinjstvu, sve se više prepoznaju kao transdijagnostički faktori rizika za mentalne poremećaje kako u razvojnom dobu, tako i kasnije tokom života. Cilj ovog preglednog članka je da istraži postojeće podatke u vezi sa potencijalno dvosmernim odnosom između ED i traume, fokusirajući se na način na koji bi ova dva faktora mogla da održavaju jedan drugog, čineći „perpetuum mobile" koji oblikuje ishode mentalnog zdravlja mladih. Postoje relativno dosledni dokazi da razvojna traumatska iskustva, posebno maltretiranje dece, imaju štetne efekte na ED, kroz različite psihološke mehanizme (kao što su socijalno učenje, interpretacija socijalnih signala, afektivno vezivanje („atačment"), invalidacija emocionalnih iskustava) kao i neurobiološke mehanizme (strukturne i funkcionalne abnormalnosti za emocionalnu regulaciju relevantnih neuralnih zona usled neadekvatne stimulacije, hiperaktivacije sistema odgovora na stres, i uticaja drugih fizioloških sistema). S druge strane, određeni dokazi ukazuju na to da ED može održati i pogoršati traumu ometanjem procesiranja traume i izazivanjem simptoma i stanja povezanih sa traumom, kao i stvaranja okolnosti za nova interpersonalna traumatska iskustava putem faktora kao što su stid, mentalni poremećaji i sklonost ka agresivnom ponašanju. Ovaj potencijalni „perpetuum mobile" mogao bi biti aktivan ne samo tokom života jedne osobe, već bi se mogao širiti i kroz generacije putem različitih mehanizama. Potrebno je više istraživanja da bi se istražila priroda ovog složenog odnosa, a posebno načini na koje ED mladih postavlja osnovu za dalje održavanje traume. Izazovno je empirijski zaključiti koji je smer ovog odnosa u različitim studijama, što implicira potrebu za metodološkom strogošću u budućim istraživanjima. Praktične implikacije odnose se na sve nivoe prevencije kada je u pitanju izloženost mladih traumi i ED, ali i zaustavljanje potencijalnog „perpetuum mobile-a", preventivnim delovanjem u oba smera.

Ključne reči: razvojna trauma, emocionalna disregulacija, međuodnos, adolescenti, mladi

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