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Childhood Maltreatment, Aspects of Emotional Processing and Borderline Personality Disorder

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Abstract

The main aim of the study was to retrospectively examine the correlations between childhood maltreatment, emotional processing, and symptoms of borderline personality disorder. The study was conducted through online platforms on a sample of 227 young woman participants from Croatia and Bosnia and Herzegovina. The age range of participants in this study was between 17 and 31 years, with a mean age of 23 years (*SD* =3.03). Research findings suggest that individuals who have had traumatic experiences in their early life are more prone to developing borderline personality disorder symptomatology and have lower levels of emotion regulation and lower scores on the empathy subscales (personal distress and perspective taking). Individuals with higher symptoms of borderline personality disorder report experiencing four types of traumatic experiences, excluding sexual abuse, have lower levels of emotion regulation, and score higher on the empathy subscales (personal distress, perspective taking, and fantasy). The findings of the study, based on the evidence on childhood maltreatment, highlight the need to develop strategies to mitigate the risk factors for developing more severe difficulties in young adulthood.

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1. Introduction

The World Health Organization (WHO) has conceptualized child maltreatment as physical, sexual, and emotional abuse, neglect, and exploitation of children that result in actual or potential impairment of the child's mental health, survival, and dignity. There is a growing body

of evidence that child maltreatment takes many different forms, more specifically, childhood abuse and neglect (Higgins & McCabe, 2001; Sesar et al., 2008; Sesar, 2009). The consequences of childhood abuse and neglect can be short- and long-term (Carnes et al., 2017; Sesar, 2008) and impact many different areas of functioning (physical, psychological, and cognitive) (Dodaj & Sesar, 2020). Adverse experiences in early life increase the risk of developing a wide range of psychiatric symptoms, including personality disorders (Teicher et al., 2003), and negatively affect the maturation of the system regulating basic biological processes (Dodaj et al., 2018; Zovko Grbeša & Sesar, 2021). Disruption of these processes has been associated with difficulties in emotion regulation (McFarlane & Kolk, 1996).

Emotion regulation is an integral component of emotional intelligence. Mayer and Salovey (1990) define emotion regulation as the ability to observe one's own and others' feelings and emotions and to use this information to guide thinking and behaviour. According to Koole (2009), emotion regulation is a controlled process used to change a person's spontaneous emotional response. People can modulate their emotions in a variety of ways, commonly referred to as emotion regulation strategies (Gross & John, 2003). Contemporary models suggest that emotion regulation strategies are broadly distinguished according to whether they are "antecedent-focused" or "response-focused" (Gross & John, 2003), depending on the point at which the person enters emotional processing. According to Gross and John (2003), cognitive reappraisal is an adaptive, antecedent-focused strategy that influences the early cognitive stages of emotional activity and revaluates the original interpretation of a given situation. It involves changing or reformulating the way a person thinks about a situation or emotion in order to regulate its effects. In contrast, expressive suppression is a maladaptive, response-oriented plan of action that is implemented after an emotional response has fully developed. It is understood as the inhibition of behavioural expression of the emotion and involves the suppression or inhibition of external mimic, physical, or behavioural signs of the emotion. Effective emotion regulation also requires the development of certain interrelated skills or abilities (Gross, 1999; Paivio & Laurent, 2001). The ability to control and monitor one's own emotions enables the development of an awareness of the affective state and beliefs of others. These skills modulate the intensity of emotions and contribute to self-awareness and interpersonal interaction. These skills are thought to develop in an empathic relational context.

Maltreatment in childhood likely undermines young people’s ability to learn and practice adequate coping strategies. Abusive parents often cover emotional expression and communicate in aggressive ways with family members (Wilson et al., 2008). Children, as a result, are unlikely

to have been exposed to coherent or suitable displays of coping (Shipman et al., 2007) that they would have learned to model themselves. Abusive parents also tend to rely on repressive interaction styles that include yelling, expressions of anger, and physical threats and aggression when interacting with their children, not only those who are young preschoolers, but even those spanning into adolescence or emerging adulthood (Rogosch et al., 1995; Wilson et al., 2008). These parenting pattern of behaviors again fail to model appropriate coping when confronted with stress. Finally, due to often high levels of unpredictability in parent-child interactions and the home generally (Coulton et al., 1999), maltreated children and adolescents, may learn or come to believe that they cannot control what happens to them, leading to feelings of helplessness (Renner & Slack, 2006). Because of this learned helplessness in childhood, emerging adults may not even try to change the emotional environment or attempt to use primary control strategies to regulate their emotions. Dysfunctional ways of dealing with negative emotional situations become a common way of coping with affective experiences and lead to long-term impairments in interpersonal functioning (Paivio & Laurent, 2001).

Empathy is the ability to understand other people's thoughts, feelings, and states by taking that person's position and perspective, trying to understand how that person is feeling or what they are going through, and responding to said states with appropriate emotions (Rosenberg, 2006). Most researchers believe that empathy consists of two components: a) cognitive empathy - understanding the other person's state and b) emotional or affective empathy - shared emotional responses (Goleman, 2015). Cognitive empathy involves understanding, knowledge of another person's state of consciousness and conditions, or awareness of how something that happens to another person may affect them. In other words, it means taking on the role or position of another person, i.e., seeing the world as another person sees it. On the other hand, when one speaks of affective empathy, it means reacting to another person's emotions with the same or similar feelings (Raboteg-Šarić, 1993). Developmental research suggests that empathy develops as an ability in the first years of life through the complex interaction of the child's environment and genetic makeup (de Haan & Gunar, 2009). Early negative life experiences (parental neglect, witnessing stressful situations) impair social-emotional processing (Eidelman-Rothman, 2016; Grimm et al., 2017), and the effects of early negative life experiences are more detrimental when they begin and persist in early childhood (Birn et al., 2017; McLauglin & Lambert, 2017). Adults exposed to early negative life experiences show abnormal neural responses to negative emotional stimuli and brain damage responsible for social functioning, such that they show reduced processing of affective facial expressions as children and adolescents, suggesting difficulties in emotional processing that maintains empathy (Herzber & Gunnar, 2020).

However, there is also evidence that adults who experienced a traumatic event in childhood show increased levels of empathy compared to adults who did not experience a traumatic event (Greenberg et al., 2018). Recent research (Lim & DeSteno, 2016) suggests that the severity of past adversity may lead to increased empathy and that this is mediated by empathy. These findings suggest that the experience of childhood trauma increases an individual's ability to take another's perspective and understand their mental and emotional states, and that this impact is long-lasting. In addition, the findings of Calhoun et al. (2000) indicate that a person can show positive psychological changes and personal improvements after trauma that result from learning through coping with the trauma.

Many researchers agree that childhood trauma is the most common risk factor for developing borderline personality disorder (BPD). Although results vary according to sampling method and assessment method, median point of BPD prevalence is roughly 1%, with higher or lower rates in certain community subpopulations. In clinical settings, the prevalence is around 10% to 12% in outpatient psychiatric clinics and 20% to 22% among inpatient clinics (Ellison et al., 2018). Instability of interpersonal relationships, self-image, and emotions, as well as impulsivity in a variety of situations, are of BPD symptomatology (Nicol et al., 2015). Genetic and environmental factors are recognised as etiological factors of BPD (Gunderson, 2007; New et al., 2008). One of the environmental risk factors is negative early life experiences. Between 30-90% of individuals diagnosed with BPD report some form of childhood abuse (sexual, psychological, and emotional) (Bornovalova et al., 2013; Bouchard et al., 2009; Carlson et al., 2009). Traumatic experiences lead to impaired ability to understand and respect mental states that are at the core of one's own behaviour and the behaviour of others (Divac-Jovanović & Švrakić, 2017), resulting in difficulties with emotion regulation, difficulties with interpersonal functioning, and distrust of others. When examining the factors for the development of a personality disorder, parental care is emphasised. There is some evidence in the literature supporting a particular association between childhood maltreatment and BPD symptomatology (Ibrahim et al., 2017, Krause-Utz et al., 2019).

Most of the research conducted to date reports lower levels of empathy in individuals diagnosed with BPD, while a smaller number of studies found higher levels of emotional empathy (Salgado et al., 2020). The authors hypothesise that deficits in empathy lead to impairments in stable interpersonal relationships, whereas elevated levels of emotional empathy may lead to personal (and interpersonal) difficulties that further contribute to abnormal social functioning in individuals diagnosed with BPD. Some authors introduce the term "empathic paradox"

(Dinsdale & Crespi, 2013; Jeung & Herpertz, 2014) or "borderline empathic paradox," which demonstrates an increased capacity for empathy in individuals diagnosed with BPD, despite unstable interpersonal relationships and interpersonal affective impairment. Simply put, this corresponds to the ability of certain individuals to recognise even the subtle emotional states of others without adequate skills to regulate and maintain interpersonal relationships. Dinsdale and Crespi (2013) noted that the "paradox" can be attributed to increased attention to a range of social stimuli among individuals with BPD symptomatology that contribute to the development of the ability to perceive social information. However, these aspects can be pathological if they interact with deficits in other areas (e.g. attention control, emotion regulation ...), in a way that inferences about social information become intense and distorted according to emotional states. In addition, individuals with BPD have difficulty recognising and naming their own emotions and using emotion regulation strategies (Heleniak et al., 2016). They are characterised by negative affect and emotion dysregulation (Selby et al., 2009) and may use maladaptive cognitive strategies such as thought suppression to reduce negative affect, which often increases rather than decreases it (Baer & Sauer, 2011; Chapman et al., 2011). Individuals with BPD avoid potentially stressful situations (Chapman et al., 2011; Salsman & Linehan, 2012) and have low stress tolerance (Gratz et al., 2008), which further contributes to emotion dysregulation (Alafia & Manjula, 2020).

In these studies, the role of childhood maltreatment and difficulties in emotional regulation was investigated in persons who are diagnosed with BPD. Knowledge about the impact of childhood maltreatment and emotional processing (empathy and emotion regulation) on BPD symptomatology in non-clinical populations could help further our knowledge of the development and treatment of BPD. To investigate this issue, it is necessary to conduct research among young adults from the general population. Consistent with the gap in the body of literature, the present study aimed to expand the existing knowledge from previous studies of the relationship between negative early life experiences (various forms of childhood maltreatment), emotional processing (empathy and emotion regulation), and BPD symptomatology in emerging adults in the general population.

Based on the literature, we hypothesized that exposure to childhood maltreatment will be a predictor of difficulties in emotional processing (empathy and emotion regulation) and BPD symptomatology in emerging adults.

2. Method

2.1. Participants and procedures

The sample consisted of 227 female students from Bosnia and Herzegovina and Croatia. The age range of the participants was from 18 to 31 years (M = 23.17, SD = 2.96).

Participants were recruited online through social media and through advertisements on university websites. The study was conducted via online platforms (WhatsApp, Facebook, Instagram) using Google Form among participants of emerging adulthood. Inclusion criteria included demographic characteristics (age range from 18 to 31, male and female gender), geographic characteristics (participants from Bosnia and Herzegovina and Croatia), and language (Croatian, Bosnian, Serbs). Participant who meet the inclusion criteria but present with additional characteristics (mental illness) that could interfere with the success of the study or increase their risk for an unfavourable outcome are excluded from study. Participants read the instructions about the purpose of the research before are asked to complete the questionnaire. It is emphasised that participation in the study is voluntary and completely anonymous, so participants were able to terminate their participation at any time during the study without adverse consequences. It is also emphasised that the results would be used for scientific purposes only and would be available only to the researcher. In case the participants felt uncomfortable at any point while answering the questionnaire, the email address of the thesis author was provided in the instructions, as well as on the last page of the questionnaire in case psychological support or additional information was needed. The conduct of the research was approved by the Ethics Committee of the Department of Psychology at the Faculty of Humanities and Social Sciences, University of Mostar.

2.2. Measures

Childhood maltreatment experiences. Exposure to different types of childhood maltreatment was assessed with the *Child Maltreatment Questionnaire* (Karlović et al., 2001), which is based on the Comprehensive Child Maltreatment Scales for Adults (Higgins & McCabe, 2001). This questionnaire is designed to detect potentially abusive or neglectful behaviour in childhood and consists of five subscales assessing sexual abuse (SA), physical abuse (PHA), psychological maltreatment (PM), neglect (N), and witnessing family violence (WFV). Respondents rate the frequency of a particular type of behaviour by their mother and father or other adults to which they were exposed during childhood. In our research, the mother's and father's behaviours are rated together, and the other adults are rated separately. In the original scale, participants separately rate the frequency of a particular type of behaviour by their mother, father, and other

adults. Neglect is rated for the father and mother only. Ratings of the severity of each type of abuse are provided by items corresponding to that type of abuse (e.g., "slapped" to "inflicted severe physical injury"). For each item, respondents indicate how often they were exposed to this behaviour ("never," "sometimes," or "often"; on the sexual abuse scale, "never," "once," "twice," or "thrice or more"). The last group of questions in the questionnaire refers to SA before the age of 14. In order to explore some of the circumstances and characteristics of SA, a series of questions are asked at the end of the questionnaire that are answered only by those who experienced some form of SA before the age of 14. The score for each of the five scales is derived by adding the scores for each item in the scale, while the score for the entire questionnaire is based on the total score (Higgins & McCabe, 2001; Karlović et al., 2001). For each scale, higher scores indicate more frequent or more pronounced abusive behaviour. In previous studies, internal consistency coefficients (Cronbach's alpha) ranged from .64 for the PHA subscale to .87 for the PM (Higgins & McCabe, 2001; Karlović, 2001). In our study, internal consistency coefficients (Cronbach's alpha) ranged from α=.64 for the N subscale to α = .87 for the PM subscale.

Emotion Regulation. The *Emotion Regulation Questionnaire* (ERQ, Gross & John, 2003) is an established 10-item self-report questionnaire that targets emotion-regulating processes and strategies for how emotions are regulated and managed. The questionnaire assesses two specific emotion regulation strategies - cognitive reappraisal (CR) and expressive suppression (ES). The cognitive reappraisal scale consists of six items and the expressive suppression scale consists of four items. An example of an item for the CR scale is "I control my emotions by changing the way I think about the situation I am in," and for the ES scale: "I control my emotions by not expressing them." In addition to these general emotion items, the CR scale and the ES scale each contained at least one item regulating negative emotions (for participants, e.g., sadness and anger) and one item regulating positive emotions (e.g., joy and amusement). In the original scale, participants are asked to rate on a 7-point Likert scale the extent to which they typically try to think or behave differently in situations to change their emotions, with 1 being "strongly disagree," 4 being "neutral," and 7 being "strongly agree." In this study, participants are asked to rate on a 5-point Likert scale the extent to which they typically try to think or behave differently in situations to change their emotions, with 1 being "strongly disagree," 3 being "neutral," and 5 being "strongly agree." No items are reversed. A higher mean score on a subscale indicates stronger agreement with that strategy.

In previous studies, the ERQ showed high internal consistency for both the Cognitive reappraisal and Expressive suppression subscales (α = .79 and α = .73, respectively; Gross &

John, 2003). Internal reliability (Cronbach's alpha) for the Cognitive reappraisal scale in this study was (α = .79) and for the Expressive suppression subscale was (α = .73).

Empathy. The *Interpersonal Reactivity Index* (IRI, Davis, 1980, 1983) is a measure of dispositional empathy based on the notion that empathy consists of a number of separate but interrelated constructs. The instrument contains four subscales, each with seven items, each representing a separate facet of empathy. The Perspective Taking scale (PT) measures the stated tendency to spontaneously put oneself in the psychological perspective of others in everyday life: "I sometimes try to understand my friends better by imagining how things look from their perspective." The Empathic Concern scale (EC) measures the tendency to feel feelings of sympathy and compassion for unfortunate others: "I often have tender, concerned feelings for people less fortunate than me". The Personal Distress scale (PD) captures the tendency to feel grief and discomfort in response to extreme distress in others: "Being in a tense emotional situation scares me". The Fantasy scale (FS) measures the tendency to imagine oneself in fictional situations: "When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me." Participants are asked to indicate how well each item describes them by selecting the appropriate number on a 5-point Likert scale, where 1 means "Does not describe me well" and 5 means "Describes me very well." There are 8 items reversed. A higher mean on a subscale indicates that the empathic tendency is stronger. In previous studies, the IRI has shown high internal consistency (Cronbach's alpha) for the subscales, ranging from α = .56 for EC to α = .79 for PD (Davis, 1980). According to Taber (2018), the internal reliability of .45 - .98 shows an acceptable reliability coefficient for the scale.

Symptoms of Borderline Personality Disorder. The *Borderline Symptom List 23 - Short Form* (BSL-23, Bohus et al., 2009) is a self-report instrument designed to assess various symptomatology of BPD. It consists of 23 items that refer to feelings and experiences typically reported by BPD patients and relate to the past week. For example, "My mood rapidly cycled in terms of anxiety, anger, and depression." In its original form, the BSL-23 has a single-factor structure. It is scored on a 5-point Likert scale, with numerical scores ranging from 0 "not at all" to 4 "very much." A visual analogue scale can be used along with 23 items to assess participants' global well-being. A Likert-type rating format is used, ranging from 0% for "absolutely poor/very poor" to 100% for "excellent." The internal consistency of the BSL-23 was found to be excellent (Cronbach's alpha = .935) (Bohus et al., 2009). The Cronbach's alpha coefficient of internal reliability for the scale in this study was high (α = .94).

Sociodemographic variables. Sociodemographic variables included data on gender, age, education, relationship status, and with whom students had lived since age 14.

2.3. Data analysis

We first checked if our results meet the criteria of distribution normality based on coefficients of skewness and kurtosis in order to respond as adequate as possible to research problems. Kolmogorov – Smirnov test so as Shapiro-Wilks test for normality checking indicates certain deviations of the tested distributions in relation to the normal curve. By checking coefficients of skewness and kurtosis, all of the testing variables meet the criteria for the use of parametric statistics, except for the scale of sexual abuse, so non-parametric statistics will be used for it (Kline, 2005).

Pearson correlation coefficient was used with the aim of examining the relationship between early life adverse experience (emotional and physical abuse, neglect, witnessing domestic violence), emotional processing (empathy and emotional regulation) and BPD symptomatology. Furthermore, Spearman correlation coefficient was used with the aim of examining the link between sexual abuse in childhood, emotional processing (empathy and emotional regulation) and BPD symptomatology. Hierarchy regression analysis was conducted to analysis possible predictors of borderline personality symptoms.

3. Results

We yielded statistically significant correlation between empathy (personal distress), physical abuse and neglect. Participants who were exposed to physical abuse and neglect in childhood reported higher levels on subscale personal distress. Also, we found statistically significant negative correlation for the results on subscale perspective taking. Respondents who were exposed to physical abuse and neglect reported lower results on perspective taking variable. Statistically significant correlation was found between witnessing domestic violence with the results on emotional regulation scale – expressive suppression, so as negative correlation with neglecting, emotional and physical abuse in childhood.

We found a significant correlation between physical and emotional abuse, neglect, and witnessing domestic violence with the overall results on the scale of BPD. So on, significant correlations were found between results on the BPD scale and empathy scales (Personal distress and Fantasy) and significant negative correlation for the scale Perspective taking. Overall results on both subscales of Emotional regulation are in negative correlation with the results on the borderline personality scale.

Coefficients of correlation between emotional and physical abuse, neglect, and witnessing domestic violence were moderate. The correlation data between early life adverse, emotional processing, and BPD symptomatology are presented in Table 1.

Table 1. Intercorrelation matrix of maltreatment in childhood variables, empathy, emotional regulation and borderline personality symptoms

Pearson correlation coefficient*											
	Maltreatment in childhood				Empathy				Emotional regulation		Borderline personality symptoms
					Emotional empathy		Cognitive empathy				
Subskale	Emotional abuse	Physical abuse	Witnessing violence	Neglecting	Personal distress	Empathic concern	Perspective taking	Fantasy	Cognitive reappraisal	Expressive suppression.	
Childhood maltreatment											
Emotional abuse	1	.63*	.62*	.61*	.09	.00	-.10	.08	-.13**	.10	.42**
Physical abuse		1	.51**	.45**	.15*	-.02	.18**	.05	-.25**	.03	.34**
Witnessing violence			1	.50*	.10	.01	-.04	.08	.03	.16**	.36**
Neglecting				1	.16*	-.03	-.15**	.03	-.21**	.03	.39**
Empathy											
Personal distress					1	.36**	-.08	.29**	-.17**	.03	.41**
Empathic concern						1	.31**	.40**	.21**	-.19**	.98
Perspective taking							1	.16*	.24**	-.27**	-.15*
Fantasy								1	.15	.01	.19*
Emotional regulation											
Cognitive reappraisal									1	.08	-.25*
Expressive suppression										1	.25*
Borderline Personality Symptoms											1

*p <.01; **p <.05

Sexual abuse variable didn't show a significant correlation between emotional processing (empathy and emotional regulation) and BPD symptomatology (Table 2).

Table 2. Intercorrelation matrix od maltreatment in childhood variables (sexual abuse), empathy, emotional regulation and borderline personality symptoms

Spearman rang korelacija (Rho)

	Maltreatment in childhood				Empathy				Emotional regulation		Borderline personality symptoms
					Emotioanl empathy		Cognitive empathy				
Subscale	Emotional abuse	Physical abuse	Witnessing violence	Neglecting	Personal distress	Empathic concern	Perspective taking	Fantasy	Cognitive reappraisal	Expressive suppression.	
Childhood maltreatment Sexual abuse	.17*	.20**	.10	.13	-.03	-.06	-.06	-.05	-.04	-.04	.06

Based on previous studies who have shown traumatic experience in childhood and emotional regulation as significant predictors of borderline personality disorder, in this research we conducted hierarchical multiple regression analysis in purpose to assess the successive contribution of different variables to the prediction of borderline personality disorder (Table 3). In first step, we included variables of maltreatment in childhood and the model shown significant (F=16.50; p<.05); variables with significant contribution were emotional abuse (β=.23; p<.01) and neglecting (β=.17; p<.01). Participant who reported higher levels of emotional abuse and neglecting reported higher levels on scale of borderline personality disorder. In this step, all significant predictors could explain 20% of variance of borderline personality disorder.

In the second step, to Model 1, we added predictors of emotional regulation. After adding mentioned predictors in the second step of hierarchical regression analysis, the contribution of explained variance increased by 9% (ΔR^2=.10). Both subscales significantly contributed to the prediction of borderline personality disorder; expressive suppression (β=.27; p<.01) and cognitive reappraisal (β=-.20; p<.01). These results implicated that individuals who reported higher levels on the subscale of expressive suppression and lower levels on subscale cognitive reappraisal also reported higher borderline personality symptoms. Obtained Model 2 explained 32% of the variance in borderline personality symptoms.

In the third step, to Model 1 and Model 2, we added predictors of empathy. After adding, the contribution of Model 3 increased by 11% and all predictive variables explained 43% of the variance in borderline personality symptoms. Two independent variables that provide a significant contribution to the borderline personality symptoms variable were Personal distress (β= .31; p<.01) and Fantasy (β=.14; p<.01).

Table 3. Hierarchy regression analysis of possible predictors of borderline personality symptoms

	Model 1		Model 2		Model 3	
Predictors	*β*	*SE*	*B*	*SE*	*β*	*SE*
Maltreatment in childhood						
Physical abuse	.09	.31	.06	.29	.03	.28
Emotional abuse	.20**	.18	.16	.17	.18**	.16
Witnessing family violence	.10	.18	.11	.17	.10	.16
Neglecting	.18**	.21	.14**	.20	.11	.18
Emotional regulation						
Cognitive reappraisal			-.20*	.05	-.15*	.05
Expressive suppression			.30*	.04	.26*	.04
Empathy						
Perspective taking					.02	.06
Fantasy					.14*	.05
Empathic concern					-.08	-.08
Personal distress					.31*	.06
R^2	.22		.32		.43	
$F\Delta R^2$	15.35*		16.44*		10.46*	

Note: Model 1 – included variables of traumatic experience; Model 2- included variables of traumatic experience and emotional regulation; Model 3 – included variables of traumatic experience, emotional regulation and empathy; β – value of standardized regression coefficients; SE – value of standard error of the regression; R^2 - coefficient of multiple determination explained by predictors; $F\Delta R^2$ – value of F change in explained variance by predictors

*p <.01; **p <.05

4. Discussion

Result of our study confirm the hypothesis about the link between emotional processing, early life adverse experience and BPD symptomatology.

We found a very weak positive correlation between physical abuse in childhood, emotional empathy (personal distress) and cognitive empathy (taking perspective) in emerging adulthood, which was the sample, involved in this study. In addition, our study showed significant very weak positive correlation between neglect and emotional empathy (personal distress) and

negative correlation with cognitive empathy (taking perspective). Some previous research provides a rationale for why heightened empathy may be observed after traumatic events. Adults who reported experiencing a traumatic event in childhood had elevated empathy levels compared to adults who did not experience a traumatic event according to study results of Greenberg et al. (2018). The severity of the trauma correlated positively with various components of empathy. Further, recent research by Lim and DeSteno (2016) suggests that the severity of past adversity can lead to increased compassion and that this link is mediated by empathy. These findings suggest that the experience of a childhood trauma increases a person's ability to take the perspective of another and to understand their mental and emotional states, and that this impact is long-standing but severity of traumatic experiences can have mediating effect on empathy level. Although these results can be confined by the design of our study (correlation research, based on retrospective self-assessment), they give some important implications about early life adverse experience can have an effect on development of empathy in youth adulthood, by increasing interpersonal sensitivity. Furthermore, it is common to associate traumatic childhood experience with negative consequences in adulthood. "Post-traumatic growth" research suggest that some persons may be more resilient in relation to other and that these experiences can influence the development of their resilience and new abilities such as empathy (Mark et al., 2018).

According to our results, exposure to neglect in childhood is linked with lower levels of cognitive empathy, i.e., taking perspective, which is consistent with findings by Nawrocki (2020) who found out that lower levels on different forms of abuse were linked with greater levels of empathy. Furthermore, Barenblatt et al. (2014) found that empathy levels in people exposed to moderate levels of maltreatment were lower to moderate. People who suffered severe traumatic experiences (severe maltreatment) reported average empathy levels, similar to the people who were not exposed to childhood maltreatment. We can say that our findings are consistent with the previous design research of topics like this; traumatic experience are linked with the lower levels of cognitive empathy. With Decety and Jaskson (2013) clarifying components of empathy, we can say that persons exposed to traumatic experience in the childhood have an impairment in cognitive ability of understanding perspective of others person. In view of the results of our research, indicating opposite outcomes correlation coefficients between early adverse life experience and empathy in youth adulthood, continued research in this area should check on levels of traumatic experience and levels of empathy. However, it seems important to emphasize that empathy dysfunction may also be related with a lack of mentalization ("understanding and interpreting mental states self and others") which is common among people with BPD (Salgado

et al., 2020). According to Salgado et al. (2020) both the difficulties of empathy and mentalization can be explained by the failure in the process of repairing disturbed social cooperation.

Individuals exposed to emotional and physical abuse and neglect in childhood when dealing with negative emotions during stressful situations they use more non-adaptive strategies of emotional regulation (expressive suppression - ES) than adaptive strategies of emotional regulation (cognitive reappraisal - CR). When dealing with negative emotions - ES is used by participants who reported being exposed to witnessing domestic violence. Results in this research are consistent with the results of previous research (Gorgi et al., 2019) which also found an association between the experience of childhood abuse and neglect and the use of maladaptive strategies of emotional regulation. According to some authors, out of all forms of abuse - the experience of emotional abuse in childhood is the best predictor of difficulties in emotional regulation (Dvir et al. 2014). In our study, the highest correlations (although still low) were found for witnessing domestic violence and emotional abuse. The results of our study confirm the results of several previous studies (Alink et al., 2009; Yarlasky, 2015) in which it was found that people who have been exposed to emotional and behavioural abuse have lower scores on adaptive strategies of emotional regulation in relation to persons without experience of abuse. The findings of the research of Dvir et al. (2014) which found an association between the experience of sexual abuse in girls and difficulties in emotion regulation were not confirmed in our study. An explanation for the obtained results can be found in the scientific knowledge according to which the brain system was shaped by early experiences (Dvir et al., 2014). It is possible that early adverse life experiences alter the limbic reactivity threshold or alter perceptual and cognitive assessments associated with threat (Thomson, 2011). D'Andrea et al. (2012) state that children growing up in adverse living conditions (such as exposure to childhood abuse) are more likely to be more emotionally reactive to stress and have poorer abilities of emotional regulation. According to Dvir et al. (2014), and as it's confirmed by the results of our study, childhood dysregulation can have detrimental consequences throughout life by increasing the risk of emotional dysregulation in adulthood.

Exposure to stressful life events is one of the most significant risks for the development of psychopathological disorders during childhood, adolescence and adulthood (Starr et al., 2014). The cumulative risk model emphasizes that exposure to stressful events in childhood may be a predictor of mental health problems for individuals who have experienced childhood abuse (Appleyard et al., 2005). The study results confirm the premise of the cumulative risk model and

indicate an association between exposure to emotional, physical abuse, neglect and witnessing domestic violence with feelings and experiences that are typically present in people diagnosed with BPD. The correlation was not significant only for the experience of childhood sexual abuse. In number of previous research, the experience of childhood trauma has been linked to BPD in adulthood (Allen et al., 2013; Amstadter et al., 2013; Pietrek et al., 2013). According to the results of research conducted in this area so far, 71% of people diagnosed with BPD report experiencing serious childhood abuse (Cicchetti & Valentino, 2006; Widom et al., 2009). It should be emphasized that these studies, like ours, were conducted using a retrospective study of the experience of abuse and were based on self-assessment measures. Therefore, these data should be considered with caution as there is a risk of wrong recollection of early experiences by patients diagnosed with BPD (Winsper et al., 2012). However, despite possible methodological limitations, there is clear evidence that suggests a significant role played by the experience of childhood abuse in the development of personality disorders (Belsky et al., 2012). Starting from the perspective of developmental psychopathology, this study examined multiple risk factors for the development of symptoms specific to borderline personality disorder.

Results of hierarchical regression analysis show that exposure to emotional abuse and neglect during childhood, emotional regulation strategies (less use of adaptive emotional regulation strategies and more frequent use of maladaptive strategies), levels of cognitive (fantasizing) and emotional empathy (personal distress) are significant predictors of symptoms that are associated with a BPD.

The findings of this research consistently confirmed previous findings arising from research on clinical and non-clinical samples when measuring link between exposure to childhood abuse as widely accepted risk factor for the development of BPD (Bouchard et al., 2009; Carlson et al., 2009; MacIntosh et al., 2015). Furthermore, studies which examined link between different forms of abuse and BPD in adults found that emotional abuse (examined by retrospective questionnaire for self-assessment of childhood abuse, CTQ) is the only form of abuse that shows unique link to BPD in relation to other forms of abuse and neglect (Gratz et al., 2008), what we confirm in our study. Also, in the Johnson et al. (2001) survey it was found that children's exposure to verbal abuse (one form of psychological/emotional abuse) is a predictor of an increasing number of BPD symptoms, even after controlling other risk factors that can have influence on BPD symptoms, including physical and sexual abuse and neglect. Mainali et al. (2020) review shows that any form of child abuse can lead to long-term neurobiological and permanent morphological changes in the brain of the victim. Increased activity of the hypothalamic-pituitary axis (HPA) drives to excess cortisol production. This mechanism

continuously draws up the body for a flight or fight response and misinterprets standard environmental signals as a threat. Increased activity of gray matter leads to a reduction in the volume of the hippocampus, activation of the amygdala, and impairment of the prefrontal, frontal limbic, and parietal areas. All these changes lead to the personality changes seen with individuals with BPD.

Considering the fact that stressful experiences cannot be avoided in order to prevent many others forms of difficulties, the way in which individuals respond to stress have important implications, since they have the potential to protect person from risk, or, in contrary, increase that risk (Compas et al., 2017). Van Dijke et al. (2011) state that the development of BPD can be one of the more serious difficulties formed by emotional dysregulation under the influence of traumatic experiences, which is confirmed by our findings indicating that the use of non-adaptive strategies for coping with emotions in stressful situations, i.e., reduced use of adaptive strategies has proven to be a statistically significant predictor of symptoms of borderline personality disorder. Persons who have experienced early life adverse experience respond with reduced emotional regulation abilities and there is less likely for them, by using these abilities, to grow up over negative experiences and also more susceptible in developing BPD (Luyten et al., 2019). For example, an adolescent who can engage in cognitive reappraisal when he hears his parents arguing there is less likely to retain and internalize negative feelings than an adolescent who denies or suppresses his feelings. Although it is unlikely that such an event will have long-term consequences, the accumulation of stressful experiences and related reactions may alter the course of adjustment over time. Examining how early experiences of abuse and/or neglect affect the types of coping and emotion regulation strategies people use in the face of stress is therefore critical to understanding risk pathways in people who have experienced maltreatment (Gruhn & Compas, 2020).

According to results of our research, Fantasy (CE) and Personal distress (EE), so as exposure to traumatic experiences in childhood and dysfunctional emotional regulation strategies, yielded to be significant risk factors for developing symptoms of BPD. Although there is a smaller number of research who examined social cognitive abilities in persons diagnosed BPD, we found a study (Guttman & Laporte, 2000) in which they measure emotional capacity persons with diagnose of BPD using IRI scale (Davis, 1983). Authors identified that women's with diagnosis of BPD report greater result on scale which measure "immature" empathy (PD and F) and lower results on "mature" empathy (PT and EC), which is in accordance with our study.

On the contrary, Harari et al. (2010), found conflicting results according to which BPD patients demonstrate heightened affective empathy and impaired cognitive empathy.

The family is one of the strongest and most significant contexts for stress, coping, and emotion regulation during development, leaving maltreated adolescents at an extreme disadvantage with respect to competing adaptive self-regulatory strategies. Conceptual models (e.g., Kliewer et al., 1994; Morris et al., 2007) and a body of recent empirical work (e.g., Monti et al. 2014; Watson et al., 2014) suggest that the adoption of coping and regulatory strategies is learned through interpersonal interactions between caregivers and children. Victims of early childhood abuse and/or neglect may therefore fail to acquire coping and emotion regulation strategies that protect against the development of psychosocial problems because they are exposed to (a) fewer healthy examples of coping and emotion regulation and/or (b) more maladaptive stress response processes such as violence (Cicchetti & Jungemenen, 2010). Children exposed to stressors that are far beyond their developmental coping abilities (e.g., physical abuse, sexual abuse) may not know how to respond appropriately to stressful experiences. They may not only fail to learn optimal regulatory strategies, but may also learn strategies such as avoidance, denial, rumination of desires, or emotional suppression. Although these strategies are adaptive in the short term, they may increase psychosocial risk and risk for mental health problems such as BPD if passed on throughout development and used in normative situations with lower risk (Compas et al., 2017).

5. Recommendations for future research

Although a link between trauma and empathy has been found, there may be unexplored psychological mechanisms that encourage empathy and need to be identified in future research. For example, the level of social support after a traumatic experience may be key to developing empathy. Furthermore, psychological states and comorbidities that existed before trauma and those that developed in response to a traumatic event can crucially influence on the development of empathy after trauma. Future research could explore a way to control the impact of these variables.

Different experiences of abuse negatively affect the regulation of emotions, which is considered a fundamental factor in mental disorders. It is important to identify the strategies of emotional regulation that individuals use to cope with the outcomes of trauma and to explore this relationship so as promote therapeutic approaches for victims of various injuries. Furthermore, some authors (Gorgi et al., 2019; Gross, 2014) state that a number of other factors on an unconscious level may also be involved in the process of emotional regulation that have not

been examined in this study (e.g., nonconscious goal pursuit). In most of the research conducted so far (Garnefski et al., 2001; Gorgi et al., 2019), the authors focused only on conscious part of emotional regulation. In addition, the *Emotion Regulation Questionnaire* by Gross and John (2003) was used in this study, which examined only two strategies of emotional regulation. In future research, it would be good to use questionnaires that examine a wider range of emotional regulation strategies (e.g. Cognitive Emotion Regulation Questionnaire, (CERQ) because it is possible that some respondents who have experienced abuse may use one or more different strategies (Ullman et al., 2015) and the above way of assessing coping with negative emotions in stressful situations would give us a better insight into the connection between abuse and difficulties of emotional regulation with regard to the form of abuse and a wider range of emotional regulation strategies.

Child abuse is a risk factor for the development of BPD and is a public concern. Understanding the impact of early age negative life stressors on adulthood calls for serious focus on early diagnosis and intervention. This implies the need for more research focusing on patients with BPD with or without childhood traumatic experience and understanding the changes that occur in response to trauma. A detailed study of the impact of the nature and severity of trauma on children of various age groups may lead to a better understanding of how to modulate treatment based on individual needs. We need to understand and explore the risk of offspring developing BPD with epigenetic changes in parents. Future studies addressing whether intervention at an early age can halt or reverse any unwanted changes in the victim will play an essential role among patients both sexes who may be at risk for BPD (Mainali et al., 2020).

6. Limitations

Some limitations of study should be highlighted. One of the main limitations of this research is the reliance on self-assessment measures in the research. According to some authors (Greenberg et al., 2018), people who have experienced abuse may believe they have better empathy, and because of frequent thinking about their emotional state, they may assess their empathy incorrectly during self-assessment. For this reason, it would be good to use some other methods of empathy assessment in future research, such as asking people who know people involved in the research to assess their level of empathy. Furthermore, traumatic experiences were also assessed with retrospective self-assessment measures, which could have affected the distortion of the obtained results. Retrospective reporting on the experience of traumatic childhood experiences may be subject to recollection bias. One of the main limitations of the research is the research sample itself, which was convenient, so it is not possible to generalize the results.

Finally, it is possible that some respondents had a tendency to report an answer in a way they deem to be more socially acceptable than would be their "true" answer.

In addition, the research was conducted online and consent to participate in the research depended on the motivation of the participants. The response rate was quite low, but drop-out and other types of non-response are well known methodological challenges in the use of the internet for scientific research studies (Boyle & Schmierbach, 2015; Reips, 2010; Reips Birnbaum, 2011). Moreover, the correlation design of study does not allow us to ascertain the causal interactions among them. The survey was conducted online, via the Google Forms platform, which was distributed on social networks, and therefore did not include respondents who do not own social networks.

7. Conclusion

Overall, the results of this study help shed new light on a number of variables that contribute to the understanding of early traumatic experiences. They support the notion that early traumatic experiences are significant correlates of emotional dysfunction and psychopathology. Difficulties in emotion regulation depend on what type of childhood maltreatment is involved, i.e., emotional maltreatment is associated with cognitive reappraisal, physical maltreatment is associated with emotional and cognitive empathy and cognitive reappraisal, witnessing to violence is associated with expressive suppression, whereas neglect is associated with cognitive reappraisal. BPD symptoms have been found to be associated with all types of childhood maltreatment. In relation to the aim of suggesting factors associated with BPD, our data have shown that the interplay of emotional abuse, difficulties with emotion regulation, and empathy difficulties contribute to the development of BPD symptomatology. Researchers in the future should focus on conducting an experimental study to test the relationship between childhood maltreatment, emotional processing, and BPD symptoms. A good sample for such a study might be children who have been exposed to maltreatment and in whom variables of emotional functioning and psychopathology have been observed longitudinally. Other factors such as early separation/loss or positive relationships could be added as control variables.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement [*]: The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

References

1. Alafia, J., & Manjula, M. (2020). Emotion Dysregulation and Early Trauma in Borderline Personality Disorder: An Exploratory Study. *Indian journal of psychological medicine, 42*(3), 290–298. https://doi.org/10.4103/IJPSYM.IJPSYM_512_18
2. Alink, L. R., Cicchetti, D., Kim, J., & Rogosch, F. A. (2009). Mediating and moderating processes in the relation between maltreatment and psychopathology: Mother-child relationship quality and emotion regulation. *Journal of Abnormal Child Psychology, 37*(6), 831-43. https://doi.org/10.1007/s10802-009-9314-4
3. Allen, B., Cramer, R., Harris, P., & Rufino, K. (2013). Borderline personality symptomatology as a mediator of the link between child maltreatment and adult suicide potential. *Archive Suicide Research, 17(*1), 41-51. https://doi.org/10.1080/13811118.2013.748413
4. Amstadter, A. B., Aggen, S. H., Knudsen, G. P., Reichborn-Kjennerud, T., & Kendler, K. S. (2013). Potentially traumatic event exposure, posttraumatic stress disorder, and Axis I and II comorbidity in a population-based study of Norwegian young adults. *Social psychiatry and psychiatric epidemiology, 48*(2), 215-223. https://doi.org/10.1007/s00127-012-0537-2
5. Appleyard, K., Egeland, B., van Dulmen, M. H., & Sroufe, L. A. (2005). When more is not better: the role of cumulative risk in child behavior outcomes. *Journal of child psychology and psychiatry, and allied disciplines, 46*(3), 235–245. https://doi.org/10.1111/j.1469-7610.2004.00351.x
6. Barenblatt, L., Fourie, M., Gobodo-Madikizela, P., Locher, S., & Stein, D. (2014). Empathy and childhood maltreatment: A mixedmethods investigation. *Annals of Clinical Psychiatry: Official Journal of the American Academy of Clinical Psychiatrists, 26*(2), 97-110. doi:1547-3325
7. Baer R.A., & Sauer S. E. (2011). Relationships between depressive rumination, anger rumination, and borderline personality features. *Personality Disorders: Theory, Research and Treatment, 2*(2), 145-150. http://doi.org/10.1037/a0019478
8. Belsky, D. W., Caspi, A., Arseneault, L., Bleidorn, W., Fonagy, P., Goodman, M., Houts, R., & Moffitt, T. E. (2012). Etiological features of borderline personality related characteristics in a birth cohort of 12-year-old children. *Development and psychopathology, 24*(01), 251-265. https://dx.doi.org/10.1017%2FS0954579411000812
9. Birn R. M., Roeber B. J., & Pollak S. D. (2017). Early childhood stress exposure, reward pathways, and adult decision making. *Proceedings of the National Academy of Science, 114*(51), 13549-13554. https://doi.org/10.1073/pnas.1708791114
10. Bohus, M., Kleindienst, N., Limberger, M. F., Stieglitz, R. D., Domsalla M., Chapman, A. L., Steil, R., Philipsen, A., & Wolf, M. (2009). The Short Version of the Borderline Symptom List (BSL-23). Development and Initial Data On Psychometrics Properties. *Psychopathology, 42(*1), 32-39. https://doi.org/10.1159/000173701
11. Bouchard, S., Sabourin, S., Lussier, Y., & Villeneuve, E. (2009). Relationship quality and stability in couples when one partner suffers from borderline personality disorder. *Journal of marital and family therapy, 35*(4), 446–455. https://doi.org/10.1111/j.1752-0606.2009.00151.x

12. Bornovalova, M. A., Huibregtse, B. M., Hicks, B. M., Keyes, M., McGue, M., & Iacono, W. (2013). Tests of a direct effect of childhood abuse on adult borderline personality disorder traits: a longitudinal discordant twin design. *Journal of abnormal psychology, 122*(1), 180–194. https://doi.org/10.1037/a0028328
13. Boyle, M.; Schmierbach, M. Applied Communication Research Methods: Getting Started as a Researcher; Taylor & Francis: New York, NY, USA, 2015
14. Calhoun, L. G., Cann, A., Tedeschi, R. G. & McMillan, J. (2000). A correlational test of the relationship between growth, religion, and cognitive processing. *Journal of Traumatic Stress, 13*(5), 521−527. https://doi.org/10.1023/a:1007745627077
15. Carnes, M., Kuo, D., Springer, K., W. & Sheridan, J. (2017). Long-term physical and mental health consequences of childhood physical abuse: Result from a large population-based sample of men and women. *Child Abuse and Neglact, 31*(5), 517-30. https://dx.doi.org/10.1016%2Fj.chiabu.2007.01.003
16. Carlson, D. S., Grzywacz, J. G., & Zivnuska, S. (2009). Is work–family balance more than conflict and enrichment? *Human Relations, 62*(10), 1459-86. https://doi.org/10.1177%2F0018726709336500
17. Chapman A. L, Dixon-Gordon K. L., & Walters K. N. (2011). Experiential avoidance and emotion regulation in borderline personality disorder. *Journal of Rational Emotional Cognitive-Behaviour Therapy*, *29*(1), 35–52. https://doi.org/10.1007/s10942-011-0124-6
18. Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., Williams, E., & Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological bulletin, 143*(9), 939–991. https://doi.org/10.1037/bul0000110
19. Cicchetti, D., & Jungmeen, K. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopatology. *The Association for Child and Adolescent Mental Health, 51*(6), 706-716. https://doi.org/10.1111/j.1469-7610.2009.02202.x
20. Cicchetti, D., & Valentino, K. (2006). An ecological-transactional perspective on child maltreatment: Failure of the average expectable environment and its influence on child development. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Risk, disorder, and adaptation* (pp. 129–201). John Wiley & Sons, Inc.
21. Coulton, C. J., Korbin, J. E., & Su, M. (1999). Neighborhoods and child maltreatment: a multi-level study. *Child Abuse & Neglect, 23*(11), 1019–1040. https://doi.org/10.1016/s0145-2134(99)00076-9
22. de Haan, M., & Gunnar, M. R. (Eds.). (2009). Handbook of developmental social neuroscience. The Guilford Press.
23. Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10*(85), 1-19. The University of Texas at Austin. Microsoft Word - ScaleConstructionPaper.doc (uv.es)
24. Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*, 113– 126. http://dx.doi.org/10.1037/0022-3514.44.1.113
25. D'Andrea W., Ford J., Stolbach B., Spinazzola J., & van der Kolk B. A. (2012). Understanding interpersonal trauma in children: why we need a developmentally appropriate trauma diagnosis. *American Journal of Orthopsychiatry, 82*(2), 187-200. https://doi.org/10.1111/j.1939-0025.2012.01154.x

26. Decety, J., & Jackson, P. L. (2013). A Social-Neuroscience Perspective on Empathy. *Current Directions in Psychological Science, 15*(2), 54–58. https://doi.org/10.1111/j.0963- 7214.2006.00406.x
27. Dinsdale, N., & Crespi, B. J. (2013). The borderline empathy paradox: Evidence and conceptual models for empathic enhancements in borderline personality disorder. *Journal of Personality Disorders, 27*(2), 172–195. https://doi.org/10.1521/pedi_2012_26_071
28. Divac-Jovanović, M., & Švrakić, D. (2017). Borderline personality and it's diverse faces: What are personality disorders? (2. ed.). Clio: Beograd.
29. Dodaj, A., & Sesar, K. (2020). Consequences of Child Abuse and Neglect. *Central European Journal of Paediatrics. 16*(2), 168-181. https://doi.org/10.5457/p2005-114.275
30. Dodaj, A., Sesar, K., & Šimić, N. (2018). The neurobiological aspects of exposure to childhood maltreatment // Horizons in Neuroscience Research / Costa, Andres; Villalba, Eugenio (ur.). New York: Nova Science Publishers, 2018. str. 81-108
31. Dvir, Y., Ford, J.D., Hill, M., & Frazier, J. A. (2014). Childhood maltreatment, emotion dysregulation, and psychiatric comorbidities. *Harvard Review of Psychiatry, 22(*3), 149-161. http://doi.org/10.1097/hrp.0000000000000014
32. Eidelman-Rothman, M., Goldstein, A., Weisman, O., Schneiderman, I., Zagoory-Sharon, O., Decety, J., & Feldman, R. (2016). Prior exposure to extreme pain alters neural response to pain in others. *Cognitive, Affective & Behavioral Neuroscience, 16*(4), 662–671. https://doi.org/10.3758/s13415-016-0422-7
33. Ellison, W. D., Rosenstein, L. K., Morgan, T. A., & Zimmerman, M. (2018). Community and Clinical Epidemiology of Borderline Personality Disorder. *The Psychiatric Clinics of North America, 41*(4), 561–573. https://doi.org/10.1016/j.psc.2018.07.008
34. Garnefski, N., Kraaij, V. & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences, 30*(8), 1311-1327. https://doi.org/10.1016/S0191-8869(00)00113-6
35. Goleman, D. (2015). *Emotional Inteligence*. Mozaik knjiga. Zagreb.
36. Gorgi, K., Dolatshai, B., Shakiba, Sh., & Kamizi, S. (2019). The Relationship Between Different Forms of Maltreatment and Cognitive Emotion Regulation Strategies. *Journal of Practice in Clinical Psychology, 7*(4), 255-262. http://dx.doi.org/10.32598/jpcp.7.4.255
37. Gratz K. L, Tull M. T, Baruch D. E, Bornovalova M. A. & Lejuez C. W. (2008). Factors associated with co-occurring borderline personality disorder among inner-city substance users: The roles of childhood maltreatment, negative affect intensity/reactivity, and emotion dysregulation. *Comprehensive Psychiatry, 49*(6), 603–615. https://doi.org/10.1016/j.comppsych.2008.04.005
38. Greenberg, D. M., Baron-Cohen, S., Rosenberg, N., Fonagy, P & Rentfrow, P. J. (2018). Elevated empathy in adults following childhood trauma. *PloS ONE, 13*(10), e0203886. https://doi.org/10.1371/journal.pone.0203886
39. Grimm, S., Wirth, K., Fan, Y., Weigand, A., Gartner, M., Feeser, M., Dziobek, I., Bajbouj, M. & Aust, S. (2017). The interaction of corticotropin-releasing hormone receptor gene and early life stress on emotional empathy. *Behavioural Brain Research, 329*, 180-185. https://doi.org/10.1016/j.bbr.2017.04.047

40. Gross, J. J. (2014). *Emotion regulation: Conceptual and empirical foundations.* In J. J. Gross (Ed.), Handbook of emotion regulation (pp. 3-22). 2nd ed. New York: Guilford Publications.
41. Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348
42. Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion, 13*(5), 551–573. https://doi.org/10.1080/026999399379186
43. Gunderson J. G. (2007). Disturbed relationships as a phenotype for borderline personality disorder. *The American Journal of Psychiatry, 164*(11), 1637–1640. https://doi.org/10.1176/appi.ajp.2007.07071125
44. Gruhn, M. A., & Compas, B. E. (2020). Effects of maltreatment on coping and emotion regulation in childhood and adolescence: A meta-analytic review. *Child Abuse* & *Neglect, 103,* Article 104446. https://doi.org/10.1016/j.chiabu.2020.104446
45. Harari, H., Shamay-Tsoory, S. G., Ravid, M., & Levkovitz, Y. (2010). Double dissociation between cognitive and affective empathy in borderline personality disorder. *Psychiatry research*, *175*(3), 277–279. https://doi.org/10.1016/j.psychres.2009.03.002
46. Heleniak, C., Jenness, J. L., Stoep, A. V., McCauley, E., & McLaughlin, K. A. (2016). Childhood Maltreatment Exposure and Distruptions in Emotion Regulation: A Transdiagnostic Pathway to Adolescent Internalizing and Externalizing Psychopatology. *Cognitive Therapy and Research, 40*(3), 394-415.
47. Herzberg, M. P., & Gunnar, M. R. (2020). Early life stress and brain function: Activity and connectivity associated with processing emotion and reward. *NeuroImage, 209*, 116493. https://doi.org/10.1016/j.neuroimage.2019.116493
48. Higgins D. J, & McCabe M. P. (2000) Multi-type maltreatment and the long-term adjustment of adults. *Child Abuse Review, 9*(1), 6-18. https://doi.org/10.1002/(SICI)1099-0852(200001/02)9:1%3C6::AID-CAR579%3E3.0.CO;2-W
49. Higgins D., J., & McCabe, M., P. (2001). Multiple forms of child abuse and neglect: Adult retrospective reports. *Aggression and Violent Behaviour, 6(*6), 547-578. https://doi.org/10.1016/S1359-1789(00)00030-6
50. Higgins, D., J. & McCabe, M., P. (2001). The development of the Comprehensive Child Maletreatment Scale. *Journal of Family Studies, 7*(1), 7-28. https://doi.org/10.5172/jfs.7.1.7
51. Ibrahim, J., Cosgrave, N., & Woolgar, M. (2018). Childhood maltreatment and its link to borderline personality disorder features in children: A systematic review approach. Clinical child psychology and psychiatry, 23(1), 57–76. https://doi.org/10.1177/1359104517712778
52. Jeung, H., & Herpertz, S. C. (2014). Impairments of interpersonal functioning: Empathy and intimacy in borderline personality disorder. *Psychopathology, 47*(4), 220–234. https://doi.org/10.1159/000357191
53. Johnson J. K, Cohen P., Smailes E. M., Skodol A. E., Brown J. & Oldham J. N. (2001) Childhood verbal abuse and risk for personality disorders during adolescence and early adulthood. *Comprehensive Psychiatry, 42*(1), 16–23. https://doi.org/10.1053/comp.2001.19755
54. Karlović, A., Buljan Flander, G. & Vranić, A. (2001). Validity of the questionnaire for child maltreatment. *Suvremena psihologija, 4*(1-2), 93-111. https://hrcak.srce.hr/3209

55. Kliewer, W., Sandler, I., & Wolchik, S. (1994). *Family socialization of threat appraisal and coping: Coaching, modeling, and family context.* In F. Nestmann & K. Hurrelmann (Eds.) Social networks and social support in childhood and adolescence (pp. 271–291). Berlin, Germany: Walter De Gruyter. https://doi:10.1515/9783110866377.271
56. Kline, R. B. (2005). *Principles and practice of structural equation* modeling (2nd ed.). Guilford Press.
57. Krause-Utz, A., Erol, E., Brousianou, A. V., Cackowski, S., Paret, C., Ende, G., & Elzinga, B. (2019). Self-reported impulsivity in women with borderline personality disorder: the role of childhood maltreatment severity and emotion regulation difficulties. *Borderline Personality Disorder and Emotion Dysregulation*, *6*, 6. https://doi.org/10.1186/s40479-019-0101-8
58. Lim, D., & DeSteno, D. (2016). Suffering and compassion: The links among adverse life experience, empathy, compassion and prosocial behaviour. *Emotion 16*(2), 175-182. https://doi.apa.org/doi/10.1037/emo0000144
59. Luyten, P., Campbell, C. & Fonagy, P. (2019). Borderline personality disorder, complex trauma and problems with self and identity: A social-communicative approach. *Journal of Personality, 88*(1), 88-105. https://doi.org/10.1111/jopy.12483
60. Mainali P., Rai, T., & Rutkofsky I., H. (2020). From Child Abuse to Developing Borderline Personality Disorder Into Adulthood: Exploring the Neuromorphological and Epigenetic Pathway. *Cureus 12*(7). https://doi.org/10.7759/cureus.9474
61. Mark K., M., Stevelink S., A., M., Choi J., & Fear T., N. (2018). Post-traumatic growth in the military: a systematic review. *Occupational and Environmental Medicine, 75(*12), 904-915. https://doi.org/10.1136/oemed-2018-105166
62. Monti, J. D., Abaied, J. L., & Rudolph, K. D. (2014). Contributions of Socialization of Coping to Psysiological Responses to Stress. Australian Journal of Psychology, 66(2), 102-109. https://doi.org/10.1111/ajpy.12044
63. Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., Robinson, L. R. (2007). The Role of the Family Context in the Development of Emotion Regulation. *Social Development, 16*(2), 361-388. https://doi.org/10.1111/j.1467-9507.2007.00389.x
64. MacIntosh, H., B., Dubash, N., & Godbout, N. (2015). Bordeline Personality Disorder: Disorder of Trauma or Personality, a Review of Empirical Literature. *Canadian Psychology Association, 56*(2), 227-241. http://dx.doi.org/10.1037/cap0000028
65. Salovey, P., & Mayer, J. D. (1989-1990). Emotional intelligence. *Imagination, Cognition and Personality, 9*(3), 185–211. https://doi.org/10.2190/DUGG-P24E-52WK-6CDG
66. McLaughlin, K., A., & Lambert, H., K. (2017). Child trauma exposure and psychopatology: mechanism of risk and resiliance. *Current opinion in psychology 14*, 29-34. https://doi.org/10.1016/j.copsyc.2016.10.004
67. Nawrocki, B. (2020). The Correlation Between Complex Childhood Trauma and Adult Empathy Outcomes. dis_brooke_nawrocki.pdf (csustan.edu)
68. New, A.S., Goodman, M., Triebwasser, J., & Siever, L.J. (2008). Recent advances in the biological study of personality disorders. *Psychiatrics Clincs of North America, 31*(3), 441–461. https://doi.org/10.1016/j.psc.2008.03.011

69. Nicol, K., Pope, M., Romaniuk, L., & Hall, J. (2015). Childhood trauma, midbrain activation and psychotic disorder in borderline personality disorder. *Translation Psychiatry, 5*, Article, e559. https://doi.org/10.1038/tp.2015.53
70. Paivio, S. C., & Laurent, C. (2001). Empathy and emotion regulation: Reprocessing memories of childhood maltreatment. *Journal of Clinical Psychology, 57*(2), 213-226. https://doi.org/10.1002/1097-4679(200102)57:2%3C213::AID-JCLP7%3E3.0.CO;2-B
71. Reips, U.-D., & Birnbaum, M. H. (2011). Behavioral research and data collection via the Internet. In K.-P. L. Vu and R. W. Proctor (Eds.), The handbook of human factors in Web design (2nd ed., pp. 563-585). Mahwah, New Jersey: Erlbaum
72. Reips, U.-D. (2010). Design and formatting in Internet-based research. In S. Gosling & J. Johnson, Advanced methods for conducting online behavioral research (pp. 29-43). Washington, DC: American Psychological Association.
73. Raboteg-Šarić, Z. (1993.) *Empathy, moral reasoning and different forms of prosocial behaviour.* Unpublished doctor disertation. Zagreb: University of Philosophy.
74. Pietrek, C., Elbert, T., Weierstall, R., Müller, O., & Rockstroh, B. (2013). Childhood adversities in relation to psychiatric disorders. *Psychiatry research, 206*(1), 103-110. https://doi.org/10.1016/j.psychres.2012.11.003
75. Renner, L. M., & Slack, K. S. (2006). Intimate partner violence and child maltreatment: understanding intra- and intergenerational connections. *Child Abuse & Neglect, 30*(6), 599–617. https://doi.org/10.1016/j.chiabu.2005.12.005
76. Rogosch, F. A., Cicchetti, D., Shields, A., & Toth, S. L. (1995). Parenting dysfunction in child maltreatment In Bornstein MH (Ed.). Handbook of parenting Vol 4: Applied and practical parenting (pp. 127–159). Hillsdale, NJ, US: Lawrence Erlbaum Associates, Inc.
77. Rosenberg, M.B. (2006). *Nonviolent communication: A Language of Life.* (2nd ed). Puddle Dancer Press.
78. Salgado, R. M., Pedrosa, R., & Bastos-Leite, A. J. (2020). Dysfunction of Empathy and Related Processes in Borderline Personality Disorder: A Systematic Review. *Harvard Review of Psychiatry, 28*(4), 238-254. https://dx.doi.org/10.1097%2FHRP.0000000000000260
79. Salsman N. L., & Linehan M. M. (2012). An investigation of the relationships among negative affect, difficulties in emotion regulation, and features of borderline personality disorder. *Journal of Psycopathology and Behavioral Assesment, 34*(2), 260–267. http://dx.doi.org/10.1007/s10862-012-9275-8
80. Selby E. A., Anestis, M. D., Bender, T. W., & Joiner, T. E. Jr. (2009). An exploration of the emotional cascade model in borderline personality disorder. *Journal of Abnormal Psychology, 118*(2), 375-387. https://doi.org/10.1037/a0015711
81. Sesar, K., & Sesar, D. (2008). Neglection – definition, risk factors and its effects on child psychosocial development. *Magistra ladertina, 3*(1), 83-93. https://hrcak.srce.hr/35621
82. Sesar, D., Sesar, K., & Živčić-Bećirević, I. (2008). Multi-type Maltreatment in Childhood and Psychological Adjustment in Adolescence: Questionnaire Study Among Adolescents in Western Herzegovina Canton. *Croatian Medical Journal, 49*(2), 243-256. https://dx.doi.org/10.3325%2Fcmj.2008.2.243

83. Sesar, K. (2009). Studies on Exposure to Multiple Maltreatment in Childhood. *Contemporary Psychology, 12*(2), 339-354.
84. Shipman, K. L., Schneider, R., Fitzgerald, M. M., Sims, C., Swisher, L., & Edwards, A. (2007). Maternal emotion socialization in maltreating and non-maltreating families: Implications for children's emotion regulation. *Social Development*, 16, 268–285. 10.1111/j.1467-9507.2007.00384.x
85. Starr, L.R., Hammen, C.L., Conway, C.C., Raposa, E.B., & Brennan, P.A. (2014). Sensitizing effect of early adversity on depressive reactions to later proximal stress: Moderation by polymorphisms in serotonin transporter and corticotropin releasing hormone receptor genes in a 20-year longitudinal study. *Development and Psychopathology, 26*(4pt2), 1241 - 1254. https://doi.org/10.1017/S0954579414000996
86. Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*(6), 1273-1296. https://doi.org/10.1007/s11165-016-9602-2
87. Teicher, M., H., Anderson, S., L., Polcari, A., Anderson, C., Navalta, C. P. i Kim, D., M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience and Biobehavioral Reviews, 27*(1-2), 33-44. https://doi.org/10.1016/s0149-7634(03)00007-1
88. Ullman, S. E., Peter-Hagene, L. C., & Relyea, M. (2014). Coping, emotion regulation, and self-blame as mediators of sexual abuse and psychological symptoms in adult sexual assault. *Journal of Child Sexual Abuse, 23*(1), 74-93. https://doi.org/10.1080/10538712.2014.864747
89. Van Dijke, A., Ford, J. D., van der Hart, O., Van Son, M. J. M., Van der Heijden, P. G. M., Buhring, M. (2011). Childhood Traumatization by primary caretaker and affect dysregulation in patients with borderline personality disorder and somatoform disorder. European Journal of Psychopathology, 2(1), Article 5628. https://doi.org/10.3402/ejpt.v2i0.5628
90. Zovko Grbeša, A., & Sesar, K. (2021). Maltreatment in childhood, attachment and brain development. *Medica Jadertina*, *51*(4), 383-392.
91. Yarlasky, K. (2015). Childhood sexual abuse, adolescent substance use and the moderating role of emotion regulation Master's thesis. London, ON: Western University.
92. Watson, K. H., Dunbar, J. P., Thigpen, J., Reising, M. M., Hudson, K., McKee, L., Forehand, R., & Compas, B. E. (2014). Observed parental responsiveness/warmth and children's coping: Cross-sectional and prospective relations in a family depression preventive intervention. *Journal of Family Psychology, 28*(3), 278–286. https://doi.apa.org/doi/10.1037/a0036672
93. Widom, C. S., Czaja, S. J., & Paris, J. (2009). A prospective investigation of borderline personality disorder in abused and neglected children followed up into adulthood. *Journal of Personality Disorders, 23*(5), 433-446. https://doi.org/10.1521/pedi.2009.23.5.433
94. Wilson, S. R., Rack, J. J., Shi, X., & Norris, A. M. (2008). Comparing physically abusive, neglectful, and non-maltreating parents during interactions with their children: a meta-analysis of observational studies. *Child Abuse & Neglect*, 32(9), 897–911. https://doi.org/10.1016/j.chiabu.2008.01.003

95. Winsper, C., Zanarini, M., & Wolke, D. (2012). Prospective study of family adversity and maladaptive parenting in childhood and borderline personality disorder symptoms in a non-clinical population at 11 years. *Psychological medicine, 42(*11), 2405-2420. https://doi.org/10.1017/S0033291712000542
96. World Health Organisation, WHO. (2014). *Child maltreatment.* Geneva: World Health organization. Available from: http://www.who.int/topics/child_abuse/en/

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