THE ASSOCIATION BETWEEN CHILDHOOD MALTREATMENT AND MENTAL HEALTH PROBLEMS IN EARLY ADULTHOOD

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Abstract

This study analyzed the relationship between childhood maltreatment and mental illness in adulthood, focusing on borderline personality disorder (BPD) and posttraumatic stress disorder (PTSD). This data is incredibly important because creating a link between childhood maltreatment and mental illness in adulthood may guide clinicians towards early intervention and save victims from a lifetime of mental illness. Subjects completed three different surveys, all regarding childhood maltreatment, posttraumatic stress disorder, and borderline personality disorder. The results confirmed a relationship between childhood maltreatment and both posttraumatic stress disorder and borderline personality disorder, meaning participants with higher rates of childhood maltreatment showed higher rates of symptoms of both posttraumatic stress disorder and borderline personality disorder. Non-binary participants were more likely to report symptoms of borderline personality disorder, however, there were no major gender differences for posttraumatic stress disorder. These findings confirm previous research in the field, which we can use to conduct further research into gender differences, as well as use to influence early intervention in cases of childhood maltreatment.

Keywords: childhood maltreatment, borderline personality disorder, posttraumatic stress disorder

The Association between Childhood Maltreatment and Mental Health Problems in Early Adulthood

This study assessed the relationship between childhood maltreatment and mental illness in adulthood, with a focus on borderline personality disorder (BPD) and posttraumatic stress disorder (PTSD). There is a significant body of literature that suggests that childhood abuse and neglect survivors are more prone to experiencing substance abuse, self-harm, eating disorders, depressive disorders, and posttraumatic stress disorder (Crummy & Downey, 2020). Although this study strictly focused on posttraumatic stress disorder and borderline personality disorder, self-destructive behaviors like self-harm and substance abuse are prevalent among individuals diagnosed with posttraumatic stress disorder and borderline personality disorder. Symptoms of a multitude of mental illnesses overlap, so seeing self-harm behaviors does not necessary indicate borderline personality disorder or posttraumatic stress disorder, however they can be used as an indicator that an individual may suffer from these specific illnesses. Previous research regarding the topic has found a significant relationship between childhood trauma and the development of mental illness in adulthood (Crummy & Downey, 2020; Dye 2018; Koury et al., 2014).

Evaluating the relationship between these factors allows insight into the relationship of childhood abuse/neglect and severe mental illnesses in adulthood. This study aimed to reaffirm the current literature on mental illnesses and childhood maltreatment, as well as assess the role of gender in posttraumatic stress disorder and borderline personality disorder. Analyzing the environmental factors of psychology through childhood maltreatment, allowed research to shed light on how different experiences shape an individual's mental health in adulthood. This study hypothesized that victims of childhood maltreatment are more likely to report levels of posttraumatic stress disorder and borderline personality disorder in adulthood. It also evaluated

the role of gender and hypothesized that females are more likely than males to experience borderline personality disorder and posttraumatic stress disorder in adulthood.

Childhood maltreatment is the abuse and neglect that occurs to children under 18 years of age (World Health Organization, 2020). Childhood maltreatment spans a multitude of different forms of abuse and neglect. The first is neglect: neglect ranges from a lack of health care to inadequate education, with the key defining term being unmet basic needs (Gonzalez et al., 2021). Physical abuse can consist of beating, shaking, or any form of extensive force used on a child. Psychological abuse includes verbal abuse, attempts to humiliate a child, and general acts with the intent to scare a child. Gonzalez et al., defines sexual abuse as the involvement of dependent, developmentally immature children and adolescents in sexual activities which they do not fully comprehend, to which they are unable to give consent, or that violate the social taboos of family roles." All of these forms fall under the umbrella term of childhood maltreatment. During the prime ages of development, these parenting "tactics," have life-long impacts, and oftentimes lead to developmental deficits and mental illness in adulthood (Bick & Nelson, 2016; Dye, 2018; Downey & Crummy, 2022; Khoury et al., 2010; Su & Stone 2020).

Lifelong Impacts of Childhood Maltreatment

The impact of childhood maltreatment does not end at the age of 18. The adverse impacts of childhood maltreatment can be seen throughout the lifespan (Dye, 2018). These adverse impacts often range from physical, mental, and physiological, affecting things like emotional regulation, putting victims at a higher risk for diabetes and depression, as well as having psychobiological impacts on development (Felitti, 2002). Childhood maltreatment sets up youth for lifelong struggles that are incredibly different to retroactively overcome.

Childhood maltreatment impacts not only emotional responses, but also physiological responses. This is relevant because these physiological deficits may impact the development of these victims. Previous research has found that childhood maltreatment leads to deficits in the size and functioning of the amygdala, hippocampus, orbitofrontal cortex, cerebellum, and corpus collosum (Bick and Nelson, 2016).The vast amount of brain regions effected by childhood maltreatment can lead to difficulty in regards to learning and memory, as the hippocampus plays a key role in these functions; difficulty processing emotions due to the amygdala; impact motor functions which is controlled by the cerebellum; or cause difficulty regulating emotions, which is controlled by the orbitofrontal cortex. The amygdala and orbitofrontal cortex relate directly to mental health, as they both deal with the processing and regulating of emotions. The amygdala is involved in controlling fear responses. A deficit in the amygdala can cause an individual to act more impulsively, as well as can lead to different mental disorders such as depression and anxiety. Although this study will not focus on depression and anxiety, lack of impulse control is a key characteristic of patients who suffer from borderline personality disorder.

Physically, victims of childhood maltreatment are also more prone to certain diseases and disorders (Felitti, 2002). Felitti examined the results of childhood maltreatment on physical health in adulthood using a population of 17,421 individuals insured under Kaiser Health Plan services. The average participant in the study was both middle-class and middle-aged, however the study did not focus on the implication of age nor socioeconomic status. Individuals who experienced adverse childhood experiences (ACE) were more likely to suffer from chronic obstructive pulmonary disease (COPD). Individuals with an ACE score of 4 were 390% more likely to suffer from chronic obstructive pulmonary disease than individuals without any reported

adverse childhood experiences. In addition, obesity rates, suicide attempt rates, smoking, intravenous drug use, and diabetes were all higher in patients who reported ACEs.

Current research in the field has investigated the relationship between childhood maltreatment and mental illness in adulthood (Bick & Nelson, 2016; Dye, 2018; Downey & Crummy, 2022; Khoury et al., 2010; Su & Stone 2020). This study expects to replicate similar findings by previous researchers. Due to the developmental deficits previously discussed, such as difficulties processing emotions in the amygdala, adults with past trauma involving ACEs typically carry adverse coping skills from childhood into adulthood, as toxic stress responses. When dealing with posttraumatic stress disorder, patients with history of childhood maltreatment, flashbacks often take different shapes as well (Su & Stone, 2020). Instead of the typical vivid flashbacks associated with posttraumatic stress disorder, patients will instead experience floods of emotion, due to fragmentation of memory. This fragmentation of memory may be the result of time passing since the inflicting trauma or may stem from other issues such as problems in the hippocampus, which have been traced back to childhood maltreatment. This study, conducted by researchers Su and Stone (2020), concluded that adverse childhood experiences can lead to several different disorders due to the overlap of symptomatology in survivors. Borderline personality disorder and posttraumatic stress disorder were both listed as possible outcomes of childhood maltreatment, and the study states that because of the overlap in symptoms, oftentimes disorders are misdiagnosed.

Significantly less research has been conducted on borderline personality disorder in comparison to posttraumatic stress disorder. Borderline personality disorder is only prevalent in approximately 1% of the population, whereas the U.S. Department of Veterans Affairs estimates

that approximately 6% of the population will experience posttraumatic stress disorder at some point in their lives. The dramatic difference in amount of research reflects this.

Posttraumatic Stress Disorder

Posttraumatic Stress Disorder is a mental disorder categorized by the DSM-5 through intrusive symptoms associated with a traumatic event (5th ed.; DSM–5; American Psychiatric Association, 2013). These symptoms can take the place of intrusive recurring nightmares or daydreams related to the traumatic event, as well as dissociative flashbacks where the individual feels as though they are back in the trauma. The disorder may also manifest itself into a negative emotional state, detachment from reality and distancing oneself from loved ones, as well as avoiding certain places or activities to avoid memories or thoughts related to the inflicted trauma. Posttraumatic stress disorder is a disorder that can stem from a multitude of different traumatic events. Sexual abuse, experiencing wartimes, childhood maltreatment, or physical abuse can all lead to the same diagnosis with posttraumatic stress disorder.

Rates of sexual, physical, and emotional abuse during childhood have not only been linked to borderline personality disorder, but also to posttraumatic stress disorder (Tolin & Foa, 2006). Individuals who suffered from childhood maltreatment were more likely to experience problematic events like rape or physical assault in adulthood, which already makes them more likely to develop posttraumatic stress disorder (Stein et al., 2000). Exposure to childhood trauma alone entails enough risk factors in adulthood that a link between the two can be drawn.

Borderline Personality Disorder

Borderline personality disorder is a serious disorder characterized by the DSM-5 through several symptoms, mainly characterizing irrational behaviors (5th ed.; DSM–5; American Psychiatric Association, 2013). These behaviors center around personal relationships, self-

esteem, self-image, and impulsivity. To meet the criteria to be diagnosed with borderline personality disorder, an individual must display at least five of the following nine symptoms. "Chronic feelings of emptiness; Emotional instability in reaction to day-to-day events (e.g., intense episodic sadness, irritability, or anxiety usually lasting a few hours and only rarely more than a few days); Frantic efforts to avoid real or imagined abandonment; Identity disturbance with markedly or persistently unstable self-image or sense of self; Impulsive behavior in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating); Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights); Pattern of unstable and intense interpersonal relationships characterized by extremes between idealization and devaluation (also known as "splitting"); Recurrent suicidal behavior, gestures, or threats, or self-harming behavior; Transient, stress-related paranoid ideation or severe dissociative symptoms."

Borderline personality disorder is significantly under researched, as it is a much less common diagnosis than some of the other DSM-5 diagnosis (Skodol & Bender, 2003). Often individuals with borderline personality disorder are misdiagnosed, as some of the symptoms may present as either depression, mania, or bipolar disorder, as it ranges on a spectrum. Despite the severity of borderline personality disorder, it is often overlooked by mental health professionals. In addition to the uncommon nature of the diagnosis, borderline personality disorder is much more prominent among women (Sansone, 2011). 75% of individuals diagnosed with borderline personality disorder identify as female. Due to this, the ensuing studies in this section typically consist of female participants.

Previous studies have looked into the environmental aspects of the disorder. A study conducted by De Acquino Ferrera et al., analyzed forensic medical records of 2,688 childhood

sexual assault victims, and linked these records to a public psychiatric database approximately 12 to 43 years later, depending on the individual victim (De Acquino Ferreira., 2018). Female victims were 7.62 times more likely to develop borderline personality disorder than women who have not experienced childhood sexual assault. This study makes it possible to conclude that certain types of assault and abuse, specifically in childhood, make an individual more likely to suffer from borderline personality disorder. Another study built upon this relationship between childhood sexual abuse (CSA) and borderline personality disorder (Menon et al., 2016). This study was conducted of 36 borderline personality disorder patients and looked at CSA as an indicator of suicidal behavior in victims with borderline personality disorder. 44.44% of these patients diagnosed with borderline personality disorder suffered sexual abuse during childhood. Victims of CSA with borderline personality disorder were more likely to attempt suicide, regardless of the severity of the disorder.

Frias et al., looked at the relationship between anxious attachment styles, childhood abuse, and borderline personality disorder. The study looked at 70 women with borderline personality disorder, and 60 women without borderline personality disorder. Patients with borderline personality disorder reported higher severity of emotional, physical, and sexual abuse over patients without the disorder. This study also brings an additional factor: attachment style. The study found that individuals with borderline personality disorder are more likely to maintain anxious attachment styles in adulthood. Attachment theory states that environment during childhood impacts relationships during adulthood. Anxious attachment styles are associated with low self-esteem, panic, and worry, which can all be symptoms of borderline personality disorder, as well as manifestations of childhood trauma in adulthood.

Similarities Between the Disorders

Both posttraumatic stress disorder and borderline personality disorder overlap in certain symptoms and causes. Negative emotional state is a symptom of a multitude of different DSM disorders, including major depression, borderline personality disorder, as well as posttraumatic stress disorder. Often, the other symptoms a patient is experiencing help professionals distinguish between the disorders.

Previous research in the field has reported gender differences in both borderline personality disorder and posttraumatic stress disorder diagnostic frequencies. According to research in the field, males are more often exposed to traumatic events, however females are at a higher risk for posttraumatic stress disorder (Peters, et al., 2006). Researchers have hypothesized that although males are more often exposed to trauma, the types of traumatic experiences that men go through are less likely to lead to posttraumatic stress disorder. Males are more likely to experience accidents, non-sexual assault, combat, or witness death (Tolin & Foa, 2006). However, other types of traumatic experience are more common experiences for females. For example, sexual trauma is more likely to occur in females, and may lead to posttraumatic stress disorder. However, Stein et al. found that even if excluding posttraumatic stress disorder stemming from sexual trauma, posttraumatic stress disorder is more prevalent in women than men (Stein et al., 2000). Other studies explore other explanations for this gender difference. Olff ponders whether this gender difference occurs due to differences in hormones responses, or gender specific acute stress responses, making females more prone to posttraumatic stress disorder (Olff et al., 2007). Following a similar notion, higher cortisol levels were found in men following traumatic experiences. Cortisol is involved directly in the regulation of the body's stress response. These cortisol level differences show a clear physiological difference in the processing of traumatic events by gender.

Gender Differences

Despite the gender differences among individuals with borderline personality disorder, much less research has been done on why these gender differences occur. Posttraumatic stress disorder is seen by the field as being more so influenced by environmental factors, whereas borderline personality disorder tends to have a focus on a genetic component as well. Both disorders do have both genetic and environmental factors, however the focus tends to be slightly different.

The differences in diagnostics among gender, may also be related to the different coping mechanisms utilized by the genders. Studies have found that women report higher emotion-oriented coping, while men report higher task-oriented coping (Araya et al., 2016). Another study found results indicating differences in coping mechanisms, finding that in women sexual abuse and physical abuse were more likely to lead to cocaine and marijuana abuse, however physical abuse in men led to cocaine and heroin abuse (Koury et al, 2014). This study also found that individuals who scored higher for posttraumatic stress disorder were more likely to suffer from substance abuse. Different gender's preference in coping skills points to an innate difference in processing stress and traumatic experiences. The ways in which stress and traumatic experiences are handled, may determine the mental illnesses that manifest in adulthood.

In addition to the psychological aspects of gender differences, societal implications of mental illness may play a role in seeking diagnosis and receiving treatment. In this society, women are encouraged to explore their emotions and talk about their feelings. Society plays a large role in the ways in which we express feelings and emotion. Research has shown that women show greater emotional expression overall, while men tend to show higher levels of

internalizing negative emotions (Chaplin, 2015). Despite the difference in emotional expression, both genders show similar physiological responses, with men showing greater levels of cortisol and higher blood pressure responses to emotionally arousing stressors. This indicates that men are still experiencing these stressors, and simply internalize their responses instead. Despite the progress that has been made, men are still encouraged to repress, which may lead to lower rates of treatment for posttraumatic stress disorder or borderline personality disorder in men.

The Present Study

Through looking at previous literature in the field, there is a clear relationship between childhood maltreatment and mental health problems in adulthood (Bick & Nelson, 2016; Downey & Crummy, 2022; Khoury et al., 2010; Su & Stone 2020). This study will attempt to expand upon this previous research by examining the association between childhood maltreatment and mental health problems in young adulthood. In contrast with the majority of previous research on the topic of childhood maltreatment and mental illness in adulthood, this current study will be conducted on college students; a generally high functioning population, typically below the median age of onset for both posttraumatic stress disorder and posttraumatic stress disorder (Kessler et al., 2005). Conducting research on this population will allow this study to further current research, by mitigating potential extenuating circumstances that may cause posttraumatic stress disorder or borderline personality disorder later in adulthood. This study will look at gender differences in the rates of borderline personality disorder and posttraumatic stress disorder as well. Childhood shapes the entirety of an individual's lifespan, so by understanding the implications of childhood maltreatment, it may be possible to understand how to counteract the negative effect of childhood abuse, neglect, and trauma.

The following research questions were examined in this study:

1. Are adults who experienced childhood maltreatment more likely to experience symptoms of posttraumatic stress disorder?
2. Are adults who experienced childhood maltreatment more likely to experience symptoms of borderline personality disorder?
3. Are there gender differences in borderline personality disorder or posttraumatic stress disorder?

Due to the links between childhood maltreatment and adulthood mental illness, it was hypothesized that adults who experienced childhood maltreatment would be more likely to experience symptoms of posttraumatic stress disorder. Similarly, previous research has determined links between childhood maltreatment and adulthood mental illness, therefore it was hypothesized that adults who experienced childhood maltreatment would be more likely to experience symptoms of borderline personality disorder. Based on previous research, it was anticipated that female victims of childhood maltreatment would report more symptoms of borderline personality disorder and posttraumatic stress disorder than male and non-binary victims.

Method

Participants

This study collected data from 45 participants. These participants were SUNY Purchase Introduction to Psychology students. Introduction to Psychology students were awarded participation credits for their course. Any individual over the age of 18 was eligible to participate in the study, with no other disqualifying characteristics. There were 25 female, 11 male, and 9 non-binary subjects. The average age of participants was 19.17 years, with a range of 18-22. The

study took approximately 30 minutes to complete, and the survey was administered through Qualtrics. Participant gender and racial/ethnic identities are shown in Table 1.

Table 1

Demographic Characteristics of the Sample

Demographic Characteristic	*n*	%
Gender		
Female	25	55.60
Male	9	20.00
Non-Binary	11	24.40
Other	0	0.00
Race/Ethnicity		
Asian	4	8.89
American Indian or Alaska Native	0	0.00
Black/African American or Caribbean	3	6.67
Hispanic or Latinx	9	20.00
Middle Eastern or Northern African	0	0.00
White or Caucasian	27	60.00
Multiple Races	2	4.44

Measures

All measures completed by participants in this study are shown in Appendix A.

Childhood maltreatment. The Conflict Tactics Scale: Parent-Child Version (Sierau et al., 2018) is a measure used in this study to examine the participant's relationship with their parents during childhood. The Conflicts Tactics Scale: Parent-Child Version is a 22-question survey regarding the participant's relationship with their parent during childhood (e.g., "From what you remember, how often did your primary parent: hit you on the bottom with something hard,") with the following responses options: never, rarely, sometimes, often, and don't remember. These questions ranged in severity of abuse from mild to severe in order to properly gauge the level of childhood maltreatment each participant was exposed to. To test the validity of the Conflicts Tactics Scale: Parent-Child Version, the survey was administered to a sample of 904 children and adolescents aged 4-16 from Child Protective Services, child psychiatric services, as well as from the community (Sierau et al., 2018). This study found the Conflicts Tactics Scale: Parent-Child Version to be valid and reliable among samples from each different group of children and adolescents.

Posttraumatic stress symptoms. The Primary Care PTSD Screen for DSM-5 (Prins, et al., 2015) is comprised of 5 yes or no questions (e.g., "In the past month have you had nightmares about a traumatic or scary event or thought about a traumatic or scary event when you did not want to?"). This PTSD screen is utilized by many researchers, as well as clinicians when screening for posttraumatic stress disorder. The validity of this measure was researched using a population of 398 Veterans (Prins, et al., 2016). The Primary Care PTSD Screen for DSM-5 demonstrated excellent diagnostic accuracy (AUC = 0.94; 95 % C.I.: 0.91- 0.96), which in turn showed high validity and reliability. In addition to the accuracy, the participants in this study vocalized a preference for completing this survey over other tests for posttraumatic stress disorder.

Borderline personality symptoms The McLean Screening Instrument for Borderline Personality Disorder (Zanarini, 2009) contains 10 different yes or no questions that ask about borderline personality disorder symptoms (e.g., “Have you been extremely moody?”). The McLean Screening Instrument for Borderline Personality Disorder has been used in a multitude of studies to reliably assess an individual’s borderline personality disorder symptoms. For example, in a systematic review, the validity and reliability of several diagnostic interviews for borderline personality disorder, including the McLean Screening Instrument for Borderline Personality Disorder was assessed (Carcone et al., 2015). The systematic review found that the McLean Screening Instrument for Borderline Personality Disorder was highly reliable in comparison to other screening surveys for the personality disorder. It was rated with high validity as well, making the McLean Screening Instrument for Borderline Personality Disorder an incredible survey for measuring borderline personality disorder symptoms.

Procedure

This study was comprised of participants from an Introduction to Psychology course at SUNY Purchase. Participants were invited to participate in the study as a way to receive participation credit for their course. Before proceeding to the survey, participants completed an informed consent form. Once the informed consent form was completed, participants were first asked to answer demographic questions, followed by a battery of questions regarding their childhood experiences and mental and behavioral health symptoms. At the end of the survey, participants were debriefed about the purpose of the study. As this study revolved around highly sensitive subjects, participants were also given links to resources for crisis navigation if completion of the study elicited unwanted emotions or memories. Data was stored on a password protected computer with no individual identities to preserve anonymity for all participants.

Results

Descriptive Analysis

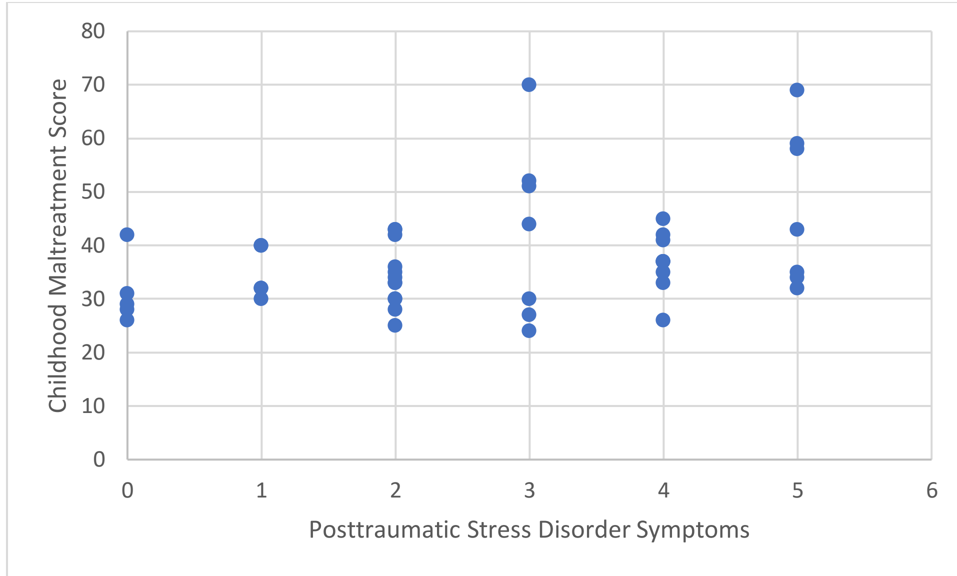
In this study, 45 participants were used in a within-subjects design. All participants were in a similar age range due to the population of this study being college students (*M* = 19.20, *SD* = 0.98). Participants filled out three different measures and scores were calculated for each: childhood maltreatment (*M* = 37.80, *SD* = 10.68), symptoms of borderline personality disorder (*M* = 5.80, *SD* = 2.98), and symptoms of posttraumatic stress disorder (*M* = 2.70, *SD* = 1.57).

Inferential Analysis

The first research question examined whether individuals who were abused or neglected as children were more likely to report symptoms of posttraumatic stress disorder. It was hypothesized that childhood maltreatment would be associated with more symptoms of posttraumatic stress disorder in adulthood. To assess this group difference, a Pearson's correlation was run, with child maltreatment and posttraumatic stress disorder as the two variables involved. Results of this analysis suggested that there was a statistically significant relationship between maltreated and non-maltreated participants in the number of posttraumatic stress disorder symptoms reported $r(43) = 0.40$, $p < .001$. This result supported the hypothesis that childhood maltreatment is associated with posttraumatic stress disorder in adulthood.

Figure 1

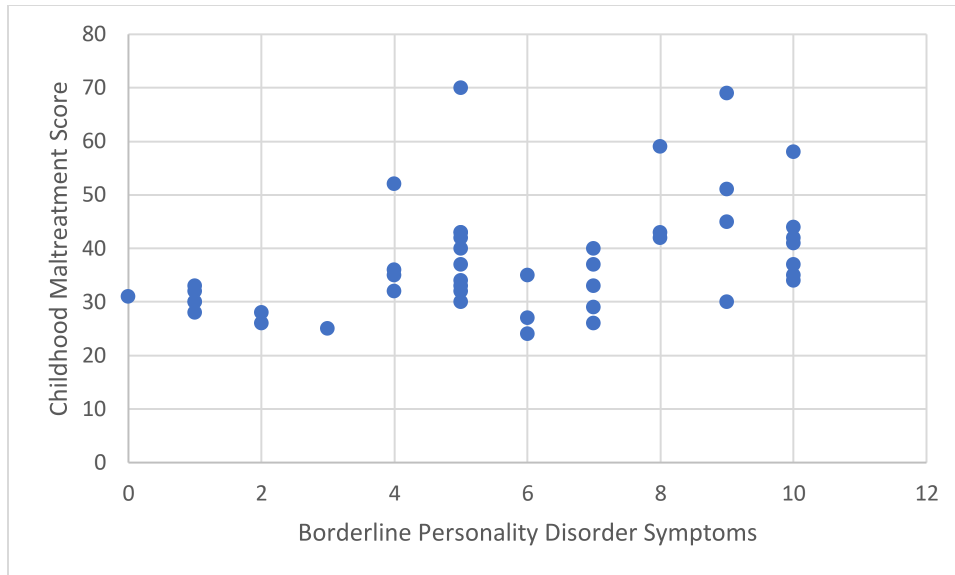
Posttraumatic Stress Disorder Levels and Childhood Maltreatment



The second research question examined whether individuals who were abused or neglected as children were more likely to report symptoms of borderline personality disorder. It was hypothesized that childhood maltreatment would be associated with more symptoms of borderline personality disorder in adulthood. To assess this research question, a Pearson's correlation was run. Results of this analysis suggested that there was a statistically significant relationship between childhood maltreatment and borderline personality disorder symptoms in adulthood $r(43) = 0.43$, $p = .004$. This result supported the hypothesis that childhood maltreatment is associated with borderline personality disorder in adulthood.

Figure 2

Borderline Personality Disorder Symptoms and Childhood Maltreatment



The next research question looked at gender differences in posttraumatic stress disorder and borderline personality disorder. Based on previous research, this study hypothesized that females would be more likely to suffer from both posttraumatic stress disorder and borderline personality disorder. Demographics were obtained during the study, with 11 male participants, 25 female participants, and 9 non-binary participants. To address this research question, two one-way ANOVAs were run.

The first one-way ANOVA considered whether there was a gender difference in number of posttraumatic stress disorder symptoms endorsed by participants. The results of this analysis did not identify a significant gender difference $F(2,42) = 2.40$, $p = .10$. Females had a mean posttraumatic stress disorder sum score of 2.52, standard deviation of 1.48. Males had a mean posttraumatic stress disorder sum score of 2.27, standard deviation of 2.0. Despite the very close similarity in the numbers between females and males, non-binary individuals scored slightly higher with a mean of 3.68 and a standard deviation of .87. Although there is no statistical significance from this data, the difference between non-binary and male/female groups is still different than originally anticipated.

The second one-way ANOVA assessed the relationship between borderline personality disorder and gender. The one-way ANOVA revealed statistical significance between the genders $F(2, 42) = 4.35$, $p = .019$. There was an overwhelming difference between borderline personality disorder in non-binary participants (M = 8.22, SD=1.64) when compared to males (M = 5.46, SD = 3.27) and females (M = 5.08, SD = 2.86).

Discussion

This study was run to assess the association between childhood maltreatment and symptoms of mental illness in adulthood, with a specific focus on posttraumatic stress disorder and borderline personality disorder. Participants completed surveys in young adulthood that asked them to report on their childhood experiences and any symptoms that they might be currently experiencing. These findings supported two of the three study hypotheses. The study found that more experiences of poor parenting and child maltreatment in childhood was associated with more symptoms of both posttraumatic stress disorder and borderline personality disorder in young adulthood. However, this study did not find support for the hypothesis that females would have more symptoms of posttraumatic stress disorder and borderline personality disorder than participants identifying as males or non-binary. Instead, non-binary participants reported more symptoms of borderline personality disorder than males and females, whereas with posttraumatic stress disorder was not significant.

Implications

This study supports fundings from previous research that victims of childhood maltreatment experience higher rates of mental illness (Bick et al., 2019; Khoury et al., 2010; Su & Stone 2020). In line with the hypotheses of this study, as well as previous research, participants who reported higher levels of childhood maltreatment showed more symptoms of

posttraumatic stress disorder and borderline personality disorder. Through this research, it is possible to take certain directions in terms of treating posttraumatic stress disorder, borderline personality disorder, as well as enabling early intervention through crisis treatment during childhood.

Due to the environmental factors of both posttraumatic stress disorder and borderline personality disorder that are implicated by this study, there is a level of lifelong toxic stress associated with adverse childhood experiences, which were previously discussed during the literature review, and defined as all types of abuse or neglect during childhood (Su and Stone, 2020). The most effective method of approach to adverse childhood experiences and toxic stress, is prevention. Individuals who are exposed to abuse and neglect in their childhood are more likely than nonexposed individuals to continue the cycle of abuse towards their own children (Merrick & Guinn, 2018). By implementing programs for victims of abuse focused on proper parenting skills, breaking the intergenerational train of abuse is necessary to ensure that childhood maltreatment is avoided. In treatment, focusing on dealing with past trauma and diving into the details of an individual's childhood may mitigate some of their symptoms of their onset mental health problems in adulthood. This is helpful to the treatment of both posttraumatic stress disorder and borderline personality disorder because it helps guide treatment towards therapeutic means in which an individual is processing their childhood trauma or neglect and creating more positive coping skills, like dialectical behavioral therapy (DBT) or counseling.

Environmental factors, such as child maltreatment, and toxic stress can impact physiological development and impact the development of key neurological structures such as the hippocampus or amygdala (Bick & Nelson, 2016). Although it may not be possible to restructure these brain regions, being aware that individuals who show symptoms of childhood

maltreatment may suffer these deficits may allow researchers and clinicians to attempt to mitigate the impacts of deficits of these core brain regions that impact functions such as learning, memory, and fear responses. For example, borderline personality disorder is characterized by impulsive behavior. Impulse control is controlled by the prefrontal cortex of the brain. If a link can be made between these factors during childhood, early intervention will allow for mitigation of the symptoms of borderline personality disorder before they become a serious lifelong problem. The most obvious approach to limiting the impact of childhood maltreatment on adulthood mental illness, is intervening during childhood. Especially considering the severity of borderline personality disorder and the limited options of treatment for the disorder, early intervention could be the most effective method of treatment for individuals exposed to childhood maltreatment who deal with borderline personality symptoms or diagnosis.

Due to the limited amount of non-binary identifying people, there tends to be a focus on females and males when looking at gender differences in research. However, almost 25% of this study's participants identified as non-binary, which allowed insight into a group of people that research tends to overlook. From the results, it is evident that people who identify as non-binary struggle significantly more with borderline personality disorder symptoms than those who identify as either male or female. Non-binary and transgender populations are more likely to report depression and suicide attempts as well (Beckwith et al., 2019). Although previous research has shown increased rates of psychiatric problems in transgender and non-binary individuals compared to cisgender males and females, further research is necessary to explore where these differences arise, and how to implement proper treatment and resources.

Limitations

There are a number of limitations to this study that should be noted. First, in conducting this research, the participant pool was very limited. This study used participants from the Purchase Psychology Pool, which was comprised of Introduction to Psychology students at SUNY Purchase. This limited the participants to college students who ended up ranging in age 18 to 22. When looking at mental illness in adulthood, 4 years of age difference is a very small pool of participants. Typical onset age varies by disorder. The median age of onset for posttraumatic stress disorder is 23, while the median age of participant in this study was 19.2 (Kessler et al., 2005). By widening the population of participants for the study to include older adults, the study may have found different results, or have been able to make more conclusions about the nature of the data.

Second, this study was also only comprised of 45 participants. To be able to make strong conclusions about victims of childhood maltreatment, a larger pool of participants would be necessary. Although this study does affirm previous research on the topic, it could not stand on its own due to the limited number of participants that took part in this study. In furthering this line of research, rerunning the study using a platform like MTurk, Amazon’s platform for data collection. MTurk allows researchers to collect data from individuals globally. Researchers pay each participant to complete the survey. This would increase both the number of participants, and the types of individuals included in the participant pool.

Third, due to the sensitive subject matter of child abuse and neglect, participants may not have answered honestly. Some individuals may have felt uncomfortable disclosing their past on the survey, which would skew the data and results. If a participant is uncomfortable recalling and disclosing past traumatic experiences, they may neglect to disclose the event, however, the participant may still show symptoms of either posttraumatic stress disorder or borderline

personality disorder; this would lead to skewed data. Similarly, one of the DSM-5 criteria for borderline personality disorder is unstable emotions (American Psychiatric Association, 2013). If a participant suffered from borderline personality disorder, their unstable emotional instability may have caused the participant to exaggerate the extent of their childhood maltreatment.

In addition to this, there was no age limit for participation. If a participant was 60 years old, they may have had more difficulty remembering their childhood experiences and may not have been able to respond to the survey as accurately or as thoroughly. If the experiment was to be repeated, focusing in on a smaller age group, adding more participants, and specifically focusing on individuals with childhood maltreatment may aid in more accurate responses and results. To combat the sensitive nature of questions regarding childhood, reinforcing the anonymity of the participants further may elicit more honest responses in participants. Although participants were informed that their data would remain anonymous, it was still conducted as a part of their classwork for Introduction to Psychology. When dealing with questions regarding topics such as childhood maltreatment or suicidal ideation, participants may feel weary about responding honestly no matter how far removed from their classwork the study may be.

Future Directions

This study was able to affirm previous data on childhood maltreatment and adulthood mental illness, as well as guide further research in certain directions. This study affirms gender differences in adulthood mental illness. Further research may focus on why exactly these differences are found and can be applied to clinical treatment of mental illness among men, women, and non-binary individuals. If researchers can target why non-binaries are experiencing higher rates of symptoms of borderline personality disorder, it may be possible to integrate more mental health counseling and treatment into LGBTQ+ programs and resources. When conducting

further research into the relationship between childhood maltreatment and mental illness in adulthood, looking at the emotional, physiological, and environmental differences of these genders may help explain why there is a gender difference.

This study refrained from asking about the year that childhood maltreatment occurred. Focusing on childhood maltreatment of specific ages, may allow further insight into what ages are key for development. Victims of childhood maltreatment at early ages, such as 4 or 5, may not have the capacity to remember the details of their abuse and neglect, therefore they would not be able to answer a survey accurately about whether they have experienced any of these issues.

This study looked at the relationship between gender and symptoms of both posttraumatic stress disorder and borderline personality disorder, however the gender analysis did not factor in childhood maltreatment. Further research may focus on the relationship between gender and childhood maltreatment in order to adequately assess the role gender plays in the expression of childhood neglect and abuse in adulthood. This may be able to provide clinicians insight towards different means of intervention and how to implement treatment based on gender.

The results of this study positively correlated childhood maltreatment with both posttraumatic stress disorder and borderline personality disorder, however it did not explore socioeconomic differences between households. Individuals with posttraumatic stress disorder and borderline personality disorder are more likely to utilize negative coping skills like substance abuse (Khoury et al., 2010). Being able to afford therapeutic means or rehabilitation centers may impact the effects of childhood maltreatment. In addition to the financial impact of socioeconomic differences, individuals coming from a higher class may have had more positive interactions with figures such as teachers or have had less problems like food insecurity. Future

research may want to look into the differences in types of childhood maltreatment each socioeconomic class was exposed to, and which mental illnesses each manifest into in adulthood.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Araya, M., Chotai, J., Komproe, I. H., & de Jong, J. T. (2007). Gender differences in traumatic life events, coping strategies, perceived social support and sociodemographics among postconflict displaced persons in Ethiopia. *Social psychiatry and psychiatric epidemiology*, *42*(4), 307–315. https://doi.org/10.1007/s00127-007-0166-3

Beckwith, N., McDowell, M. J., Reisner, S. L., Zaslow, S., Weiss, R. D., Mayer, K. H., & Keuroghlian, A. S. (2019). Psychiatric Epidemiology of Transgender and Nonbinary Adult Patients at an Urban Health Center. *LGBT health*, 6(2), 51–61. https://doi.org/10.1089/lgbt.2018.0136

Bick, J., & Nelson, C. A. (2015). Early adverse experiences and the developing brain. *Neuropsychopharmacology*, *41*(1), 177–196. https://doi.org/10.1038/npp.2015.252

Carcone, D., Tokarz, V. L., & Ruocco, A. C. (2015). A systematic review on the reliability and validity of semistructured diagnostic interviews for borderline personality disorder. *Canadian Psychology/Psychologie canadienne, 56*(2), 208–226. https://doi.org/10.1037/cap0000026

Chaplin T. M. (2015). Gender and Emotion Expression: A Developmental Contextual Perspective. *Emotion Review: Journal of the International Society for Research on Emotion*, *7*(1), 14–21. https://doi.org/10.1177/1754073914544408

Cotter, A., Proctor, K. B., & Brestan-Knight, E. (2018). Assessing child physical abuse: An

examination of the factor structure and validity of the parent-child conflict tactics scale (CTSPC). *Children and Youth Services Review*, *88*, 467–475. https://doi.org/10.1016/j.childyouth.2018.03.044

de Aquino Ferreira, L. F., Queiroz Pereira, F. H., Neri Benevides, A., & Aguiar Melo, M. C. (2018). Borderline Personality Disorder and Sexual Abuse: A Systematic Review. *Psychiatry research*, *262*, 70–77. https://doi.org/10.1016/j.psychres.2018.01.043

Downey, C., & Crummy, A. (2022). The Impact of Childhood Trauma on Children's Wellbeing and Adult Behavior. *European Journal of Trauma & Dissociation*, *6*(1), 100237. https://doi.org/10.1016/j.ejtd.2021.100237

Dye, H. (2018). The Impact and Long-Term Effects of Childhood Trauma. *Journal of Human Behavior in the Social Environment*, *28*(3), 381–392. https://doi.org/10.1080/10911359.2018.1435328

Felitti V. J. (2002). The Relation Between Adverse Childhood Experiences and Adult Health: Turning Gold into Lead. *The Permanente journal*, *6*(1), 44–47.

Frías, Á., & Palma, C. (2015). Comorbidity between post-traumatic stress disorder and borderline personality disorder: a review. *Psychopathology*, *48*(1), 1–10. https://doi.org/10.1159/000363145

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

Khoury, L., Tang, Y. L., Bradley, B., Cubells, J. F., & Ressler, K. J. (2010). Substance Use, Childhood Traumatic Experience, and Posttraumatic Stress Disorder in an Urban Civilian population. *Depression and Anxiety*, *27*(12), 1077–1086.https://doi.org/10.1002/da.20751

Merrick, Melissa T, and Angie S Guinn. "Child Abuse and Neglect: Breaking the Intergenerational Link." *American journal of public health* vol. 108,9 (2018): 1117-1118. doi:10.2105/AJPH.2018.304636

Olff. (2007). Gender Differences in Posttraumatic Stress Disorder. Psychological Bulletin., 133(2), 183–204. https://doi.org/info:doi/

Prins, A., Bovin, M. J., Kimerling, R., Kaloupek, D. G, Marx, B. P., Pless Kaiser, A., & Schnurr, P. P. (2015). *Primary Care PTSD Screen for DSM-5* (PC-PTSD-5) [Measurement instrument]. Available from *https://www.ptsd.va.gov*.

Prins, A., Bovin, M.J., Smolenski, D.J. et al. (2016) The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5): Development and Evaluation Within a Veteran Primary Care Sample. *J GEN INTERN MED* **31,** 1206–1211. https://doi.org/10.1007/s11606-016-3703-5

Sansone, R. A., & Sansone, L. A. (2011). Gender patterns in borderline personality disorder. *Innovations in clinical neuroscience*, *8*(5), 16–20.

Sierau, S., White, L. O., Klein, A. M., Manly, J. T., von Klitzing, K., & Herzberg, P. Y. (2018). *Assessing psychological and physical abuse from children's perspective: Factor structure and psychometric properties of the picture-based, modularized child-report version of the Parent-Child Conflict Tactics Scale–Revised* (CTSPC-R). PLoS one, 13(10), e0205401.

Skodol, A. E., & Bender, D. S. (2003). Why are Women Diagnosed Borderline More Than Men? *Psychiatric Quarterly*, *74*(4), 349–360. https://doi.org/10.1023/a:1026087410516

Stein, M. B., Walker, J. R., & Forde, D. R. (2000). Gender differences in susceptibility to posttraumatic stress disorder. *Behaviour Research and Therapy, 38*(6), 619-628. doi:http://dx.doi.org/10.1016/S0005-7967(99)00098-4

Su, W.-M., & Stone, L. (2020). Adult survivors of childhood trauma: Complex trauma, complex needs. *Australian Journal of General Practice*, *49*(7), 423–430. https://doi.org/10.31128/ajgp-08-19-5039

Tolin, D. F., & Foa, E. B. (2006). Sex differences in trauma and posttraumatic stress disorder: a quantitative review of 25 years of research. *Psychological bulletin*, *132*(6), 959–992. https://doi.org/10.1037/0033-2909.132.6.959

World Health Organization. (2020, June). *Child maltreatment*. World Health Organization. Retrieved from https://www.who.int/news-room/fact-sheets/detail/child-maltreatment

Zanarini, M. C. (2009). *Mclean Screening Instrument For Borderline Personality Disorder* (MSI-BPD). Jones & Bartlett Publ..

Appendix

APPENDIX A: Self-Report Surveys

The following surveys will be administered to all participants in the proposed study via Qualtrics (hosted on MTurk), a web-based survey platform that will allow the research team to collect data confidentially and remotely.

1. Demographics Questionnaire

Instructions: To the extent that you are comfortable, please answer the following questions about yourself. Please remember that all information will be kept strictly confidential by the study researchers. You may skip any questions that you would prefer not to answer.

Survey Item:	**Response Options:**
What gender do you identify with?	1. Male 2. Female 3. Non-Binary 4. Other [*please specify]*__________
What is your age (in years)?	*Slider bar between 18 - 100*
What is your sexual orientation?	1. Homosexual [Gay/Lesbian] 2. Bisexual 3. Heterosexual [Straight] 4. Other [*please specify]*_______________
What racial or ethnic group(s) do you identify with?	1. Black or African/Caribbean American 2. White or Caucasian 3. Asian or Asian American 4. Hispanic or Latinx 5. Other [*please specify]*_______________

2. Conflict Tactics Scale: Parent-Child Version - Revised (CTSPC-R)

Citation: Sierau, S., White, L. O., Klein, A. M., Manly, J. T., von Klitzing, K., & Herzberg, P. Y. (2018). *Assessing psychological and physical abuse from children's perspective: Factor structure and psychometric properties of the picture-based, modularized child-report version of the Parent-Child Conflict Tactics Scale–Revised (CTSPC-R).* PLoS one, 13(10), e0205401.

From what you remember, how often did your primary parent:	**Never**	**Rarely**	**Sometimes**	**Often**	**Don't remember**
1. Explain to you why you did something wrong.	☐	☐	☐	☐	☐
2. Put you in "time out" or send you to your room.	☐	☐	☐	☐	☐

3. Shake you.	☐	☐	☐	☐	☐
4. Hit you on the bottom with something hard.	☐	☐	☐	☐	☐
5. Give you something else to do [when you were doing something that you shouldn't have been doing].	☐	☐	☐	☐	☐
6. Shout, yell, or scream at you.	☐	☐	☐	☐	☐
7. Punch or kick you.	☐	☐	☐	☐	☐
8. Spank you.	☐	☐	☐	☐	☐
9. Grab you around the neck and choke you.	☐	☐	☐	☐	☐
10. Say bad words to you (like swear words or call you names).	☐	☐	☐	☐	☐
11. Beat you up.	☐	☐	☐	☐	☐
12. Tell you that you would be sent away or actually kick you out of the house.	☐	☐	☐	☐	☐
13. Burn you on purpose.	☐	☐	☐	☐	☐
14. Threaten you with spanking or hitting.	☐	☐	☐	☐	☐
15. Hit you with something hard.	☐	☐	☐	☐	☐
16. Slap you on the hand, arm, or leg.	☐	☐	☐	☐	☐
17. Take away your favorite toy.	☐	☐	☐	☐	☐
18. Pinch you when you did something wrong.	☐	☐	☐	☐	☐
19. Threaten you with a knife or gun.	☐	☐	☐	☐	☐
20. Throw or knock you down.	☐	☐	☐	☐	☐
21. Call you dumb or lazy.	☐	☐	☐	☐	☐
22. Slap you on the face.	☐	☐	☐	☐	☐

3. McLean Screening Instrument for Borderline Personality Disorder

Citation: Zanarini, M. C. (2009). *Mclean Screening Instrument For Borderline Personality Disorder (MSI-BPD)*. Jones & Bartlett Publ..

	Yes	**No**
1. Have any of your closest relationships been troubled by a lot of arguments or repeated breakups?	☐	☐
2. Have you deliberately hurt yourself?	☐	☐

3. Have you had at least two other problems with impulsivity (e.g., eating binges and spending sprees, drinking too much and verbal outbursts)?	☐	☐
4. Have you been extremely moody?	☐	☐
5. Have you felt very angry a lot of the time? How about often acted in an angry or sarcastic manner?	☐	☐
6. Have you often been distrustful of other people?	☐	☐
7. Have you frequently felt unreal or as if things around you were unreal?	☐	☐
8. Have you chronically felt empty?	☐	☐
9. Have you often felt that you had no idea of who you are or that you have no identity?	☐	☐
10. Have you made desperate efforts to avoid feeling abandoned or being abandoned (e.g., repeatedly called someone to reassure yourself that he or she still cared, begged them not to leave you, clung to them physically)?	☐	☐

4. Primary Care PTSD Screen for DSM-5

Citation: Prins, A., Bovin, M. J., Kimerling, R., Kaloupek, D. G, Marx, B. P., Pless Kaiser, A., & Schnurr, P. P. (2015). *Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)* [Measurement instrument]. Available from https://www.ptsd.va.gov.

In the past month, have you...	**Yes**	**No**
1. Had nightmares about a traumatic or scary event or thought about a traumatic or scary event when you did not want to?	☐	☐
2. Been constantly on guard, watchful, or easily startled?	☐	☐
3. Tried hard not to think about a past traumatic or scary event in your life or went out of your way to avoid situations that reminded you of such an event?	☐	☐
4. Felt numb or detached from people, activities, or your surroundings?	☐	☐
5. Felt guilty or unable to stop blaming yourself or others for a scary or traumatic event or any problems that such an event may have caused?	☐	☐