investigating Implicit Cognitive Bias toward Guilt and Shame Among individuals with Histories of Childhood Emotional Abuse

Sarah B. Hill
hill.sarah03@gmail.com

Follow this and additional works at: https://huskiecommons.lib.niu.edu/allgraduate-thesesdissertations

Part of the Clinical Psychology Commons

Recommended Citation

This Dissertation/Thesis is brought to you for free and open access by the Graduate Research & Artistry at Huskie Commons. It has been accepted for inclusion in Graduate Research Theses & Dissertations by an authorized administrator of Huskie Commons. For more information, please contact jschumacher@niu.edu.
ABSTRACT

INVESTIGATING IMPLICIT COGNITIVE BIAS TOWARD GUILT AND SHAME AMONG INDIVIDUALS WITH HISTORIES OF CHILDHOOD EMOTIONAL ABUSE

Sarah Hill, M.A.
Department of Psychology
Northern Illinois University, 2022
Holly Orcutt, Director

Exposure to negative events in childhood has been well-established as a risk factor for negative health outcomes in adulthood. Childhood emotional abuse, while frequently co-occurring with other types of abuse, is often neglected in the trauma literature, but has been found to be an important independent predictor of adult psychopathology. Shame and guilt are negative emotions often experienced by those suffering with depression and posttraumatic stress disorder (PTSD) and may have implications for the development and maintenance of these psychological disorders. Further, generalized guilt and shame were found to be significantly higher in individuals with PTSD and depression and associated with severity of psychopathology. The current study aimed to further investigate the impact of childhood emotional abuse specifically on adult psychopathology, as well as to explore the potential impact of childhood emotional abuse on adult experiences of guilt and shame using a cognitive experimental task. Results indicated that childhood emotional abuse is a significant independent predictor of both depression and PTSD, even when controlling for other forms of childhood abuse. Implicit guilt-prone and shame-prone self-concept was not a significant predictor of psychopathology. Similarly, neither shame-prone nor guilt-prone self-concept were predicted by childhood emotional abuse. This study highlights the unique impact of childhood emotional
abuse on symptoms of psychopathology. However, further research is needed to determine the extent to which guilt-proneness or shame-proneness may play a role in the development and maintenance of symptoms.
INVESTIGATING IMPLICIT COGNITIVE BIAS TOWARD GUILT AND SHAME AMONG INDIVIDUALS WITH HISTORIES OF CHILDHOOD EMOTIONAL ABUSE

BY
SARAH HILL

© 2022 Sarah Hill

A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

Thesis Director:
Holly Orcutt
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>iv</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF FIGURES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF APPENDICES</td>
<td>vi</td>
</tr>
</tbody>
</table>

## Chapter

1. INTRODUCTION

- The Impact of Childhood Abuse ................................................................. 3
- Defining Childhood Abuse Subtypes .............................................................. 5
- Emotional Abuse ............................................................................................ 6
- The Role of Guilt and Shame in Negative Outcomes Following Childhood Abuse .... 9
- Defining Guilt and Shame ............................................................................. 9
- Relationship Between Guilt, Shame, and Negative Outcomes ....................... 10
- Childhood Abuse and the Mediating Roles of Guilt and Shame ....................... 11
- Studying the Relationship Between Childhood Emotional Abuse, Guilt, and Shame ........................................................................................................ 15
- Self-Report .................................................................................................... 16
- Cognitive Tasks ............................................................................................ 17
- The Present Study ........................................................................................ 20

2. METHODOLOGY

- Participants ................................................................................................... 23
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures</td>
<td>24</td>
</tr>
<tr>
<td>Demographics</td>
<td>24</td>
</tr>
<tr>
<td>Childhood Trauma Questionnaire Short Form</td>
<td>24</td>
</tr>
<tr>
<td>Depression Anxiety Stress Scale-21</td>
<td>26</td>
</tr>
<tr>
<td>PTSD Checklist for DSM-5</td>
<td>28</td>
</tr>
<tr>
<td>The Implicit Association Test</td>
<td>29</td>
</tr>
<tr>
<td>Procedures</td>
<td>32</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>32</td>
</tr>
<tr>
<td>Preliminary Analysis</td>
<td>32</td>
</tr>
<tr>
<td>Hypotheses Testing</td>
<td>35</td>
</tr>
<tr>
<td>3. RESULTS</td>
<td>37</td>
</tr>
<tr>
<td>Descriptive Statistics</td>
<td>37</td>
</tr>
<tr>
<td>Path Analysis</td>
<td>39</td>
</tr>
<tr>
<td>Hypothesis 1</td>
<td>40</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>43</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>43</td>
</tr>
<tr>
<td>4. DISCUSSION</td>
<td>45</td>
</tr>
<tr>
<td>Significant Findings</td>
<td>46</td>
</tr>
<tr>
<td>Null Findings</td>
<td>47</td>
</tr>
<tr>
<td>Limitations and Future Direction</td>
<td>53</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>56</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>63</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>1. Block Trials for IATs</td>
<td>31</td>
</tr>
<tr>
<td>2. Descriptive Statistics and Zero-Order Correlations Between Variables</td>
<td>39</td>
</tr>
<tr>
<td>3. Exploratory Multiple Regression Analysis Predicting Depression Symptoms</td>
<td>42</td>
</tr>
<tr>
<td>4. Exploratory Multiple Regression Analysis Predicting PTSD Symptoms</td>
<td>43</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proposed Path Model</td>
<td>36</td>
</tr>
<tr>
<td>2. Results of Path Model</td>
<td>40</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. DEMOGRAPHICS QUESTIONNAIRE</td>
<td>63</td>
</tr>
<tr>
<td>B. CHILDHOOD TRAUMA QUESTIONNAIRE SHORT FORM</td>
<td>66</td>
</tr>
<tr>
<td>C. DEPRESSION ANXIETY STRESS SCALE-21</td>
<td>69</td>
</tr>
<tr>
<td>D. PTSD CHECKLIST FOR DSM-5</td>
<td>71</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

Childhood abuse affects millions of people worldwide and is estimated to occur in up to 37% of the general population (Briere & Elliott, 2003). In one of the largest investigations of outcomes related to negative childhood events, the Adverse Childhood Experiences (ACE) study was among the first to document the effects of these incidents on adult physical and mental health (Felitti et al., 1998). This study found a graded relationship between number of negative events experienced in childhood and health risk in adulthood, such that those who had experienced four or more categories of these childhood adversities were at much higher risk for alcohol or drug abuse, depression, suicide attempts, and poor physical health in adulthood (Felitti et al., 1998).

Childhood emotional abuse, while frequently co-occurring with other types of abuse, such as physical and/or sexual abuse, is often neglected in the trauma literature. Childhood physical and sexual abuse are most commonly studied and are important predictors of negative outcomes in adulthood, but childhood emotional abuse can also be an significant predictor of adult psychopathology. One meta-analytic study found that when examining the impact of different types of childhood trauma on adult psychopathology, childhood emotional abuse was the strongest predictor of adult depression symptoms (Mandelli et al., 2015). Additionally, a history of childhood emotional abuse has been found to be broadly associated with increased levels of experiential avoidance and adult mental health symptoms (Reddy et al., 2006).
Compared to childhood physical and sexual abuse, childhood emotional abuse is less commonly explored as a unique predictor of negative outcomes, so further work is needed to continue to explicitly investigate the potential predictive power of childhood emotional abuse on adulthood symptoms of psychopathology.

In studying the relationship between childhood abuse and negative outcomes, it is also critical to explore possible mediating or moderating factors that may impact the development and maintenance of these health concerns. For example, shame and guilt are negative emotions often experienced by those suffering with anxiety, depression, and posttraumatic stress disorder (PTSD), and may have implications for the development and maintenance of these psychological disorders. In the latest iteration of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), a new symptom cluster was added to address the pervasive negative emotional state, including emotions of shame and guilt, that often occurs for those with PTSD (American Psychiatric Association, 2013). Further, generalized guilt and shame were found to be significantly higher in individuals with PTSD who had experienced interpersonal trauma in childhood than traumatized individuals who did not have PTSD and individuals who had not experienced trauma (Bockers et al., 2016). Shame and guilt have also been found to be important in the context of depression. In one study, researchers found that in a sample of individuals who had experienced psychological maltreatment, depression scores were positively correlated with experiences of shame and guilt (Webb et al., 2007). Better understanding of the links between childhood maltreatment and negative outcomes in adulthood, as well as possible mediating or moderating factors in this relationship will aid in helping to reduce the development and maintenance of adult psychopathological disorders.
The current study sought to further investigate the impact of childhood emotional abuse specifically on adult psychopathology, as well as to explore the potential impact of childhood emotional abuse on adult experiences of guilt and shame. To investigate these areas, this study utilized self-report measures of symptoms of anxiety, depression, and PTSD as well as a cognitive experimental task to examine whether those with histories of childhood emotional abuse exhibit an implicit cognitive bias toward guilt-related and shame-related words.

The Impact of Childhood Abuse

Childhood abuse and maltreatment is a worldwide problem, with prevalence rates generally reported to be around 30% of the population (e.g., Briere & Elliott, 2003), but even higher prevalence (up to about 74%) is suggested in studies of specific populations, such as those seeking outpatient mental health treatment (Shi, 2013). In studies of childhood abuse, many researchers examine five subtypes of abuse: sexual abuse, physical abuse, emotional abuse, physical neglect, and emotional neglect. However, some studies also include other adversities experienced in childhood, such as substance abuse in the household, mental illness in the household, or living with family members who have been imprisoned (Corso et al., 2008; Felitti et al., 1998). In studies that explore childhood adversities more broadly, it is suggested that nearly 40-50% or more of the worldwide population experience at least one type of childhood adversity or maltreatment (Corso et al., 2008; Felitti et al., 1998; Kessler et al., 2010).

Exposure to childhood abuse and maltreatment has numerous deleterious effects in adulthood. In one of the earliest and largest studies of childhood adversities and their effects on adult outcomes, the ACE study suggested that these events have a significant impact on adult mental and physical health (Felitti et al., 1998). Exposure to these adverse experiences in
childhood was also shown to have negative implications in terms of psychological health, such as increased risk for depression and suicide attempts (Felitti et al., 1998). Another large study of childhood adversities conducted across 21 countries reported that all 12 adversities assessed were significantly associated with elevated risk of DSM-IV disorders (Kessler et al., 2010).

Beyond the aforementioned impacts of broadly defined childhood adversities, exposure to childhood abuse specifically is associated with increased levels of a wide variety of psychological symptoms, including anxiety, depression, anger and irritability, and dissociation (Briere & Elliott, 2003). Exposure to childhood abuse is also associated with greater risk of PTSD and subsequent trauma exposure (Dias et al., 2017).

In addition to the psychological toll, exposure to these adverse experiences in childhood also has implications for physical health in adulthood. Research demonstrates that individuals exposed to four or more categories of childhood adversities are at substantially increased risk and prevalence of experiencing a myriad of poor adult health outcomes, including substance use, obesity, heart disease, cancer, lung disease, liver disease, and sexually transmitted diseases (Felitti et al., 1998). Further, as part of a second survey wave from the Adverse Childhood Experiences Study, researchers noted that in a sample of 6,168 adults, those who reported being exposed to childhood maltreatment experienced significant losses in health-related quality of life relative to those who did not report exposure to childhood maltreatment (Corso et al., 2008). Additionally, in a large meta-analytic study that included 24 independent studies and a total of 48,801 participants, the negative physical health impacts of childhood abuse were further supported (Wegman & Stetler, 2009). This meta-analysis found that childhood abuse, which included sexual, physical, and emotional abuse, as well as neglect, was associated with increased risk of health issues in adulthood. These health issues included neurological, musculoskeletal,
and cardiovascular disease, as well as respiratory conditions. The authors further noted that effect sizes found in their meta-analysis of physical outcomes associated with childhood abuse were comparable to the effect sizes reported in meta-analytic studies of psychological outcomes associated with childhood abuse. Therefore, it seems that negative outcomes related to both physical and psychological health are equally critical in studying the impact of childhood abuse.

Many studies investigate the impacts of exposure to childhood abuse and childhood adversities more broadly, and specific types of these events frequently overlap and co-occur. However, it is also possible that individual subtypes of childhood abuse exposure may have varying rates of prevalence and specific implications for adult functioning.

Defining Childhood Abuse Subtypes

Childhood abuse can be further separated into subtypes of abuse, each representing distinct, but often co-occurring, types of experiences. One of the most commonly used measures of childhood abuse, the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003), defines and assesses five different categories of childhood abuse and neglect. According to the authors of this measure, sexual abuse is defined as “sexual contact or conduct between a child younger than 18 years of age and an adult or older person,” physical abuse is defined as “bodily assaults on a child by an adult or older person that posed a risk of or resulted in injury,” emotional abuse is considered to be “verbal assaults on a child’s sense of worth or well-being or any humiliating or demeaning behavior directed toward a child by an adult or older person,” physical neglect is described as “failure of caretakers to provide for a child’s basic physical needs” or poor parental supervision if this places the child’s safety in jeopardy, and emotional neglect can be defined as “failure of caretakers to meet children’s basic emotional and psychological needs, including love,
belonging, nurturance, and support” (Bernstein et al., 2003). Although physical and sexual abuse are the most often studied forms of childhood maltreatment, emotional abuse also represents a critical set of childhood experiences that may lead to difficulties in adulthood and is likely the most commonly occurring subtype of childhood abuse.

**Emotional Abuse**

Emotional abuse, also referred to as psychological abuse, is a widely occurring form of childhood maltreatment. Although prevalent, this form of childhood abuse has been historically neglected in the literature and has only begun to gain more frequent research attention within the past decade or so (Egeland, 2009; Wright, 2007). While specific definitions of this construct may vary, emotional abuse represents a relatively consistent pattern of maladaptive interaction between parent and child that can be harmful to the child’s psychological health and development (Glaser, 2002; Stoltenborgh et al., 2012). Emotional abuse may have been previously neglected from the childhood abuse literature in part due to challenges in defining what constitutes emotional abuse, lack of identifying or reporting this type of maltreatment, and possible assumptions that emotional abuse may not be as impactful as physical or sexual abuse on adult functioning (Egeland, 2009). Despite potential challenges in identifying and documenting emotional abuse and maltreatment, current literature suggests that this form of childhood abuse exposure is both prevalent and impactful, warranting further study.

**Prevalence**

Reported prevalence rates of childhood emotional abuse can vary greatly due to a variety of factors, including definitions used for this construct, characteristics of the samples studied,
and methodological factors such as the use of interview methods, self-report questionnaires, or informants. In a large meta-analysis of 29 studies, including 46 independent community samples and a total of 7,082,279 participants, researchers found that childhood emotional abuse is estimated to occur in about 27% of the population worldwide (Stoltenborgh et al., 2012). The authors of this meta-analysis noted that prevalence rates may be greatly affected by procedural factors. In studies where presence or absence of childhood emotional abuse was determined through the use of informants, this meta-analysis found that prevalence of emotional abuse was 0.03%. However, when childhood emotional abuse was identified through some form of participant self-report, the prevalence rate was about 36% (Stoltenborgh et al., 2012). Given that emotional abuse and maltreatment is less often reported to authorities, it is unsurprising that determining emotional abuse status based upon informant reports is substantially lower than when self-reported by the participant. This meta-analysis further examined possible moderating factors, and concluded that gender, geographic region, and economic development of the country where the study was conducted did not significantly influence prevalence rates (Stoltenborgh et al., 2012). This suggests that childhood emotional abuse is a prevalent phenomenon affecting young boys and girls at similar rates worldwide.

In specific populations, reported rates of childhood emotional abuse may be even higher than those of community samples. For example, in a study of individuals seeking individual, couples, or family outpatient treatment in the Midwest United States, emotional abuse was reported in 52% of the sample (Shi, 2013). Additionally, samples of college students in the previously discussed meta-analytic study had significantly higher rates of childhood emotional abuse (about 72%) than studies using population samples (Stoltenborgh et al., 2012).
Negative Outcomes

Although the negative impacts of childhood abuse and childhood adversities have been well documented in the literature, studies suggest that childhood emotional abuse in particular is also linked to a number of negative outcomes in adulthood. Childhood emotional maltreatment has been found to be associated with increased levels of psychopathology, including symptoms of anxiety (Spertus et al., 2003; van Harmelen et al., 2010), depression (Courtney et al., 2008; Ross et al., 2019; Spertus et al., 2003; van Harmelen et al., 2010), borderline personality disorder (Gratz et al., 2011), and PTSD (Dias et al., 2017; Hoeboer et al., 2021; Shi, 2013; Spertus et al., 2003). Additionally, emotional abuse in childhood has been linked to poor emotion regulation, including lower resting state high-frequency heart rate variability (HF-HRV), a biomarker for emotion dysregulation (Burns et al., 2010; Stone et al., 2018), and increased suicidal ideation (Allbaugh et al., 2018). Further, individuals who have experienced childhood emotional maltreatment have higher rates of lifetime trauma exposure and revictimization (Dias et al., 2017; Spertus et al., 2003). For example, in one community sample of 1,200 adults, exposure to childhood emotional abuse increased the likelihood of subsequent exposure to sexual assault and interpersonal violence to a greater extent than all other forms of childhood abuse exposure (Dias et al., 2017). In addition to the emotional and mental challenges associated with childhood emotional abuse, research suggests that exposure to emotional abuse in childhood has physical health implications as well. For example, in a study of 205 patients from a primary care setting in the United States, exposure to childhood emotional abuse and neglect was correlated with increased levels of reported physical symptoms and increased frequency of healthcare utilization in the past year (Spertus et al., 2003).
Although childhood emotional abuse often co-occurs with other forms of childhood abuse and maltreatment, studies have demonstrated that associations between childhood emotional abuse specifically and negative outcomes in adulthood are still significant after controlling for other forms of childhood abuse exposure (e.g., Spertus et al., 2003). There is literature to suggest that exposure to childhood emotional abuse may be a specific predictor for poorer emotional and physical functioning in adulthood as well as possible vulnerability to subsequent trauma exposure. Therefore, there is a critical need to further research and understand the unique impact of emotional abuse above and beyond other forms of childhood maltreatment, as well as potential factors that may contribute to the development and maintenance of negative emotional and physical outcomes following these experiences.

The Role of Guilt and Shame in Negative Outcomes Following Childhood Abuse

Guilt and shame are commonly experienced in a number of psychological disorders, such as anxiety, depression, and PTSD. Experiencing these negative emotions, and the subsequent difficulties in regulating them, may have implications in the development and maintenance of various forms of psychopathology.

**Defining Guilt and Shame**

Colloquially, shame and guilt are often used interchangeably, but there are critical differences between these two constructs. Although both guilt and shame involve negative affect, these two emotions encompass distinct phenomenological experiences (Tangney et al., 1992). With guilt, individuals experience the negative affect as a sense of remorse over a specific action or lack of action, whereas with shame, the negative affect experienced is often related to the self
as a whole (Tangney et al., 1992). As a result, shame could be considered to be more emotionally painful and is more strongly associated with psychological maladjustment (Tangney et al., 1992).

**Relationship Between Guilt, Shame, and Negative Outcomes**

Previous research suggests that compared to guilt-proneness, shame-proneness is more strongly associated with negative outcomes, such as symptoms of psychopathology (Tangney et al., 1992). In a sample of undergraduate students, the unique component of shame-proneness (but not the unique component of guilt-proneness) was associated with psychological and somatic symptoms (Pineles et al., 2006). This study found that although shame- and guilt-proneness were both significantly correlated with PTSD symptoms, when controlling for shame-proneness, guilt-proneness was no longer correlated with PTSD. However, the reverse was true for shame-proneness, such that it remained a unique predictor of PTSD symptoms even when controlling for guilt-proneness (Pineles et al., 2006). Similarly, in a study of 124 patients with primary anxiety disorders, researchers found that shame-proneness was associated with symptoms of anxiety and depression even after controlling for guilt-proneness, but this was not true of guilt-proneness (Fergus et al., 2010). In another study of 280 college students, researchers utilized self-report measures to investigate their hypothesis that depressive symptomology would be correlated positively with shame but not with guilt (Webb et al., 2007). Contrary to their hypothesis, they found that both shame and guilt were positively correlated with scores on a self-reported measure of depression, and suggested that this may be due to the shared variance between these two constructs. After further analysis using partial correlations to parse those two constructs apart, guilt was no longer found to be correlated with depression, while shame remained significant (Webb et al., 2007).
However, despite these apparent distinctions between the impact of shame and guilt on psychological symptoms, a large meta-analytic study using data from 108 studies and 22,411 participants in total suggest that there may be some important nuances in these findings (Kim et al., 2011). This meta-analysis reported that contextual-maladaptive guilt (defined as experiences of exaggerated responsibility for events outside of one’s control) and generalized guilt (defined as guilt that is not associated to a specific event or context) show similar patterns as those depicted for shame in their association with depressive symptoms. These results suggest that shame and pathological forms of guilt are both independently associated with psychological symptoms.

Broadly, research in the areas of guilt and shame suggest that while both of these constructs may be associated with symptoms of psychopathology and somatic symptoms in clinical and nonclinical samples alike, shame seems to be a stronger unique predictor. However, when specific forms of guilt are considered, this construct may be equally important in its association with symptoms of psychopathology. Given the somewhat contradictory results present in the current literature, it will be important for future research to clearly define the constructs of shame and guilt and employ multiple forms of measurement to ensure that these constructs are adequately captured by the data collected. This will allow for better understanding of the unique roles of shame-proneness and guilt-proneness in the development of psychopathology.

**Childhood Abuse and the Mediating Roles of Guilt and Shame**

Research also suggests that guilt and/or shame may act as a mediator in the path from childhood abuse experiences to negative outcomes in adulthood. For example, in a study of 157
victims of violent crime, researchers examined the roles of shame, anger, and childhood abuse in predicting PTSD symptoms one month and six months after the violent crime event (Andrews et al., 2000). Results demonstrated positive correlations between childhood abuse (defined as childhood sexual or physical abuse experiences) and shame, anger with self (but not anger with others), and symptoms of PTSD at one month and six months after the event. Additionally, shame was positively correlated with symptoms of PTSD at both timepoints. Similarly, in a review article, Whiffen and MacIntosh (2005) reported support for various mediators in the relationships between childhood sexual abuse and adverse outcomes. The authors found that shame or self-blame, interpersonal difficulties, and avoidant coping strategies were supported by the literature as mediators between childhood sexual abuse and emotional distress in adulthood (Whiffen & Macintosh, 2005). In particular, they noted that the evidence was most consistent for the role of shame or self-blame as a mediator in this relationship.

Altogether, these studies suggest that shame plays an important role in the relationship between childhood abuse and adult psychopathology. Although guilt was not explicitly explored as a mediator in the relationship between childhood abuse and negative outcomes in adulthood for most of these studies, the previously reported meta-analysis by Kim et al. (2011) could suggest that looking specifically at the maladaptive forms of guilt as potential mediating factors is important.

**Emotional Abuse, Guilt, and Shame**

While the previously mentioned studies discussed shame as a mediator in the relationship between childhood abuse (broadly defined) and negative adult outcomes, research suggests that this construct may play a role for emotional abuse as well. There is some limited research to
suggest that shame may mediate the relationship between childhood emotional abuse specifically and negative outcomes in adulthood, such as somatic symptoms and symptoms of psychopathology.

In a sample of 99 psychiatric outpatients in Canada, mediation models with shame and guilt were evaluated for relationships between childhood abuse (emotional, sexual, and neglect) and somatic symptoms (Kealy et al., 2018). After controlling for symptoms of depression, researchers found a significant indirect effect for the relationship between shame and emotional abuse and neglect on somatic symptoms, while the relationship between guilt and emotional abuse and neglect did not have this effect. Additionally, guilt and shame were not significant mediators in the relationship between sexual abuse and somatic symptoms, as these constructs were directly correlated. Results of this study suggest evidence for a specific link between childhood emotional abuse and neglect and somatic symptoms, with shame as an important mediating factor.

In a study of 244 college students and community members in the United States, researchers found that experiencing emotional abuse and neglect was associated with lower rates of self-compassion and that low self-compassion further predicted experiences of shame and higher levels of depressive symptoms (Ross et al., 2019). Their model suggested that there is a significant indirect path from emotional abuse, passing through self-compassion and shame, and ending in symptoms of depression in adulthood. These results supported a direct path from emotional abuse to shame, and an indirect path from emotional abuse to depression through shame. Further, this study reported that feelings of shame explained the highest amount of unique variance in depressive symptoms.
Researchers in Israel also investigated the role of shame-proneness in the relationship between childhood emotional abuse and neglect and symptoms of social anxiety (Shahar et al., 2015). In a community sample of 219 adults, researchers found that emotional abuse (but not emotional neglect) predicted shame-proneness, which predicted self-criticism, which in turn predicted symptoms of social anxiety. Their model further supports the mediating roles of shame and self-criticism in the relationship between childhood emotional abuse specifically and symptoms of psychopathology in adulthood.

In another study of 373 undergraduate college students in the United States, researchers found that shame moderated the relationship between childhood psychological maltreatment and adult negative outcomes, but with gender-related differences (Harper & Arias, 2004). In contrast to results of studies of childhood maltreatment and negative outcomes previously reported in this paper, this study found that women reported significantly higher levels of shame, depressive symptoms, and distress from childhood maltreatment than men in their sample. Therefore, samples of men and women were analyzed separately, and differences were observed in terms of the relationship between childhood psychological maltreatment, shame, and negative adult outcomes. In this study, researchers found that shame was a moderator in the relationship between child psychological maltreatment and adult experiences of anger for men, but this was not true for women. Further, the study reported that shame moderated the relationship between child psychological maltreatment and adult depressive symptoms for women, but this was not true for men.

Overall, research suggests that shame, and possibly guilt, may play an important role in the relationship between emotional abuse experienced in childhood and negative outcomes experienced in adulthood. However, the present literature is somewhat limited, both in number
and in methodology, and the studies that specifically investigate the role guilt and/or shame in the path from childhood emotional abuse to psychopathology also often include self-criticism or self-compassion in their analyses. Most of these studies as mentioned above focus on shame, although previously noted research suggests that maladaptive guilt may also play an important role in the development of psychopathology following abuse. Further, the existing literature in this area has largely utilized exclusively self-report measures of guilt and shame, and these studies are cross-sectional and retrospective. However, guilt and shame are both emotions that may cause individuals to be hesitant to report these difficult experiences. Given the complexities of these constructs, research may benefit from utilizing multiple forms of data collection in assessing guilt and shame.

Because of the potential role of shame and possibly maladaptive forms of guilt in the development and maintenance of psychopathology following adverse childhood experiences, research should further investigate the role of guilt-proneness and shame-proneness in those who have experienced childhood emotional abuse, utilizing various study designs. Future research in this area should aim to better understand the roles of shame and guilt in this relationship and identify possible areas for intervention and reduction of negative outcomes for adults who have experienced childhood emotional abuse.

Studying the Relationship Between Childhood Emotional Abuse, Guilt, and Shame

Research in the areas of childhood emotional abuse, guilt, and shame can be conducted using different methodological procedures; this can lead to potential differences in study outcomes, as has been noted earlier in this review. For example, adult retrospective report of childhood abuse can be assessed through the use of self-report measures or interview procedures,
which could produce differences in rates or severity of abuse reported. Similarly, there may be challenges in assessing emotions such as guilt and shame, due to the difficult nature of reporting these feelings.

**Self-Report**

One method of investigating the link between childhood emotional abuse and experiences of guilt and shame is through the use of self-report measures of these constructs. With regard to possible differences in self-report methods for childhood abuse, evidence from a meta-analytic study suggests that different formats of retrospective self-reported history of childhood abuse perform similarly (Stoltenborgh et al., 2012). Although this study found differences in reported rates of emotional abuse when comparing informant-reported with self-reported formats, the authors noted that no significant differences were found across different formats of retrospective self-report assessment. More specifically, researchers found that face-to-face interviews, telephone interviews, paper self-report surveys, and computerized self-report surveys suggested similar prevalence rates of emotional abuse (Stoltenborgh et al., 2012). Therefore, there is no evidence to suggest that one form of participant self-report of emotional abuse is superior to another.

As previously noted, self-report of shame and guilt may be particularly challenging. In the experience of shame specifically, it is postulated that this emotion is coupled with a desire to hide, withdraw, or escape (Kim et al., 2011). Therefore, accurate self-reporting of these emotions may be especially difficult for participants. While explicit self-report measures of these constructs are likely the most straightforward way to assess, implementing implicit measures of
these emotions may also be important in gaining a more accurate picture of the relationship between childhood emotional abuse, shame, and guilt.

**Cognitive Tasks**

Implicitly assessing guilt and shame could be accomplished through the use of cognitive tasks. These experimental attentional and processing tasks have been implemented in research studies as a way to show biases in information processing related to various forms of psychopathology. One example of a cognitive task used in these types of studies is an emotion-related version of the Stroop task (Stroop, 1935). The emotional Stroop involves participants naming the color of words, and the words presented vary in terms of their relevance to the form of psychopathology being studied. Research suggests that in studies of the emotional Stroop, patients are typically slower to name the color of a word when the word is relevant to their psychological diagnosis (Thomas et al., 2010; Williams et al., 1996). Other examples of cognitive tasks utilized in studying information processing biases in psychopathology include the Implicit Association Test (IAT) and dot-probe tasks. Somewhat similarly to the Stroop task, the IAT is intended to implicitly assess attitudes by measuring response times on a task. It has been proposed that, due to its implicit nature, the IAT may reveal attitudes or automatic associations that an individual may not disclose on a self-report or interview-based measure (Greenwald et al., 1998). The IAT assesses an individual’s associations between two target concepts (e.g., flower names vs. insect names) and an attribute (e.g., pleasant vs. unpleasant) (Greenwald et al., 1998). Participants see a series of words appear on a screen and are asked to appropriately categorize them using keys on the left or right side of a keyboard. When categories that are expected to be highly associated are paired on the same response key for categorization, it is
expected that participants will respond more quickly than when these word pairings feel incongruent to their own implicit associations (Greenwald et al., 1998).

**Cognitive Tasks in Samples of Individuals Exposed to Childhood Abuse**

Studies have used cognitive tasks such as Stroop tasks and Implicit Association Tests (IATs) to investigate biases in information processing among individuals exposed to childhood abuse. In one study, for example, researchers found that participants with higher reported levels of childhood emotional abuse demonstrated attentional biases to specific word types in a Stroop task; this relationship was moderated by psychological symptoms such as anxiety and depression (Fontenot et al., 2015). In another study, an IAT was used to investigate whether individuals reporting a history of childhood abuse show stronger automatic self-depression and/or self-anxiety associations than individuals who report no childhood abuse (van Harmelen et al., 2010). In this study, researchers found that those who had experienced abuse had stronger self-depression and self-anxiety associations during the IAT than those who had not experienced abuse. Further, childhood emotional maltreatment specifically was the only significant predictor for self-depression associations in the IAT. Although all abuse types were significant for self-anxiety associations, emotional maltreatment was the strongest predictor (van Harmelen et al., 2010). These results further support previous evidence of the impact of emotional abuse specifically on negative adult outcomes.

**Assessing Guilt and Shame in Cognitive Tasks**

With regard to the specific constructs of interest for the present study (shame and guilt), research has demonstrated the usefulness of cognitive tasks in showing biases in processing
content in these domains. For example, in a study of 92 women with and without PTSD, researchers utilized an IAT alongside self-report measures to assess the associations between generalized implicit and explicit guilt and shame, interpersonal traumatization, and PTSD in their sample (Bockers et al., 2016). The IATs used in their study measured the strength of implicit associations between the categories of target (self vs. other words) and attribute (shame or guilt vs. contentment words). In their cognitive task, the words used for the guilt category were “guilty, blameworthy, remorseful, regretful, and blameful.” The words used for the shame category were “embarrassed, humiliated, inhibited, ashamed, and abashed.” The words used for the contentment category were “content, satisfied, pleased, balanced, and comfortable.” Results from this study suggested that women exposed to interpersonal trauma showed a more shame-prone implicit self-concept, but not a more guilt-prone implicit self-concept on the IAT, compared to women who had no trauma exposure (Bockers et al., 2016). Interestingly, in this study, researchers found that those with PTSD showed an implicit bias towards guilt-prone, but not shame-prone self-concept on the IAT, compared to those who were trauma-exposed but did not have PTSD.

In another study utilizing a cognitive task to assess bias in shame processing, Sippell and Marshall (2011) looked at the relationships among PTSD, cognitive-processing of shame words, and IPV perpetration among 47 participants recruited from the community. This study used an emotional Stroop task, with shame words including “belittle, contempt, exposed, hide, humiliated, incompetent, insult, mock, pathetic, reject, scorn, and shame,” and neutral words for this task including “brands, caller, closet, dental, fixing, laying, plates, puzzle, raises, rental, sticks, and trucks.” The emotional Stroop task involved a supraliminal condition, in which words were displayed until the participant responded verbally, and a subliminal condition, where trials
included a backward masking procedure. Results suggested that in the subliminal condition, the direct effect of PTSD severity on processing speed for shame words as well as the direct effect of shame processing speed on frequency of IPV perpetration were both statistically significant (Sippel & Marshall, 2011). These researchers found that those with higher symptoms of PTSD showed facilitated color-naming for shame-relevant words, indicating a positive relationship between PTSD severity and cognitive biases toward shame-relevant stimuli. Further, they found that shame processing speed was a mediator in the positive relationship between PTSD severity and frequency of IPV perpetration.

While both of these studies utilized implicit measures of guilt and shame within traumatized and non-traumatized individuals, these studies had relatively small sample sizes, and did not specifically look at childhood emotional abuse. Taken together with the previously discussed research on emotional abuse and shame/guilt, this literature using implicit measures of these constructs suggest that there may be significant associations between childhood abuse, implicit shame-prone and/or guilt-prone self-concept, and symptoms of psychopathology.

The Present Study

Although it is understudied compared to other forms of childhood abuse, emotional abuse has numerous negative outcomes, and is likely the most prevalent form of childhood abuse worldwide. Therefore, it is important to look specifically at the impacts and negative outcomes of childhood emotional abuse and to better understand the role of guilt and/or shame in the development and maintenance of later psychopathology. This study aimed to specifically examine the impact of childhood emotional abuse on adult experiences of guilt and shame as well as adult experiences of psychopathology. Specifically, this study investigated the following
questions: 1) Is childhood emotional abuse associated with higher symptoms of psychopathology in a sample of female college students, even when controlling for other forms of childhood abuse? 2) Do individuals who have experienced childhood emotional abuse show implicit cognitive biases toward guilt and shame? And 3) Are implicit biases toward guilt and shame correlated with symptoms of psychopathology? General and specific hypotheses related to these questions include:

Hypothesis 1: Individuals reporting higher levels of childhood emotional abuse will report higher levels of symptoms of psychopathology as compared to individuals who do not report history of childhood emotional abuse.

1a: Individuals reporting higher levels of childhood emotional abuse will report higher levels of symptoms of depression as compared to individuals who do not report history of childhood emotional abuse.

1b: Individuals reporting higher levels of childhood emotional abuse will report higher levels of symptoms of PTSD as compared to individuals who do not report history of childhood emotional abuse.

Hypothesis 2: Individuals reporting higher levels of childhood emotional abuse will show evidence of implicit cognitive biases towards guilt-prone and shame-prone self-concept on a computerized cognitive task as compared to individuals who do not report history of childhood emotional abuse.

Hypothesis 3: Individuals who demonstrate stronger implicit associations with guilt-prone and shame-prone self-concept will also show higher levels of psychopathology as compared to those who demonstrate weaker implicit associations toward guilt and shame words.
3a: Individuals who demonstrate stronger implicit cognitive biases toward guilt and shame will also show higher levels of symptoms of depression as compared to those who demonstrate weaker implicit associations toward guilt and shame words.

3b: Individuals who demonstrate stronger implicit cognitive biases toward guilt and shame will also show higher levels of symptoms of PTSD as compared to those who demonstrate weaker implicit associations toward guilt and shame words.
CHAPTER 2

METHODOLOGY

Participants

Participants included 116 undergraduate students enrolled in an introductory psychology course at a large Midwestern university. Given the well-established gender differences in prevalence of PTSD and depression (e.g., Luxton et al., 2010; Perrin et al., 2014; Piccinelli & Wilkinson, 2000) and the mixed literature on gender differences in guilt-proneness and/or shame-proneness (e.g., Akbag & Imamoglu, 2010; Kim et al., 2011; Lutwak & Ferrari, 1996; Sippel & Marshall, 2011), this study recruited a sample of only female participants. Three participants were missing data for sex at birth and one participant listed male sex at birth; these participants were removed from further analyses. Inclusion criteria were as follows: participants must be at least 18 years old and fluent in English to be eligible for this study and will receive course credit for their participation. Additionally, participants were asked to participate in the study using a desktop or laptop computer for optimal presentation of the computerized IAT tasks. Therefore, participants who did not have access to a laptop or desktop computer device with a keyboard were unable to participate in the study. Seven participants were removed from further analyses due to poor performance on at least one or both IAT tasks. These participants had more than 10% of task trials with a latency less than 300ms, suggestive of random responding and clicking through the task, rather than putting forth effortful responses. As an additional screening of careful participation, three “catch questions” were included throughout
the self-report questionnaires (e.g., “Please select ‘strongly agree’ to this item.”). Three participants were removed from further analyses due to incorrectly answering all three questions (one of these participants also had poor performance on the IAT tasks). The final sample analyzed and discussed throughout the remainder of this paper included 103 female undergraduate students ranging in age from 18 to 57 years old (M_{age} = 19.53). The sample was predominantly White (48.5%) and most identified as non-Hispanic (63.1%). About one-third (31.1%) of participants identified as Hispanic/Latino, 21.4% of participants identified as Black, 8.7% identified as Asian or South Asian, 1.9% identified as Native Hawaiian or Pacific Islander, and 1.0% identified as American Indian or Alaskan Native.

Measures

Demographics

Information about participant age, sex, gender, race, ethnicity, education, employment, and marital/relationship status was gathered using a self-report questionnaire (Appendix A). This information was gathered for descriptive statistics to characterize the study sample.

Childhood Trauma Questionnaire Short Form

The Childhood Trauma Questionnaire Short Form (CTQ – SF; Bernstein et al., 2003) is a 28-item self-report questionnaire that retrospectively assesses five types of childhood traumatic experiences: physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect (Appendix B). The measure also includes 3 validation items designed to assess for participant tendencies to minimize or deny childhood abuse experiences. Each subscale is calculated using the responses to 5 questions, with scores ranging from 5 to 25. The total score
for each subscale falls into one of 4 categories: none to low, low to moderate, moderate to severe, or severe to extreme childhood trauma exposure. Participants report how often each item was true for them on a scale of 1 = “Never True” to 5 = “Very Often True.” Total score on the emotional abuse subscale was used in these analyses as a continuous measure of level of exposure to childhood emotional abuse. The CTQ represents a conceptual category of causal indicators, as item-level responses on this questionnaire define and affect the underlying latent variable of childhood abuse. Although childhood abuse types are often highly correlated, it is not necessarily expected that item-level scores on this measure should increase or decrease simultaneously. Alternatively, effect indicators are variables that are assumed to be dependent upon their underlying latent variable (Bainter & Bollen, 2014). Measures of internal consistency are most appropriately reported for effect indicators rather than causal indicators, as causal indicators of the same latent concept may not be highly correlated. In line with this reasoning, Bollen and Lennox (1991) state that “researchers relying on factor analysis or the examination of correlation matrices for selecting indicators may be overlooking valid measures of a construct if the indicators determine the latent variable. Consequently, always using internal consistency as a criterion can have dire consequences.” Given that the CTQ is made up of causal indicators, rather than effect indicators, internal consistency is not appropriate to report for this measure in the present study. In initial psychometric testing, the CTQ displayed evidence of high internal consistency for each of the 4 individual factors (α = 0.79-0.94) and for the entire scale (α = 0.95) in a sample of drug- and alcohol-dependent patients (Bernstein et al., 1994). Test-retest reliability in this sample over a 2- to 6-month period was also high (ICC = 0.80-0.83 for each of the factors, and ICC = 0.88 for the entire scale). Further, the CTQ also demonstrated good convergent validity with a structured interview of childhood abuse (the Childhood Trauma
Interview), such that the CTQ sexual abuse scores were significantly correlated with the Childhood Trauma Interview sexual abuse ratings ($r = 0.65, p < 0.01$), and the CTQ physical and emotional abuse scores were significantly correlated with the Childhood Trauma Interview physical abuse ratings ($r = 0.38, p < 0.01$) (Bernstein et al., 1994). In the development of the shorter screening form version of this measure (CTQ-SF), further psychometric support was reported across 4 different samples (substance-dependent adults seeking inpatient or outpatient treatment, adolescent psychiatric inpatients, adult substance abusers from a community sample, and a general community sample of adults). In their analyses, the researchers retained 25 items for the CTQ-SF that had factor loadings greater than .50 on their intended factors and low loadings (<.30) on other factors (Bernstein et al., 2003). Confirmatory factor analysis indicated that the CTQ-SF generally performed equivalently across the four samples described above, suggesting evidence of measurement invariance. The five-factor model demonstrated good fit in all samples, and all items loaded significantly ($p < .001$) on their hypothesized latent factors (Bernstein et al., 2003). Broadly, the evidence supports the use of the CTQ-SF as a valid and psychometrically sound measure of 5 types of childhood abuse experiences.

**Depression Anxiety Stress Scale-21**

The Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995b) is a 21-item self-report questionnaire assessing negative emotionality across the following domains: anxiety, depression, and stress (Appendix C). Each of these 3 subscales consists of 7 items, asking participants to respond to each item on a scale of 0 = “Did not apply to me at all” to 3 = “Applied to me very much or most of the time.” Total scores on each of the subscales can be compared to recommended cutoff scores to determine levels of depression, anxiety, and stress as
normal,” “mild,” “moderate,” “severe,” or “extremely severe” (Lovibond & Lovibond, 1995b).

For the purposes of this study, total score on the depression subscale of the DASS-21 was used as a measure of participants’ current levels of depressive symptoms. In the present sample, internal consistency for the DASS-21 depression subscale was good ($\alpha = .882$).

The factor structure and psychometric properties of the DASS have been examined in non-clinical and clinical samples, with results supporting reliability of the measure and supporting the three-factor model (Antony et al., 1998; Lovibond & Lovibond, 1995a). In this sample, the DASS was also compared to two widely-used measures, the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI). It was found to be reasonably well-correlated with each ($r = 0.74$ and $r = 0.81$, respectively), suggesting evidence of convergent validity (Lovibond & Lovibond, 1995a). Like the full 42-item DASS, the DASS-21 has also demonstrated evidence of convergent and discriminant validity similar to that of the full-length measure in clinical and non-clinical samples. The DASS-21 showed good internal consistency for each of the subscales as well as the full measure ($\alpha = .88-.94$ for the depression scale, $\alpha = .82-.87$ for the anxiety scale, $\alpha = .90-.91$ for the stress scale, and $\alpha = 93$ for the total scale) (Antony et al., 1998; Henry & Crawford, 2005). Further, the psychometric properties of the DASS-21 have been examined across various racial groups, with internal consistency remaining close to the ranges reported above, and similar internal consistency was found across samples of Caucasian, African American, Asian, and Hispanic participants (Norton & Price, 2007). The three-factor structure was also supported in each of the racial groups using confirmatory factor analysis (Norton & Price, 2007). Overall, the DASS-21 appears to be a reasonably valid and reliable measure to measure symptoms of depression, anxiety, and stress within a sample of college students.
PTSD Checklist for DSM-5

The PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013) is a 20-item self-report questionnaire that measures symptoms of PTSD in the past month in accordance with the DSM-5 (Appendix D). The PCL-5 is a widely-used measure of PTSD symptoms, with well-established psychometric characteristics in veteran, active duty, and community samples and has been validated against the Clinician Administered PTSD Scale (CAPS-5) to determine a cutoff score of 31-33 for provisional diagnosis of PTSD (Bovin et al., 2016). Participants rate how much they were bothered by each symptom in the past month on a scale of 0 = “Not at all” to 4 = “Extremely.” The PCL-5 produces subscale scores for each cluster of PTSD symptoms: Criterion B (re-experiencing), Criterion C (avoidance), Criterion D (negative alterations in thoughts or feelings), and Criterion E (arousal and reactivity). For the purposes of this study, the total score was utilized for analyses as a measure of current levels of symptoms of PTSD. In the present sample, internal consistency for the PCL-5 total measure was excellent (α = .953).

Across two samples of veterans, test-retest reliability of the PCL-5 was good, as evidenced by participants completing the measure a second time 22-48 days after initial completion, and a reported test-retest correlation at $r = .84$ (Bovin et al., 2016). Further, this research found evidence of excellent convergent validity with an older version of this measure designed for use with DSM-IV (PCL-C), with $r = .87$. Scores on PCL-5 indicated good convergence with scores on measures of depression, generalized anxiety disorder, panic, somatization, disability and functional impairment ($r = .50-.74$), but weaker correlations with measures of alcohol abuse and broad psychopathology ($r = .14$ and .08, respectively) (Bovin et al., 2016). In another study of trauma-exposed college students, similar support was
demonstrated for the psychometric properties of the PCL-5. Total score on the PCL-5 showed
test-retest reliability of $r = .82$ over a 1-week period, and at the item level, test-retest reliability
showed a median of .68-.69 in two separate samples, with all $r$ values ranging from .39-.83
(Blevins et al., 2015). In this study of college students conducted by Blevins and colleagues
(2015), the PCL-5 also demonstrated evidence of convergent validity with other measures of
PTSD ($r = .74-.85$) and divergent validity, with weaker correlations reported between the PCL-5
and measures of depression ($r = .60$), anxiety ($r = .40$), alcohol problems ($r = .40$), drug
problems ($r = .40$), and mania ($r = .31$). Confirmatory factor analysis across the two student
samples indicated adequate fit with the 4-factor model of the DSM-5 (Blevins et al., 2015).
Taken together, research suggests strong support for the PCL-5 as a valid and reliable measure of
PTSD symptoms.

**The Implicit Association Test**

The Implicit Association Test (IAT; Greenwald et al., 1998) measures implicit
associations between target concepts (e.g., self vs. other) with an attribute through a computer-
based task. During this task, target and attribute words are paired together at the top left and right
of a computer screen and participants are asked to correctly categorize words as they are
presented in the middle of the screen by pressing a key on the left or right side of the keyboard
(Greenwald et al., 1998). Reaction times for each trial are saved automatically and used for later
analyses. Faster response times are interpreted as evidence of a stronger implicit association
between target and attribute word paired in that trial.

In a meta-analytic study investigating the predictive validity of the IAT, researchers
reported that IAT measures were able to predict behavioral, judgement, and physiological
measures with an average $r = .274$, while parallel self-report measures of these constructs were predictive with an average $r = .361$, but with much greater variability of effect sizes seen for the self-report measures than IAT (Greenwald et al., 2009). Additionally, median reliability for the IAT has been reported at $\alpha = .81$, with median reliability for self-report measures in the same study was $\alpha = .91$ (Nosek & Smyth, 2007). Convergent validity was supported in this study, as five of the seven correlations assessed between implicit and explicit measures of the same attitude constructs were significant ($r = .27-.56$). In a study of various implicit self-esteem measures, test-retest reliability was demonstrated for the IAT ($r = .54$) and the IAT also had the best internal consistency and temporal stability of all implicit measures assessed (Krause et al., 2011).

In the present study, words selected for the IAT replicated a word list documented in a previous study investigating guilt and shame through the use of an IAT (Bockers et al., 2016). Given the difficulty level of some words included in the study by Bockers and colleagues (2016), the present study utilized the full word list as described in their study but included several additional words for each category as selected by expert consensus. The additional words included for the guilt category included “error,” “fault,” and “culpable.” The additional words included for the shame category included “bad,” “disgraceful,” and “unworthy.” The additional words included for the contentment category included “calm,” “gratified,” and “appeased.”

In this study, two different IATs were presented: one with guilt vs. contentment (control condition) as the attribute category and one with shame vs. contentment (control condition) as the attribute category. A total of 7 trial blocks are included in a standard IAT, with blocks 1, 2, 3, 5, and 6 as practice trials and block 4 and 7 as test trials. However, based on an improved scoring algorithm by Greenwald et al. (2003), blocks 3, 4, 6, and 7 can be used as test trials. Specifically,
blocks 1, 2, and 5 involve presentation of only self/other or guilt/shame/contentment words to categorize, rather than having self/other words paired with guilt/shame/contentment words. This allows the participant to acclimate to the task and learn which side of the screen will be used for each category for the upcoming trial block. The improved scoring algorithm allows for two test blocks of each type (i.e., two blocks where self was paired with guilt/shame and two blocks where self was paired with contentment) to be combined to create an overall score, the $D$-index. For more information about each trial block for the two IATs in this study, see Table 1. Using this improved scoring algorithm, a $D$-index was computed for each of the two IATs, which are the values that were used to represent implicit association toward guilt-prone and shame-prone self-concept in later analyses in this study. Further detail on $D$-index calculation and initial data cleaning for raw IAT data can be found in the preliminary analysis section of this paper.

Table 1

Block Trials for IATs

<table>
<thead>
<tr>
<th>Block</th>
<th>Description</th>
<th>Trial Type</th>
<th>Word Lists Used in Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initial target-concept discrimination</td>
<td>Practice</td>
<td>Self words vs. Other words</td>
</tr>
<tr>
<td>2</td>
<td>Associated attribute discrimination</td>
<td>Practice</td>
<td>Guilt/Shame words vs. Contentment words</td>
</tr>
<tr>
<td>3</td>
<td>Combined task (version 1)</td>
<td>Test</td>
<td>Self or Guilt/Shame vs. Other or Contentment</td>
</tr>
<tr>
<td>4</td>
<td>Combined task (version 1)</td>
<td>Test</td>
<td>Self or Guilt/Shame vs. Other or Contentment</td>
</tr>
<tr>
<td>5</td>
<td>Associated attribute discrimination (reversed presentation)</td>
<td>Practice</td>
<td>Contentment words vs. Guilt/Shame words</td>
</tr>
<tr>
<td>6</td>
<td>Combined task (version 2)</td>
<td>Test</td>
<td>Self or Contentment vs. Other or Guilt/Shame</td>
</tr>
<tr>
<td>7</td>
<td>Combined task (version 2)</td>
<td>Test</td>
<td>Self or Contentment vs. Other or Guilt/Shame</td>
</tr>
</tbody>
</table>
Procedures

Participants were recruited through the online system SONA and self-selected to participate in a one-time online session for the study. Due to the constraints of the COVID-19 pandemic, all aspects of participation in this study were conducted remotely during the Fall 2021 semester. Prior to study participation, participants were presented with descriptions of study procedures and key details of the informed consent form. After consenting to participate in the study, participants completed the two cognitive experimental tasks (IATs) through the online experiment platform, Gorilla Experiment Builder (Anwyl-Irvine et al., 2019). The order of presentation for these tasks was randomized to reduce the likelihood of practice effects impacting the second experimental task. After completing the IATs, participants were electronically redirected to complete all previously described self-report measures the online survey platform, Qualtrics. Following completion of the study, all participants were granted course credit as compensation for their time and effort.

Data Analysis

Preliminary Analysis

To estimate appropriate sample size for this project, power analysis was conducted in R (R Core Team, 2019) utilizing R code from Preacher & Coffman (2006). Two power analyses were conducted, one including potential covariates of physical and sexual abuse and one that did not include these potential covariates. Power analysis conducted with the inclusion of potential covariates, with 80% power, 32.5 degrees of freedom, null RMSEA of .05 and alternative RMSEA of .10 resulted in a recommended sample size of 129 participants. Power analysis
excluding covariates, with 80% power, 13 degrees of freedom, null RMSEA of .05 and alternative RMSEA of .10 resulted in a recommended sample size of 255 participants. For both of these analyses, .05 was chosen as the null RMSEA as it represents good fit, and .10 was chosen as the alternative RMSEA as it represents marginal to poor fit (Browne & Cudeck, 1993). Based on the results of these two power analyses, a sample size of 200 participants would be the ideal option, however, a sample size of 100 participants was selected due to logistical concerns, expense of gorilla.sc per participant fees, and maintaining reasonable scope for a thesis project.

IAT Data Cleaning and Scoring

As discussed in the Method section of this paper when describing this behavioral task, the IAT involves practice trials that allow the participant to acclimate to which side of the screen categories appear on (using only self and other words or guilt/shame words and contentment words). Blocks that include both self/other and guilt/shame/contentment words together in the same block may be utilized for scoring. Raw IAT data were handled according to the improved scoring algorithm detailed by Greenwald et al. (2003), which includes the following steps: (1) Data from trial blocks 3, 4, 6, and 7 were used for analysis. (2) Trials with response time latencies greater than 10,000ms were eliminated, and subjects for whom more than 10% of trials have latencies less than 300ms. (3) All trials were used in data analysis. (4) No extreme-value treatment beyond what was already employed in step 2 was needed. (5) A mean value for correct latencies for each block was computed. (6) One pooled standard deviation for all trials in blocks 3 and 6 and another for blocks 4 and 7 was computed. (7) Each error latency that was eliminated in prior steps was then replaced with a value equal to the block mean plus 600ms; alternately, use latency to correct response in a procedure that requires a correct response after an
error. (8) No transformation was needed. (9) The resulting values were averaged for each of the four blocks. (10) Two difference scores were computed by subtracting block 3 from block 6 and subtracting block 4 from block 7. (11) Each difference score was then divided by its associated pooled-trials standard deviation. (12) The two quotients produced in step 11 were averaged to provide the resultant \( D \)-index score for further analyses (Greenwald et al., 2003). In the present study, the total latency prior to correct response was used at step 7, as participants were required to provide a correct response to one trial prior to moving to the next trial. More positive scores represented a stronger association between self-related words and guilt-related words or between self-related words and shame-related words, suggesting a stronger implicit guilt-prone or shame-prone self-concept.

**Preliminary Analysis for Self-Report Data**

Prior to hypothesis testing, the data were screened for normality and response quality. Descriptive statistics were used to identify potential outliers and suspect responding patterns (e.g., filling in response option one across all self-report questions). In these preliminary analyses, a significance level of \( \alpha = .01 \) was used to determine significance for all tests of normality, covariates, and missing data. T-tests were run to assess whether any variables differ significantly based on race, ethnicity, or age. None of the variables of interest differed significantly based on these demographic variables at the \( \alpha = .01 \) significance level; thus, they were not included as covariates in further analyses. Given that childhood emotional abuse often co-occurs with other forms of childhood abuse (i.e., physical and/or sexual abuse), correlations were run between physical abuse, sexual abuse, emotional abuse, guilt-proneness, shame-proneness, PTSD, and depression. It was planned that if physical abuse or sexual abuse were
found to be significantly correlated with the independent variable (i.e., childhood emotional abuse) as well as all dependent variables of interest (i.e., guilt-proneness, shame-proneness, PTSD, and depression), these would be included as covariates in later analyses. While some significant correlations were found, physical abuse and sexual abuse were not significantly correlated with guilt-proneness or shame-proneness at the $\alpha = .01$ significance level. Thus, physical abuse and sexual abuse were not included as covariates in the path model. Missing data were assessed using Little’s Missing Completely at Random (MCAR) test (Little, 1988). The test yielded nonsignificant results ($\chi^2 = 2.64$, df = 5, $p = .76$), indicating that data were MCAR. Therefore, full information maximum likelihood (FIML) estimation was implemented to account for missing data.

**Hypotheses Testing**

Hypotheses were tested using a significance level of $\alpha = .05$. All hypotheses detailed previously were tested using path analysis to determine the direct effects of childhood emotional abuse on symptoms of PTSD and depression as well as the direct effects of guilt-proneness and shame-proneness on symptoms of PTSD and depression. See Figure 1 for a visual depiction of the path model for each of the proposed hypotheses. For Hypothesis 1, the direct relationship between childhood emotional abuse and symptoms of psychopathology was examined within the model. It was expected that higher levels of childhood emotional abuse would predict higher levels of symptoms of psychopathology (i.e., PTSD and depression). For Hypothesis 2, the direct relationship between childhood emotional abuse and guilt-proneness and shame-proneness was examined within the model. It was expected that higher levels of childhood emotional abuse would predict higher levels of guilt-prone self-concept and shame-prone self-concept. For
Hypothesis 3, the direct relationship between guilt-proneness and shame-proneness and symptoms of psychopathology was examined within the model. It was expected that higher levels of guilt-prone self-concept would predict higher levels of symptoms of psychopathology (i.e., PTSD and depression) and higher levels of shame-prone self-concept would also predict higher levels of symptoms of psychopathology (i.e., PTSD and depression).

Figure 1. Proposed Path Model.

*Note.* Solid line arrows represent Hypothesis 1. Dotted line arrows represent Hypothesis 2. Long dashed arrows represent Hypothesis 3. Double-headed arrows represent covariance.
CHAPTER 3
RESULTS

Descriptive Statistics

In this sample, the mean level of childhood emotional abuse reported on the CTQ was 10.61, which falls within the cutoff range of “low to moderate” according to the scoring manual for this measure. However, the range observed for this variable was 5 to 25, with a standard deviation of 5.14, suggesting notable variability in levels of childhood emotional abuse experienced. Within this sample, 44 participants (42.72%) fell in the “none to minimal” range for emotional abuse, 25 participants (24.27%) fell in the “low to moderate” range, 16 participants (15.53%) fell in the “moderate to severe” range, and 18 participants (17.48%) fell in the “severe to extreme” range. The mean level of childhood physical abuse in this sample was 6.93, falling within the “none or minimal range,” with a standard deviation of 3.14 and observed range of 4 to 18. The mean level of childhood sexual abuse was 7.26, falling just above the “low to moderate” cutoff, with a standard deviation of 4.67 and range of 5 to 25, again suggesting notable variability in experiences of childhood sexual abuse within this sample. The mean level of reported depressive symptoms was 11.30, with a range of 0 to 42 and standard deviation of 10.27. Based on cutoffs suggested by Lovibond and Lovibond (1995b), this average falls within the mild range. However, as was observed for childhood emotional and sexual abuse, there was significant variability in levels of depression in this sample. Within this sample, 53 participants (51.46%) fell in the “normal” range, 16 participants (15.53%) fell in the “mild” range, 18
participants (17.48%) fell in the “moderate” range, 4 participants (3.89%) fell in the “severe” range, and 12 participants (11.65%) fell in the “extremely severe” range. The mean level of reported symptoms of PTSD in this sample was 22.00, which falls below the recommended cutoff of 31-33 that is generally used as suggestive of possible PTSD diagnosis. However, with a range of 0 to 80 and standard deviation of 18.62, this sample again displayed significant variability on this measure. Using a conservative cutoff of 31 on this measure, 28 participants (27.18%) met criteria for probable PTSD diagnosis. Following transformation of raw scores (multiplied by 10), the mean levels of guilt- and shame-prone self-concept as suggested by scores on the IAT tasks were -2.82 and -2.88, respectively. Given that both of these are negative scores, the average for each of these implicit measures indicates that participants generally took longer to pair negative words with self on the task, suggesting they did not display a cognitive bias toward guilt-prone or shame-prone self-concept. However, the range displayed on the IAT guilt task was -10.78 to 4.39, with a standard deviation of 3.15, meaning that at least some participants fell within the positive side of this range and suggestive of bias toward guilt-prone self-concept. Similarly, the range on the IAT shame task was -8.99 to 5.29, with a standard deviation of 3.03, which again suggests that some participants showed evidence of bias toward shame-prone self-concept. Descriptive statistics for all variables of interest as well as correlations between variables can be found in Table 2.
Table 2
Descriptive Statistics and Zero-Order Correlations Between Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IAT Guilt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. IAT Shame</td>
<td>.183</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Depression</td>
<td>.095</td>
<td>.245*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. PTSD</td>
<td>.126</td>
<td>.229*</td>
<td>.646**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Emotional Abuse</td>
<td>.065</td>
<td>.154</td>
<td>.460**</td>
<td>.488**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Physical Abuse</td>
<td>.078</td>
<td>.184</td>
<td>.260**</td>
<td>.325**</td>
<td>.589**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sexual Abuse</td>
<td>.118</td>
<td>.235*</td>
<td>.437**</td>
<td>.462**</td>
<td>.467**</td>
<td>.399**</td>
<td></td>
</tr>
</tbody>
</table>

N 103 103 103 103 103 103 103
Minimum -10.78 -8.99 0 0 5 4 5
Maximum 4.39 5.29 42 80 25 18 25
Mean -2.82 -2.88 11.30 22 10.61 6.93 7.26
SD 3.15 3.03 10.27 18.62 5.14 3.14 4.67

Note: *p < .05, **p < .01.

Path Analysis

Path model (see Figure 1) analysis was conducted using full information maximum likelihood to examine the direct effects of childhood emotional abuse on guilt-proneness, shame-proneness, depression, and PTSD. This model also examined the direct effects of guilt-proneness and shame-proneness on depression and PTSD. Covariance between depression and PTSD, as well as guilt-proneness and shame-proneness, were accounted for within the model. The chi-square test exhibited a significant result ($\chi^2 (10) = 97.93, p < .001$). According to Hu and Bentler (1999), chi square tests are sensitive to large sample sizes and may result in significant $p$ values, indicating poor model fit. With regard to other goodness-of-fit indices, both CFI (1.00) and TLI (1.00) indicated excellent model fit (Hu & Bentler, 1999). RMSEA (<.001) and SRMR (<.001) also indicated excellent model fit (Browne & Cudeck, 1993). Main results of the path model are presented in Figure 2 and are discussed in detail below.
Hypothesis 1

Broadly, it was predicted that individuals reporting higher levels of childhood emotional abuse would report higher levels of symptoms of psychopathology as compared to individuals who do not report history of childhood emotional abuse. Specifically, it was hypothesized that individuals reporting higher levels of childhood emotional abuse will report higher levels of symptoms of depression as compared to individuals who do not report history of childhood emotional abuse (Hypothesis 1a) and that individuals reporting higher levels of childhood emotional abuse will report higher levels of symptoms of PTSD as compared to individuals who do not report history of childhood emotional abuse (Hypothesis 1b). In this sample, higher levels of emotional abuse experienced in childhood significantly predicted higher symptoms of...
depression ($\beta = 0.432, p < .001$) and higher symptoms of PTSD ($\beta = 0.458, p < .001$). Therefore, both Hypothesis 1a and Hypothesis 1b were supported in this study.

Given that childhood physical abuse and childhood sexual abuse were not included as covariates in the path model, exploratory hierarchical regression models were tested to examine the unique contribution of emotional abuse in predicting symptoms of adult psychopathology, when controlling for other forms of childhood abuse.

To evaluate whether childhood emotional abuse predicts depressive symptoms above and beyond physical and sexual abuse, hierarchical regression analyses were conducted. First, a model including childhood physical and sexual abuse was tested to determine whether these variables together predict symptoms of depression. This model significantly predicted depression, $F (2, 100) = 12.48, p < .001$. In this model, childhood sexual abuse was a significant independent predictor ($b = 0.873, p < .001$), but childhood physical abuse did not significantly predict depression ($b = 0.332, p = 0.301$). Next, a model including childhood emotional abuse, physical abuse, and sexual abuse was tested. This model significantly predicted depression, $F (3, 99) = 12.75, p < .001$. In this model, physical abuse was again not a significant independent predictor ($b = -0.242, p = 0.493$). Sexual abuse ($b = 0.651, p < .001$) and emotional abuse ($b = 0.732, p < .001$) were both significant independent predictors of higher depressive symptoms. The change in $R^2$ from the first model (.200) to the second model (.279) was significant, $F (1, 99) = 10.827, p = .001$. Therefore, after controlling for physical and sexual abuse, childhood emotional abuse significantly predicted depressive symptoms in adulthood.

To evaluate whether childhood emotional abuse predicts PTSD symptoms above and beyond physical and sexual abuse, hierarchical regression analyses were conducted. First, a model including childhood physical and sexual abuse was tested to determine whether these
variables together predict symptoms of PTSD. This model significantly predicted PTSD symptoms, $F(2, 96) = 14.91, p < .001$. In this model, childhood sexual abuse was a significant independent predictor ($b = 1.574, p < .001$), but childhood physical abuse did not significantly predict PTSD ($b = 0.985, p = 0.086$). Next, a model including childhood emotional abuse, physical abuse, and sexual abuse was tested. This model significantly predicted PTSD, $F(3, 95) = 14.18, p < .001$. In this model, physical abuse was again not a significant independent predictor ($b = 0.010, p = 0.990$). Sexual abuse ($b = 1.197, p < .001$) and emotional abuse ($b = 1.245, p < .001$) were both significant independent predictors of higher PTSD symptoms. The change in $R^2$ from the first model (.237) to the second model (.310) was significant, $F(1, 95) = 9.945, p = .002$. Therefore, after controlling for physical and sexual abuse, childhood emotional abuse significantly predicted PTSD symptoms in adulthood. See Tables 3 and 4 for results of these regression analyses.

Table 3

Exploratory Multiple Regression Analysis Predicting Depression Symptoms

<table>
<thead>
<tr>
<th>Step and predictor variable</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>$F$</th>
<th>$b$</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.200</td>
<td>.200</td>
<td>12.48**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.332</td>
<td>.101</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.873**</td>
<td>.397**</td>
</tr>
<tr>
<td>Step 2</td>
<td>.279</td>
<td>.079**</td>
<td>12.75**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.242</td>
<td>-.074</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.651**</td>
<td>.296**</td>
</tr>
<tr>
<td>Emotional abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.732**</td>
<td>.366**</td>
</tr>
</tbody>
</table>

Note: *$p < .05$, **$p < .01$.}
Table 4

Exploratory Multiple Regression Analysis Predicting PTSD Symptoms

<table>
<thead>
<tr>
<th>Step and predictor variable</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>$F$</th>
<th>$b$</th>
<th>$B$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical abuse</td>
<td>.237</td>
<td>.237</td>
<td>14.91**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.985</td>
<td>.169</td>
</tr>
<tr>
<td>Step 2</td>
<td>.310</td>
<td>.073*</td>
<td>14.18**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.010</td>
<td>.002</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.197**</td>
<td>.300**</td>
</tr>
<tr>
<td>Emotional abuse</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.245**</td>
<td>.349**</td>
</tr>
</tbody>
</table>

Note: *$p < .05$, **$p < .01$.

**Hypothesis 2**

It was predicted that individuals reporting higher levels of childhood emotional abuse will show evidence of implicit cognitive biases towards guilt-prone and shame-prone self-concept on a computerized cognitive task as compared to individuals who do not report history of childhood emotional abuse. Emotional abuse in childhood did not significantly predict levels of guilt-prone self-concept ($\beta = 0.065$, $p = 0.509$) or shame-prone self-concept ($\beta = 0.154$, $p = 0.113$). Hypothesis 2 was not supported.

**Hypothesis 3**

Broadly, it was predicted that individuals who demonstrate stronger implicit associations with guilt-prone and shame-prone self-concept will also show higher levels of psychopathology as compared to those who demonstrate weaker implicit associations toward guilt and shame words. Specifically, it was hypothesized that individuals who demonstrate stronger implicit cognitive biases toward guilt and shame will also show higher levels of symptoms of depression
as compared to those who demonstrate weaker implicit associations toward guilt and shame words (Hypothesis 3a) and that individuals who demonstrate stronger implicit cognitive biases toward guilt and shame will also show higher levels of symptoms of PTSD as compared to those who demonstrate weaker implicit associations toward guilt and shame words (Hypothesis 3b). In this sample, Hypothesis 3a and Hypothesis 3b were not supported. However, results trended in the expected direction and approached significance for those with a stronger implicit shame-prone self-concept experiencing higher levels of depressive symptoms ($\beta = 0.171, p = 0.051$) and higher levels of PTSD symptoms ($\beta = 0.149, p = 0.089$). Stronger implicit guilt-prone self-concept was not significantly associated with symptoms of depression ($\beta = 0.036, p = 0.680$) or PTSD ($\beta = 0.069, p = 0.426$).
CHAPTER 4
DISCUSSION

Childhood emotional abuse has been found to predict symptoms of psychopathology in adulthood (e.g., Dias et al., 2017; Ross et al., 2019) even when controlling for other forms of childhood abuse (e.g., Spertus et al., 2003). Generalized guilt and shame often occur in individuals with PTSD and depression, and previous literature suggests that shame-proneness and possibly guilt-proneness are associated with severity of psychopathology (Kim et al., 2011; Pineles et al., 2006; Tangney et al., 1992; Webb et al., 2007). This study sought to understand the relationship between childhood emotional abuse, guilt and shame, and symptoms of depression and PTSD. It was hypothesized that (1) higher levels of childhood emotional abuse would be associated with higher levels of symptoms of psychopathology, (2) higher levels of childhood emotional abuse would be associated with stronger implicit cognitive biases towards guilt-prone and shame-prone self-concept, and (3) stronger implicit associations with guilt-prone and shame-prone self-concept would be associated with higher levels of symptoms of psychopathology.

While the hypotheses related to implicit biases toward guilt-prone and shame-prone self-concept and their connection to psychopathology were not supported in this study, it was found that childhood emotional abuse was a significant independent predictor of symptoms for both depression and PTSD in this sample. The following sections discuss the significant findings as well as null findings as they relate to previous study findings, limitations of the present study, and implications for future research.
Significant Findings

In this study, it was found that higher levels of childhood emotional abuse were associated with higher symptoms of depression and of PTSD, even after controlling for exposure to childhood physical and sexual abuse. These results are in line with literature that suggests emotional abuse has important independent connections to later psychopathology. Across community and clinical samples, it has been found that those with histories of childhood emotional abuse have greater symptoms of depression (Courtney et al., 2008; Ross et al., 2019; Spertus et al., 2003; van Harmelen et al., 2010) and PTSD (Dias et al., 2017; Hoeboer et al., 2021; Shi, 2013; Spertus et al., 2003), as well as numerous other physical and mental health concerns. While previous literature has highlighted the deleterious effects of physical and sexual abuse when investigating childhood maltreatment, this study, along with numerous others, have begun to demonstrate that emotional abuse experienced in childhood can also have lasting negative impacts and should not be overlooked in treatment. One meta-analytic study showed that emotional abuse and neglect showed the strongest associations with depression, compared to other forms of childhood trauma (Mandelli et al., 2015). Similarly, a recent study conducted in an outpatient psychiatric sample found that emotional abuse, compared to other forms of childhood maltreatment, was associated with more severe symptoms of PTSD (Hoeboer et al., 2021). Further, in a study of treatment-seeking individuals with PTSD specifically related to childhood traumas, emotional abuse was the only trauma type that was significantly related to severity of PTSD (Rameckers et al., 2021). Although much of the research to date has utilized samples with clinical levels of PTSD and depression, the present study adds to the literature by showing that the impact of childhood emotional abuse on later symptoms of psychopathology
remains significant even in non-treatment-seeking samples that may or may not meet full
diagnostic criteria for psychiatric disorders at the time of participation (e.g., college students).

Null Findings

This study did not find significant relations between childhood emotional abuse and
implicit guilt-prone or shame-prone self-concept. These results suggest that participants similarly
processed guilt, shame, and contentment words in the IAT, irrespective of their level of exposure
to childhood emotional abuse. Similarly, no significant relationships were found between
implicit guilt-prone or shame-prone self-concept and symptoms of depression and PTSD. These
results suggest that shame-prone and guilt-prone self-concept may not be as closely tied to
psychopathology as hypothesized. However, the correlations between shame-prone self-concept
and psychopathology trended in the appropriate direction and approached significance ($p = .051$
for depression; $p = 0.089$ for PTSD). Given that shame-proneness approached significance in
this sample, while guilt-proneness did not, it is possible that in a larger sample, these study
procedures may produce results that fall more closely in line with previous research that has
indicated shame and shame-proneness are more strongly associated with psychopathology than
guilt and guilt-proneness (Fergus et al., 2010; Pineles et al., 2006; Tangney et al., 1992; Webb et
al., 2007).

In considering possible explanations for the null findings of the present study, discussion
will be framed from the perspective presented by Cronbach and Meehl (1955), which suggests
that null fundings may be interpreted in three ways: 1) the test does not measure the construct
variable; 2) the theoretical network which generated the hypothesis is incorrect; 3) the
experimental design failed to test the hypothesis properly.
Firstly, it is possible that these null findings could be the result of poorly defined or measured construct variable (Chronbach & Meehl, 1955). This explanation for null findings suggests that the list of words used to measure shame- and guilt-proneness may not have adequately measured the construct of interest. The words utilized for each condition of this study replicated a word list documented in a previous study investigating guilt and shame through the use of an IAT (Bockers et al., 2016). However, due to the difficulty level of some words included in this prior study, additional words were added to each category in the present study as selected by expert consensus. It is possible that the word list utilized in this study may have lacked construct validity and may not have elicited the expected associations with shame and guilt. However, the present study utilized the full list of words described in a previous study that found significant results and only added three new words per category that had not been previously investigated in an IAT-based study. Further, it is possible that the measure of abuse used in this study (CTQ) may not have adequately tapped into the construct of childhood emotional abuse. As discussed earlier in this paper, specific definitions of this construct can vary, though it is generally agreed upon that this type of abuse involves a relatively consistent pattern of dysfunctional interactions and communication style between parent and child that may negatively impact the child’s psychological health and development (Glaser, 2002; Stoltenborgh et al., 2012). While the CTQ is one of the most widely-utilized measures in the literature and is believed to be a well-validated and reliable measure of childhood abuse types, it does rely upon retrospective reporting and involves some degree of subjectivity on the part of the respondent. For example, one item “I felt loved” may be answered quite differently by individuals who could have experienced objectively similar interactions with parental figures.
Secondly, it is possible that these null findings are reflective of an incorrect theoretical framework used in hypothesis generation (Chronbach & Meehl, 1955). There is some prior research that suggests childhood emotional abuse is associated with higher shame-proneness and experiences of shame (Kealy et al., 2018; Ross et al., 2019; Shahar et al., 2015), and this connection may possibly be more prominent in samples of women (Harper & Arias, 2004). Further, higher levels of shame-proneness have previously been found to be associated with symptoms of depression and PTSD (Fergus et al., 2010; Pineles et al., 2006; Webb et al., 2007). However, reports of significant associations with guilt-proneness have been extremely limited in the existing literature. One study suggested that when specifically looking at contextually maladaptive guilt or generalized guilt (as opposed to guilt as associated with a specific event), similar patterns of association with psychopathology were observed in a meta-analytic study that investigated guilt and shame and their associations with psychological symptoms (Kim et al., 2011). On the contrary, numerous studies have not found these unique associations between childhood emotional abuse, guilt, and psychopathology after controlling for shame (Fergus et al., 2010; Pineles et al., 2006; Kealy et al., 2018; Webb et al., 2007). Given these findings, it is not particularly surprising that childhood emotional abuse was not significantly correlated with guilt-prone self-concept and guilt-prone self-concept was not significantly correlated with symptoms of depression or PTSD in this study. It was, however, unexpected that these relationships did not emerge in the present study for shame-proneness. While there were trends in the appropriate direction for the association between shame-proneness and symptoms of psychopathology, these relationships were not significant. Further, childhood emotional abuse was not significantly associated with higher shame-prone self-concept on the IAT. It is possible that in this sample of college women, the existence of a more shame-prone implicit self-concept following childhood
emotional abuse may not be as strong a phenomenon, as these individuals are functioning at a reasonable level and may have specific resiliency, cognitive, or social support factors that may have buffered against some of the negative impacts of childhood emotional abuse. Numerous studies in the existing literature cited throughout this paper have utilized broader community samples or treatment-seeking samples, which may have different characteristics than the present sample of college women. Further, most studies investigating similar constructs have utilized self-report measures of guilt and shame experiences, rather than employing an implicit experimental task. It is possible that the implicit measures of guilt-proneness and shame-proneness in this study may not have demonstrated the same associations that have been documented in prior studies. Although some studies have utilized implicit measures to assess these constructs and have found significant results, this research has generally been conducted within community and treatment-seeking samples, which may differ from the college sample utilized for this study.

Finally, it is possible that limitations in study design could explain the observed null findings (Chronbach & Meehl, 1955). Within this explanation, one could consider both the sample size utilized as well as the online design of this study. The final sample size utilized in analyses was smaller than was recommended by the preliminary power analyses conducted in this study. Power analysis including potential covariates suggested a sample size of 129, while analysis without covariates suggested a sample of 255. Given that the final path model tested in this study did not include covariates due to lack of significant correlations with all dependent variables, it is possible that this study sample size was not sufficient to detect significant correlations within the path model for a final sample size of 103 participants. Further, it is possible that the sample utilized did not have high enough levels of childhood emotional abuse to
detect significant results. As reported previously, the mean level of emotional abuse fell within the low to moderate range (\(M = 10.61\)) in this sample. This sample did represent the full range of possible scores on this measure, suggesting that some participants experienced significant emotional abuse in childhood. However, the relatively low mean score may indicate that there was not sufficiently high levels of emotional abuse to detect significant results, particularly in a smaller sample. Similarly, it is possible that the sample utilized did not have high enough levels of guilt-prone or shame-prone self-concept as measured by the IAT to detect significant results. Mean scores on both measures were lower than anticipated (\(-.28\) for guilt-proneness and \(-.29\) for shame-proneness, prior to transformation). A previously discussed study conducted by Bockers and colleagues (2016) also utilized IATs to measure guilt-prone and shame-prone self-concept across three samples: PTSD due to interpersonal trauma, interpersonal trauma exposure without PTSD, and not trauma-exposed. Mean scores for both IATs conducted in the present study most closely resembled the mean scores reported in the sample of individuals who had not experienced trauma in the previously conducted study (Bockers et al., 2016). In their study, the PTSD sample had a mean score of \(-.01\) for guilt-proneness and \(-.11\) for shame-proneness, the trauma-exposed sample without PTSD had mean scores of \(-.19\) and \(-.07\), respectively, and the sample who had not experienced trauma reported mean scores of \(-.30\) and \(-.28\), respectively. Given that more positive scores represent a stronger guilt-prone or shame-prone self-concept, it seems that the present sample performed most similarly to a non-trauma-exposed sample, which may have contributed to the lack of significant findings.

Additionally, challenges related to conducting experimental studies online may have also contributed to the lack of significant findings, representing another possible limitation in study design. While research generally supports that the platform utilized (gorilla.sc) is an excellent
choice for online studies, there are some notable challenges with online data collection of this nature. Participants needed to complete the study utilizing a laptop or desktop computer (rather than a phone or tablet), which somewhat limited the variability introduced by participating from personal devices. However, participants used multiple different types of operating systems, their internet speeds may have varied, and the researcher cannot be sure that participants were actively involved in completing the tasks without interruption while taking part in the study (e.g., distractions, breaks). Timing-related concerns have been discussed in prior literature when comparing web-based and lab-based experimental designs. For instance, one study that compared various software programs and online platforms for computer-based experiments noted that in general, web-based platforms demonstrate reasonable technological variability (precision) compared to lab-based software programs but show increases in lag (accuracy), with potentially high degrees of variability across different combinations of browsers and operating systems (Bridges et al., 2020). However, this study found that the experimental package used in the present study (gorilla.sc) performed relatively well for a web-based system, with consistently low variability across browsers and operating systems and showed visual reaction times with less than 6 milliseconds of inter-trial variability across all browsers tested (Bridges et al., 2020). They did, however, still find notable lag across web-browsers for this package and all other online experimental packages investigated in their study. These authors noted less than ideal performance with audio stimuli on gorilla.sc, though these problems would not impact the results of the present study, as the experimental design employed utilized exclusively visual stimuli. Further, the difficulties in absolute lag time for an online versus in-person study may be of little importance, given that the IAT involves comparing the response times of individual participants across multiple conditions/trials to calculate scores. However, the variability found between
operating systems and web browsers may be noteworthy for this study, as participants accessed this study from a variety of operating systems (e.g., Windows, macOS) and web browsers (e.g., Chrome, Safari), which may have introduced important differences in response times across participants that could have impacted results. In a study involving several presentations of a flanker test on the gorilla.sc platform across various samples and settings, researchers were able to successfully observe the flanker effect, though effect sizes observed in these studies were smaller than previous lab-based studies (Anwyl-Irvine et al., 2019). This suggests that the variance introduced by the use of different computers and web-browsers in home environments may lead to smaller effect sizes, making the sample size of the present study potentially more troublesome with regard to lack of adequate power to detect such effects.

Upon considering numerous possible explanations for null findings in this study, it seems most likely that the combination of the small sample size and the lower than expected levels of childhood emotional abuse, guilt-proneness, and shame-proneness resulted in a lack of adequate power to detect possible effects. While theoretical support exists for the likely connections between these constructs, the lack of sufficient variability in the observed values of these constructs and the small sample size made these hypotheses challenging to test in the present study. A larger sample size recruiting individuals with higher levels of childhood emotional abuse would lead to better likelihood that significant effects could be detected utilizing the methods as described in this study, if such effects truly exist.

Limitations and Future Directions

As previously discussed, this study was limited by a relatively small sample of college students. In addition to limitations regarding potentially insufficient power to detect effects,
utilizing a convenience sample of female students also substantially limits the generalizability of these results. Future studies investigating these constructs should aim to recruit larger samples of both men and women to gain a better understanding of how these constructs may be or may not be related within a broader sample of college-aged adults. Further, the cross-sectional nature of this study does not allow conclusions to be made regarding the directionality of these results. Prospective studies may shed light into how guilt-proneness and shame-proneness may impact the development and maintenance of symptoms of PTSD and depression following childhood emotional abuse. Further, the word lists utilized were not pilot tested in the target sample prior to implementation in this study, representing a limitation in confidence that the word lists elicited the expected associations with guilt and shame. Additionally, due to the constraints of the COVID-19 pandemic, this study was conducted entirely online. While utilizing an entirely online recruitment and participation method for this study may have allowed for participants to conveniently complete the study in their own homes and on their own time, there are notable downsides to collecting data in this way. As previously discussed, the use of an online, web-based platform for behavioral data collection introduces more variability in response time recording for the present study than would be seen in a lab-based experimental design. Further, given that the experimenter was not observing participants during data collection, it is unknown whether participants may have been distracted while completing the experimental tasks, which may be of particular concern for a timed task such as the IAT. Future research may benefit from conducting the cognitive tasks in a more controlled laboratory setting to mitigate some of these challenges. The results of the present study supported a growing literature that suggests emotional abuse in childhood is no less significant than other forms of abuse and maltreatment in predicting symptoms of psychopathology and should be an area of focus for future research and
clinical work. Further research is needed to determine the extent to which shame-proneness and possibly guilt-proneness may act as important targets for prevention or intervention in reducing negative outcomes following childhood emotional abuse.
REFERENCES


APPENDIX A

DEMOGRAPHICS QUESTIONNAIRE
Demographics Questionnaire

1. What is your gender?
   a. Male
   b. Female
   c. Transgender male
   d. Transgender female
   e. Nonbinary
   f. Other (please specify): __________________
   g. Prefer not to respond

2. What is your sex assigned at birth?
   a. Male
   b. Female
   c. Other (please specify): _________________
   d. Prefer not to respond

3. What is your race?
   a. American Indian or Alaskan Native
   b. Asian or South-Asian
   c. Native Hawaiian or Pacific Islander
   d. Black/African American
   e. White/Caucasian
   f. Other (please specify): _________________
   g. Prefer not to respond

4. What is your ethnicity?
   a. Hispanic/Latino
   b. Non-Hispanic/Latino
   c. Prefer not to respond

5. What is your age? _____________

6. How many years of education have you completed? ___________ Years of education

7. What year in school are you now?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Graduate
   f. Other (please specify): __________________
   g. Prefer not to respond

8. What is the highest level of education completed by your mother?
9. What is the highest level of education completed by your father?
   a. Some high school
   b. High school diploma/GED
   c. Some college
   d. College degree
   e. Some graduate work
   f. Graduate/Doctorate degree
   g. Don’t know
   h. Prefer not to respond

10. What is your sexual orientation?
    a. Heterosexual/straight
    b. Bisexual/pansexual
    c. Gay/Lesbian
    d. Something else (please specify): __________________
    e. Unsure
    f. Prefer not to respond

11. What is your current relationship status?
    a. Married
    b. Engaged
    c. Living with someone
    d. Dating someone seriously
    e. Dating someone casually
    f. Not involved in a relationship
    g. Separated
    h. Divorced
    i. Widowed
    j. Other (please specify): __________________
    k. Prefer not to respond

12. Are you currently working?
    a. Yes, employed full-time
    b. Yes, employed part-time
    c. No
    d. Prefer not to respond
APPENDIX B

CHILDHOOD TRAUMA QUESTIONNAIRE SHORT FORM
Childhood Trauma Questionnaire Short Form (CTQ – SF; Bernstein et al., 2003)

Directions: These questions ask about some of your experiences growing up as a child and a teenager. For each question, circle the number that best describes how you feel. Although some of these questions are of a personal nature, please try to answer as honestly as you can. Your answers will be kept confidential.

When I was growing up…

1. I didn’t have enough to eat
2. I knew that there was someone to take care of me and protect me.
3. People in my family called me things like “stupid,” “lazy,” or “ugly.”
4. My parents were too drunk or high to take care of the family.
5. There was someone in my family who helped me feel important or special.

6. I had to wear dirty clothes.
7. I felt loved.
8. I thought that my parents wished I had never been born.
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.
10. There was nothing I wanted to change about my family.

11. People in my family hit me so hard that it left me with bruises or marks.
12. I was punished with a belt, a board, a cord (or some other hard object).
13. People in my family looked out for each other.
14. People in my family said hurtful or insulting things to me.
15. I believe that I was physically abused.

Variability of response: Never True, Rarely True, Sometimes True, Often True, Very Often True.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Never True</th>
<th>Rarely True</th>
<th>Sometimes True</th>
<th>Often True</th>
<th>Very Often True</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. I had the perfect childhood.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. I got hit or beaten so badly that it was noticed by someone like a</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>teacher, neighbor, or doctor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Someone in my family hated me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. People in my family felt close to each other.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. Someone tried to touch me in a sexual way or tried to make me touch</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>When I was growing up...</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Someone threatened to hurt me or tell lies about me unless I did</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>something sexual with them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I had the best family in the world.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23. Someone tried to make me do sexual things or watch sexual things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>24. Someone molested me (took advantage of me sexually).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>25. I believe that I was emotionally abused.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><strong>When I was growing up...</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. There was someone to take me to the doctor if I needed it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>27. I believe that I was sexually abused.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>28. My family was a source of strength and support.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
APPENDIX C

DEPRESSION ANXIETY STRESS SCALE-21
Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995b)

Directions: Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
- 0  Did not apply to me at all
- 1  Applied to me to some degree, or some of the time
- 2  Applied to me a considerable degree or a good part of the time
- 3  Applied to me very much or most of the time

<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I found it hard to wind down</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I was aware of dryness of my mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I couldn’t seem to experience any positive feeling at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I experienced breathing difficulty (e.g., excessively rapid breathing,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>breathlessness in the absence of physical exertion)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I found it difficult to work up the initiative to do things</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I tended to over-react to situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I experienced trembling (e.g., in the hands)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I felt that I was using a lot of nervous energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I was worried about situations in which I might panic and make a fool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of myself.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I felt that I had nothing to look forward to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I found myself getting agitated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I found it difficult to relax</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I felt down-hearted and blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I was intolerant of anything that kept me from getting on with what I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>was doing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I felt I was close to panic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I was unable to become enthusiastic about anything</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I felt I wasn’t worth much as a person</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I felt that I was rather touchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I was aware of the action of my heart in the absence of physical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>exertion (e.g., sense of heart rate increase, heart missing a beat)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I felt scared without any good reason</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>I felt that life was meaningless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013)

Directions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

<table>
<thead>
<tr>
<th>In the past month, how much were you bothered by:</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately a bit</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Repeated, disturbing, and unwanted memories of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Repeated, disturbing dreams of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Feeling very upset when something reminded you of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Avoiding memories, thoughts, or feelings related to the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Trouble remembering important parts of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>In the past month, how much were you bothered by:</td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------</td>
<td>-------------</td>
<td>------------</td>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>10. Having strong negative feelings such as fear, horror, anger, guilt, or shame?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Loss of interest in activities you used to enjoy?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Feeling distant or cut off from other people?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. Irritable behavior, angry outbursts, or acting aggressively?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. Taking too many risks or doing things that could cause you harm?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Being “superalert” or watchful or on guard?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. Feeling jumpy or easily startled?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. Having difficulty concentrating?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. Trouble falling or staying asleep?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>