WHAT HAPPENS IN CHILDHOOD, DOES NOT STAY IN CHILDHOOD: EXPLORING THE RELATIONSHIP BETWEEN ATTACHMENT, CHILDHOOD ADVERSITY, AND POSTTRAUMATIC STRESS

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Abstract

What Happens in Childhood, Does Not Stay in Childhood: Exploring the Relationship Between Attachment, Childhood Adversity, and Posttraumatic Stress

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Researchers have found associations between attachment, childhood adversity, and posttraumatic stress symptoms; however, the underlying mechanisms between these variables remains unknown. The present study explored the moderating effects of childhood adversity on the relationship between adult attachment and posttraumatic stress symptoms in two samples. In total, 533 undergraduate students and 357 individuals recruited from online communities completed measures of childhood adversity, adult attachment, and posttraumatic stress symptoms. Hierarchical regression analyses were used to test the moderating effect on childhood adversity. One-way ANOVA post hoc analyses were run to assess mean differences of attachment and posttraumatic stress across five childhood adversity groups. The results suggested that attachment and childhood adversity do predict posttraumatic stress symptoms; however, there was no significant moderating effect of adversity found. The post hoc analyses revealed significant mean differences for secure attachment, avoidant attachment, and posttraumatic stress symptoms. The findings suggest that attachment and childhood adversity are significantly associated with posttraumatic stress symptoms.

Key words: adult attachment, childhood adversity, posttraumatic stress symptoms, trauma

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Introduction

Many of us will experience trauma in our lives; however, only 15% of us will experience any long-term and harmful effects from the traumatic event (Canadian Mental Health Association, 2020). One outcome of trauma is the development of posttraumatic stress symptoms. Over the last three decades, researchers have explored factors that may predispose individuals to posttraumatic stress symptoms; however, the underlying mechanisms remain unknown. Attachment and childhood adversity are two factors that have been associated with posttraumatic stress symptoms in adulthood (Gerhardt, 2015). Both factors influence how individuals respond to traumatic events and may explain why some are at risk of developing posttraumatic stress symptoms. To my knowledge, this study will be the first to explore the role of childhood adversity on the relationship between attachment and posttraumatic stress symptoms in adulthood.

Attachment Theory

Bowlby (1980) proposed that humans have an innate tendency to form attachment relationships with others. Further, Bowlby (1988) argued that our attachment behavioural system becomes activated when we feel stressed or threatened and promotes survival by keeping infants and children close to their caregivers for protection. The goal of attachment behaviours, such as crying and clinging, is to reach or stay in proximity of attachment figures (Bowlby, 1977). Bowlby (1973) proposed that attachment behaviours occur in response to both internal cues (e.g., fatigue or illness) and external cues (e.g., situations that cause fear such as parental separation). How our attachment figures respond to our attachment behaviours influence how we think of ourselves and others (Bowlby, 1980). Bowlby (1980) labelled these expectations as ‘internal working models’

of the self and other. For example, he claimed that children whose attachment figures are sensitive and responsive believe they are lovable and worthy of care (model of the self) and expect others to be available and supportive (model of the other). In contrast, he argued that children whose attachment figures are insensitive and unresponsive may believe they are unlovable (model of the self), and others are untrustworthy and rejecting (model of the other). Bowlby (1969/1982) claimed that these models persist into adulthood and influence how we respond to stress throughout life.

Bartholomew (1990) operationalized the models of the self and other and created the four-category model of adult attachment. The models of the self and other are dichotomized along positive and negative dimensions. The model of the self is characterized by the degree of anxiety within relationships. Individuals with positive self-models experience low anxiety as they believe they are worthy of love and care and thus expect love and care from others. Conversely, individuals with negative self-models experience high anxiety in the form of thoughts of abandonment. The other-model is defined by the degree of approach or avoidance within relationships. Individuals with a positive other-model approach others for support as they have learned that others are trustworthy and supportive. In contrast, individuals with a negative other-model tend to avoid seeking support from others to prevent potential rejection and disappointment.

The dimensions of the self and the other yield four attachment styles – secure, preoccupied, fearful, and dismissing (see Figure 1). A secure attachment is defined by the view that the self is lovable (positive model of the self), and others are supportive (positive model of others). Secure individuals value dependency and autonomy within their relationships with others (Bartholomew & Horowitz, 1991). In contrast, fearful

attachment is defined by views that the self is unlovable (negative model of the self), and others are rejecting (negative model of the other). As a result, fearful individuals tend to avoid closeness in their relationships to prevent rejection (Bartholomew & Horowitz, 1991). Similarly, preoccupied attachment is also defined by a sense of self unlovability (negative model of the self); however, preoccupied individuals have a positive view of others (positive model of others). Thus, preoccupied individuals depend on others' acceptance for their self-worth (Bartholomew & Horowitz, 1991). Lastly, dismissing attachment is characterized by a view that the self is lovable (positive model of the self), and others are untrustworthy (negative model of others). As a result, dismissing individuals deny the importance of relationships and maintain independence when stressed (Bartholomew & Horowitz, 1991).

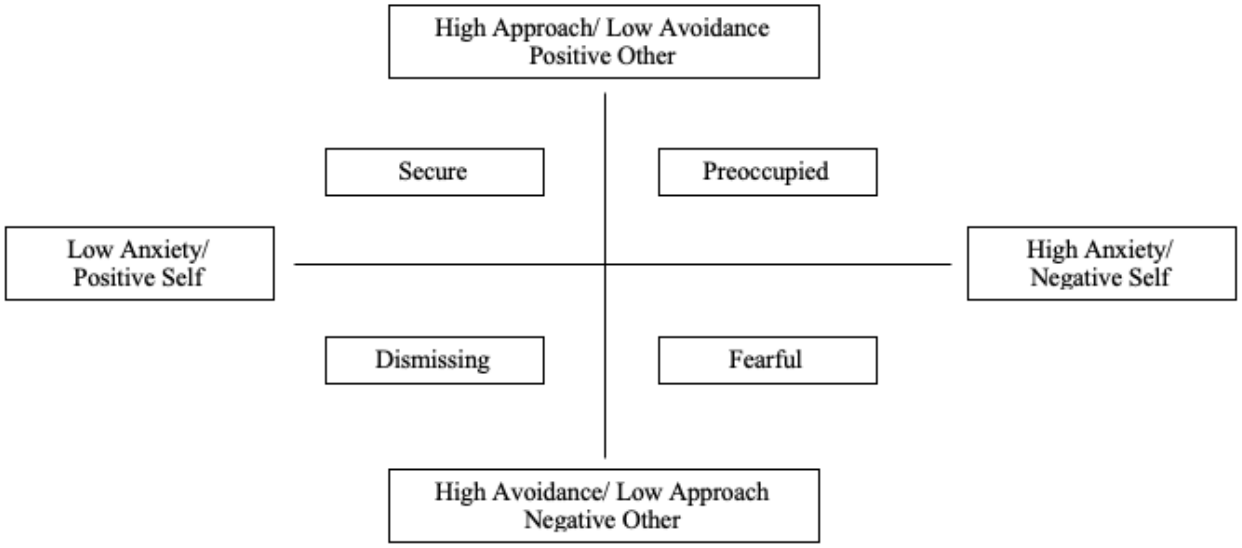

Figure 1. Four-Category Model of Adult Attachment (Bartholomew, 1990).

Adult Attachment and Childhood Adversity

Bowlby (1980) argued that adverse experiences, such as the absence from or death of an attachment figure, cause distress in infants and children. Attachment and

adversity are strongly associated. To explain, adversity disrupts how safe and secure we feel which activates our attachment behavioural system. Bowlby (1976) observed common symptoms among young children who were separated from their mothers. He found that the children demonstrated both yearning and searching for their mothers, experiences of sadness, increased protest and anger at their absence, increased anxiety upon reunifying with their mothers, and increased fear of future separation. Because children and infants rely on their attachment figures for comfort and protection, it is understandable why adversity, especially in the form of separation, may cause distress.

How attachment figures respond to children's distress contributes to the development of their internal working models (Bowlby, 1988). Bowlby (1969/1982) claimed that attachment figures who are sensitive and responsive help children feel safe and secure. As a result, the child is likely to feel worthy of love and care and expect others to be trustworthy, which are key in the development of secure working models. In contrast, Bowlby (1988) argued that attachment figures who neglect or reject their children's attachment needs may promote the development of negative working models. Children rely on attachment figures to be sensitive and responsive to their attachment needs; so, without the support and protection of attachment figures, children will remain distressed. The lack of support may promote beliefs in children that they are unlovable and that others are not trustworthy, which are key in developing an insecure attachment.

Researchers have argued that childhood abuse and maltreatment are strongly associated with insecure attachment in adulthood (e.g., Baer & Martinez, 2006; Carlson et al., 1998; van IJzendoorn & Bakermans-Kranenburg, 2009). Perlman et al. (2016) explored the role of attachment on the relationship between childhood abuse and adult

coping strategies. They found that physical, emotional, and sexual abuse in childhood were associated with avoidant attachment in adulthood. They argued that adults exposed to these types of childhood abuse may not have learned to trust others and thus have experienced difficulties in their relationships. As a result, this lack of trust may have promoted avoidant attachment in adulthood (Perlman et al., 2016). In contrast, Perlman et al. (2016) found that emotional abuse in childhood was associated with adult attachment anxiety. They argued that individuals who were victims of childhood emotional abuse were more likely to engage in behaviours such as clinginess and reassurance-seeking growing up. These two behaviours are common responses of individuals with high levels of attachment anxiety.

Researchers have explored why childhood adversities are likely to disrupt the formation of a secure attachment. Baer and Martinez (2006) have found evidence to support that maltreatment in childhood can negatively affect the development of children's internal working models. To explain, children relied on their attachment figures' support during times of threat; therefore, a threatening situation provoked by a child's caregiver combined with a lack of support may prevent the development of a secure attachment (Bryant et al., 2017; Cristobal et al., 2017). Similarly, Cyr et al. (2010) claimed that early adversity and the lack of supportive caregiving may conflict with children's sense of safety and security which are required for secure attachment. Furthermore, these children would have remained in distress because their attachment needs were not being met. In summary, children whose attachment needs were neglected during adverse experiences were more likely to develop insecure attachment in adulthood (Perlman et al., 2016).

Childhood Adversity and Posttraumatic Stress Symptoms

Throughout his work, Bowlby (1988) discussed the effects of early adversity on adult mental health. For example, Bowlby (1980) found that the death of a parent in childhood leads to extreme emotional distress and suicidal ideation in adulthood. First, drawing on the findings from Brown and Harris' (1978) study, Bowlby (1988) argued that early adverse experiences make individuals more vulnerable to later adverse experiences. Brown and Harris (1978) found that depressed women were more likely to have experienced a severe adverse event, lacked someone to confide in, and were living in inadequate conditions in comparison to non-depressed women. They argued that an accumulation of these experiences gave rise to each of the women's depressive symptoms. Second, Bowlby (1988) argued that individuals who have been exposed to early adversity are at a greater risk to encounter later adversities. He explained that early adversity affects the developing personality and thereby affects individuals' later actions. To illustrate, he reported that children raised in unstable homes are more likely to become teenage mothers, have poor marriages, and divorce. Overall, his work highlighted the negative effects of early adversity on mental health in adulthood.

Researchers have confirmed that an accumulation of adverse experiences in childhood has profound and damaging long-term effects on mental health in adulthood (e.g., Felitti et al., 1998; Heim & Nemeroff, 2001; Herzog & Schmahl, 2018; Goodman et al., 2010; Kalmakis et al., 2020; Mersky et al., 2018; Pietromonaco & Powers, 2015). The Adverse Childhood Experiences (ACE) Study by Felitti et al. (1998) revealed a dose-

response relationship between childhood adversity and adult mental and physical health[1]. Researchers have since explored the relationship between ACE and posttraumatic stress symptoms. Schalinski et al. (2016) found an association between four or more ACE and greater posttraumatic stress symptom severity in adulthood. Heim and Nemeroff (2001) postulated that individuals who have experienced more childhood adversity may be more vulnerable to the effects of stress. This vulnerability may have predisposed individuals to later posttraumatic stress symptoms following trauma.

Adult Attachment and Adult Posttraumatic Stress Symptoms

Bowlby (1980) postulated that human responses to trauma may shed light on why some individuals are more vulnerable to posttraumatic stress symptoms. To explain this relationship, we must consider the internal working models that individuals hold of themselves and others. Bowlby (1969/1982) argued that our internal working models influence how humans appraise situations throughout their lives. In other words, these models guide how we interpret and react to both benign and traumatic events. Individuals with positive models of the self and other are confident in their own abilities and trust that others will be supportive if they need help (Bowlby, 1969/1982). As a result, they tend to perceive events as less threatening and use more adaptive coping strategies (e.g., seeking support) when stressed. Overall, a secure attachment may protect individuals against the effects of trauma and prevent posttraumatic stress symptoms.

Conversely, insecure individuals may be at risk of posttraumatic stress symptoms because of their negative views of themselves and others. These negative views cause

[1] Felitti et al. (1998) reported a dose-response relationship between childhood adversity and health in adulthood. Specifically, they found that exposure to 4+ adverse events was associated with poor mental and physical health. Research has since demonstrated that the cut-off of 4+ adverse events is productive when exploring the development of posttraumatic stress symptoms (Schalinski et al., 2016).

individuals to both interpret and respond to events in ways that are adaptive for them but are not helpful in reducing overall distress (Maunder & Hunter, 2015). Bowlby (1969/1982) argued that anxious individuals are more likely to perceive events as threatening which may explain why they are at a greater risk of developing posttraumatic stress symptoms. On the other hand, Bowlby (1969/1982) claimed that attachment avoidance is associated with the suppression of emotions during stress. However, it is important to note that although avoidant individuals appear to be calm, they do experience high levels of physiological distress (Bowlby, 1969/1982; 1988). These responses may explain why individuals with insecure attachments are more likely to develop posttraumatic stress symptoms.

In line with Bowlby's original work, researchers have also reported that attachment orientations influence how individuals respond to trauma (e.g., Barazzone et al., 2019; Mikulincer et al., 2015; Ogle et al., 2014; Perlman et al., 2016; Tian et al., 2020; Woodhouse et al., 2015). As expected, secure attachment has been associated with fewer posttraumatic stress symptoms. This association can be explained by previous research findings that have reported that secure individuals are less likely to appraise events as stressful (e.g., Ogle et al., 2014) and more likely to use effective coping strategies such as seeking support from an attachment figure when stressed (e.g., Pietromonaco & Powers, 2015). In conclusion, secure attachment may be protective against posttraumatic stress symptoms because of the ability to draw upon internal and external sources of support during trauma (Barazzone et al., 2019; Mikulincer et al., 2015).

In attempt to feel secure, insecure individuals tend to use coping strategies that leave them prone to distress and less quick to recover from the effects of trauma (Marshall & Frazier, 2019; Maunder & Hunter, 2015). Researchers have found that anxious individuals use hyperactive coping strategies; they are more likely to perceive events as stressful and express heightened negative emotions (e.g., Barazzone et al., 2019; Ogle et al., 2014; Pietromonaco & Powers, 2015). In addition, Marshall and Frazier (2019) reported that anxious individuals tend to inflate the severity of their trauma, their distress, and their inability to cope. Consequently, anxious individuals experience heightened distress for a longer period after trauma which may make them more vulnerable to posttraumatic stress symptoms.

Similarly, researchers have found that avoidant attachment is associated with the use of deactivating coping strategies in response to trauma (e.g., Ogle et al., 2014; Pietromonaco & Powers, 2015; Woodhouse et al., 2015). As a result, avoidant individuals tend to suppress negative emotions and be inattentive to threatening information (Barazzone et al., 2019; Goodman et al., 2010; Marshall & Frazier, 2019; Ogle et al., 2014). Maunder and Hunter (2015) explained that avoidant individuals tend to hide their emotions when distressed because they have learned not to express emotions to their attachment figures. Researchers have confirmed that although avoidant individuals appear to be calm, their physiological responses indicate a heightened stress response (e.g., Maunder & Hunter, 2015; Pietromonaco & Powers, 2015). Because avoidant individuals do not seek support and are unable to promote feelings of security within themselves, they may be more vulnerable to posttraumatic stress symptoms (Barazonne et al., 2019; Mikulincer et al., 2006).

Attachment, Adversity, and Posttraumatic Stress Symptoms

Attachment theory may offer a unique perspective on why individuals develop posttraumatic stress symptoms following trauma. Bowlby (1973) claimed that the degree to which individuals respond to situations with fear depends on the presence of their attachment figures. He argued that that we are less afraid in situations when we are close to our attachment figures and are more afraid in situations when we are alone. In fact, he claimed that the most frightening situation is separation from attachment figures which includes events such as death, illness, and abandonment. These adverse experiences have two effects on our fear. First, Bowlby (1988) argued these separations may increase individuals' fears of future abandonment. Second, he claimed that individuals who have experienced separation from their attachment figures are likely to respond to other situations with fear as well. Separations of any kind may convince individuals that they will not have adequate support when they need it. So, when a stressful situation occurs and our attachment system becomes activated, we may experience heightened levels of fear because of previous instances when we were separated from our attachment figures. Overall, heightened levels of fear may affect how individuals respond to trauma which may make them more vulnerable to posttraumatic stress symptoms.

In addition, adverse experiences in childhood may influence the association between attachment and posttraumatic stress symptoms. To explain this relationship, Bowlby (1988) argued that multiple adverse experiences can shift one's attachment from secure to insecure. Researchers have since explored the effects of trauma and have confirmed that multiple traumas may erode one's sense of security (e.g., Barazzone et al., 2019; Mikulincer et al., 2015). For example, adverse experiences may conflict with

individuals' beliefs about the world being safe and may thus challenge their views of others (Barazzone et al., 2019; Goodman et al., 2010). Such experiences may also conflict with the views that individuals have of themselves and their abilities. Therefore, individuals with more adverse experiences may be more likely to have an insecure attachment. This vulnerability may be detrimental as attachment security has been found to be protective against posttraumatic stress symptoms (Barazzone et al., 2019; Mikulincer et al., 2015).

Research by Mikulincer et al. (2015) has supported the link between trauma, attachment, and posttraumatic stress symptoms. For example, they studied attachment and posttraumatic stress disorder (PTSD) in a sample of imprisoned and non-imprisoned veterans over 30 years. In this study, they measured the participants' PTSD severity by the frequency of re-experiencing their trauma. They found that PTSD severity at Time 1 predicted increases in attachment insecurity. In other words, the veterans who re-experienced their trauma more often had higher levels of insecure attachment. Thus, multiple traumas, or in this case re-experiencing the same trauma, may erode attachment security over time. These findings suggested that adversity may influence the relationship between attachment and posttraumatic stress symptoms.

In summary, researchers have found that childhood adversity is associated with both insecure attachment and posttraumatic stress symptoms. First, childhood adversity affects the internal working models' that individuals develop of themselves and others. Second, children may learn to use maladaptive coping strategies to resolve distress during experiences of adversity which could leave them more vulnerable to future adversity. Therefore, insecure individuals with more experiences of childhood adversity may be at

the greatest risk of posttraumatic stress symptoms. This research intends to shed light on the effects of childhood adversity on the relationship between attachment and posttraumatic stress symptoms in adulthood. Furthermore, the findings of this study may add to the research on the risk factors that are associated with posttraumatic stress symptoms.

The Present Study

The present study tested whether childhood adversity influenced the relationship between attachment and posttraumatic stress symptoms in adulthood. This study expanded on previous literature by exploring why some individuals are more vulnerable to developing posttraumatic stress symptoms while others remain resilient. Researchers have suggested that attachment orientation (e.g., Bowlby, 1982; Perlman et al., 2016; Tian et al., 2020) and history of childhood adversity (e.g., Martin et al., 2013; Mersky et al., 2018; Schalinski et al., 2016) are two factors that may influence how individuals respond to traumatic events. Individuals who report fewer adverse events in childhood are likely to report higher attachment security and lower posttraumatic stress symptoms in adulthood (Barazzone et al., 2019; Ogle et al., 2014; Tian et al., 2020; Woodhouse et al., 2015). Secure individuals tend to use more effective emotional coping skills after trauma because they believe that they are competent in solving problems on their own but also have access to reliable and supportive attachment figures when necessary (Barazzone et al., 2019; Tian et al., 2020). Conversely, individuals who report more adverse events in childhood are likely to report insecure attachment orientations (Ogle et al., 2014; Perlman et al., 2016) and greater posttraumatic stress symptoms in adulthood (Mikulincer et al., 2015; Ogle et al., 2014; Woodhouse et al., 2015). This relationship can be explained by

the maladaptive emotional coping strategies that insecure individuals tend to use following trauma due to their poor sense of self-competency and lack of perceived and actual support from attachment figures (Choi & Kangas, 2020; Perlman et al., 2016). From a theoretical and practical standpoint, adult attachment and childhood adversity may interact to determine how individuals respond to stress. Adverse conditions may contribute to the formation of attachment bonds, wherein more adversity may be associated with an insecure attachment and a heightened risk of posttraumatic stress symptoms. The present study expanded on previous literature to evaluate how reports of adult attachment and childhood adversity interact to contribute to posttraumatic stress symptoms in adulthood.

Hypotheses

To evaluate the proposed moderation model (see Figure 2), I tested three hypotheses that follow the steps of a moderator analysis. The hypotheses were as follows:

1. The first step of the moderator regression will include both the predictor variable and the moderator variable. For the predictor variable, I expected that attachment security will be negatively associated with posttraumatic stress symptoms, while attachment insecurity (fearful, preoccupied, and dismissing) will be positively associated with posttraumatic stress symptoms. For the moderator variable, I expected that levels of posttraumatic stress symptoms will differ depending on the frequency of exposure to adverse childhood experiences (ACE). Specifically, exposure to more ACE (e.g., 4+ events) will be associated with higher posttraumatic stress symptoms.

2. The second step of the moderator regression will include the interaction. I expected the interaction term (attachment X adverse childhood experiences) to predict greater variance of posttraumatic stress symptoms. In other words, the association between adult attachment and posttraumatic stress symptoms will be different depending on greater or fewer experiences of childhood adversity.

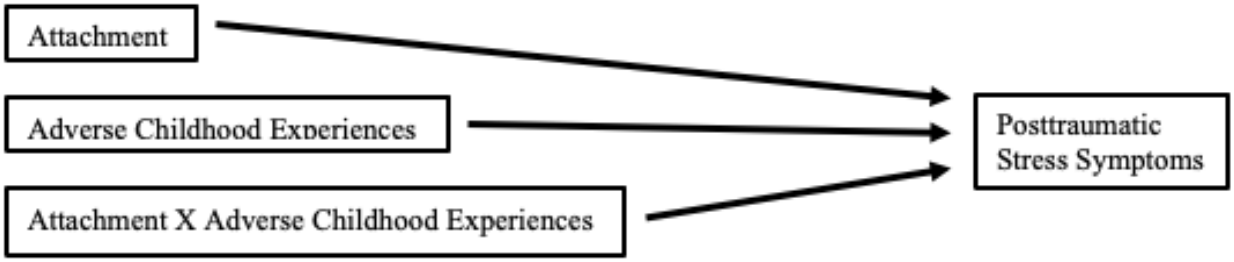

Figure 2. Adverse Childhood Experiences (ACE) as a Moderator of the Relationship Between Adult Attachment and Posttraumatic Stress Symptoms

Study 1

Method

Data Screening

In total, 867 undergraduate students started the survey; however, only 533 participants' data were coded as complete and included in the final analyses (see Figure 3 for a visual representation of the data screening process). The following steps were taken to determine the final student sample. The first step was to remove participants who did not report any experiences of trauma. In total, 739 participants reported a traumatic experience and had their data reviewed in the next step. Conversely, 128 participants who did not report traumatic experiences were removed from this study. The next step was to ensure that participants completed at least 70% of the items in each survey. In total, 670 participants completed all the questionnaires and were included in the following step.

Only 69 participants' data were removed because they did not complete one or more of the questionnaires (i.e., 21 participants did not complete the attachment to mother questionnaire, 40 participants did not complete attachment to father questionnaire, and eight participants did not complete the posttraumatic stress symptoms questionnaire). The last step was to review participants' responses to three questions to check for the quality of the reported data by identifying participants who were either not reading the questions carefully or not responding honestly. The first question asked participants to "pick 5" as their response: in total, 641 participants did "pick 5" and 29 participants did not; data from the 29 were excluded from the final analyses. The second question asked participants to rate the extent they agreed that they were abducted by aliens while completing the survey: 548 participants chose "disagree strongly" while 93 participants did not "disagree strongly" and were removed from the final analyses. Finally, 533 participants reported that they paid attention while completing the survey and would like to have their data included in the final analyses, two participants did not answer this question, one participant reported that he or she did not read the questions carefully, and 12 participants did not want their data analyzed. See Appendix G for the wording of these three questions.

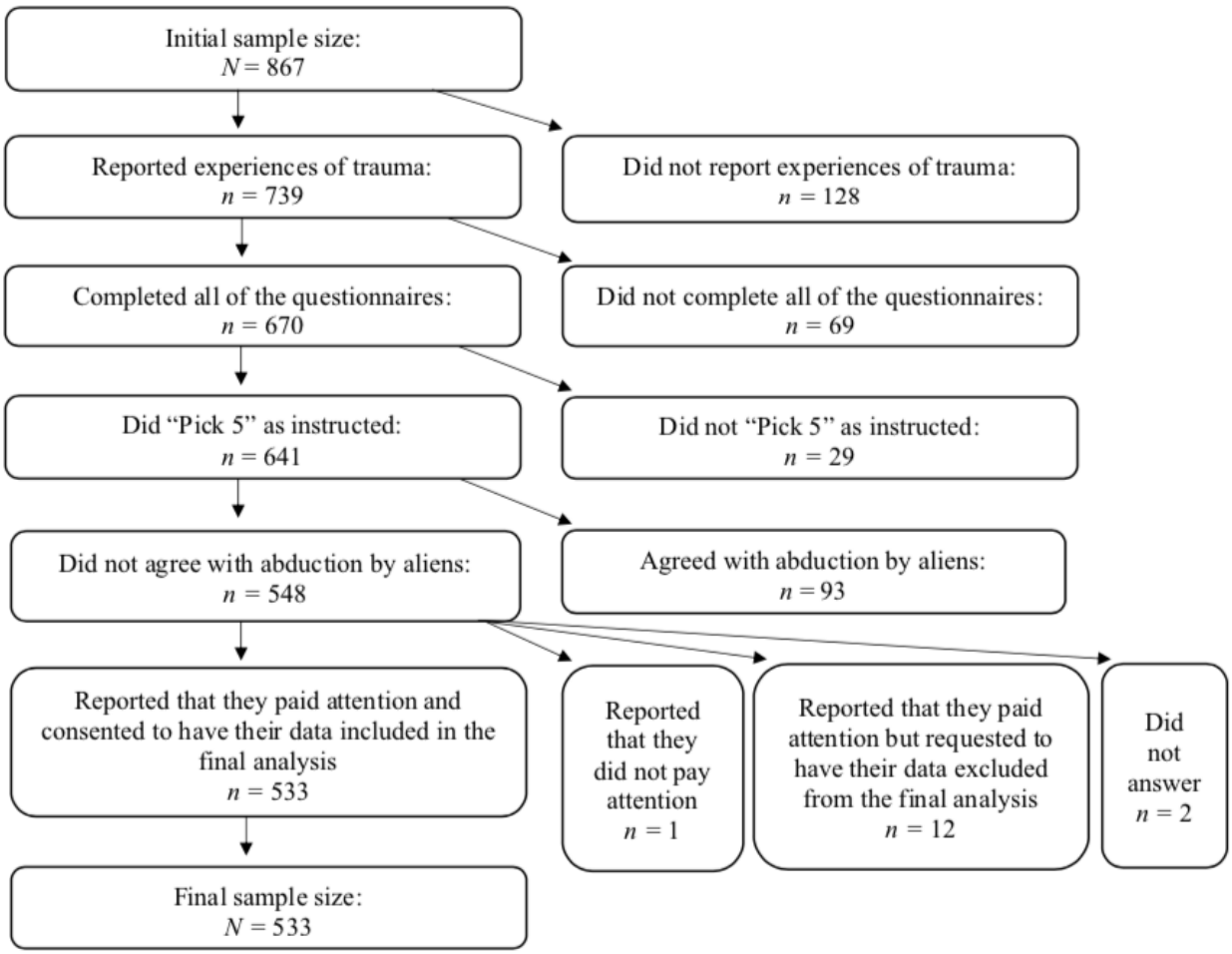

Figure 3. Data Screening Decision Tree for the Student Sample

Next, I compared the participants who were included in the final analyses (n = 533) with the participants who were removed (n = 334) to test for significant differences between the two groups. I ran independent t-tests for the continuous variables (e.g., age, attachment to mother and father, ACE, and posttraumatic stress symptoms) and chi-square tests of independence for the categorical variables (e.g., gender, ethnicity, relationship status, year of education, sexual orientation, and ACE group). The t-tests revealed that participants who were included in the final analyses were younger (M = 20.47, SD = 4.38) than the participants who were excluded from the analyses (M = 21.33,

SD = 6.05, $t(865) = 2.43$, $p = .015$). In addition, chi-square analyses revealed significant differences between the two groups for both gender and ethnicity. Based on the demographics, the participants who were more likely to be included in the final analyses were female ($\chi^2 = 9.905$, $p = .002$, overall data from 64% of females and 49% of males were used and 36% of females and 51% of males were not used) and reported an ethnicity other than Caucasian ($\chi^2 = 18.266$, $p < .001$, overall data from 53% of non-Caucasian participants and 67% of Caucasian participants were used and 48% of non-Caucasian participants and 33% of Caucasian participants were not used).

Participants

The final student sample consisted of 533 undergraduate students registered in first- and second-year Psychology courses at Trent University (Introduction to Psychology and Basic Research Methods and Statistics in Psychology, respectively). The sample represented a typical university population: majority of the participants identified as female (*n* = 458, 86%), reported their ethnicity as Caucasian (*n* = 362, 68%), identified as heterosexual (*n* = 431, 81%), were in relationships (*n* = 298, 56%), and were enrolled in their first year of undergraduate studies (*n* = 338, 63%). The participants' ages ranged between 16 and 48 years of age (*M* = 20.47, *SD* = 4.38).

Procedure

The student sample was recruited to participate in this study via the online Participant Research System (SONA) at Trent University. All participants were required to complete online consent forms (see Appendix A) to participate in this study. Participants were informed that their participation in the study would be anonymous, and they could terminate the study at any point without a penalty. To compensate for their

participation, participants earned a 1% bonus credit in their first- or second-year psychology course. Participants completed a one-hour long survey that consisted of various scales which were used in four separate studies. From that survey, I used the demographics and questionnaires relevant to my thesis in the final analyses. These questionnaires included the Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016), the Adverse Childhood Experiences Questionnaire (ACE; Felitti et al., 1998), the Life Events Checklist (LEC; Weathers et al., 2013) and the PTSD Checklist – Civilian Version (PCL-C; Weathers et al., 1993).

Measures

Demographic Questionnaire (see Appendix B). Participants completed a demographic questionnaire at the beginning of the survey to gather information regarding their age, gender, year of study, ethnicity, sexual orientation, relationship status, and employment status.

Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016; see Appendix C). The T-RSQ is expanded from the original RSQ (Griffin & Bartholomew, 1994) and assessed Bartholomew's (1990) four category model of attachment. Participants rated 40 statements regarding their relationship with their mother and father on a 7-item scale ranging from *1 = not at all like me* to *7 = very much like me*. Each scale has 10 items and the average was used to measure each of the four attachment styles: secure (e.g., *I find it easy to get emotionally close to others*), fearful (e.g., *I am somewhat uncomfortable being close to others*), preoccupied (e.g., *I find that others are reluctant to get as close as I would like*), and dismissing (e.g., *it is very important to me to feel*

independent from others). Consistent with Scharfe (2016), the alphas in the present study ranged from α = .46 to .88 (see Table 1).

Adverse Childhood Experiences Questionnaire (ACE; Felitti et al., 1998; see Appendix D). The ACE questionnaire is a 10-item self-report survey which assessed participants' exposure to various childhood adversities prior to the age of 18. Of the ten items, five pertain to child maltreatment (e.g., physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect) while the other five represent exposure to different forms of household dysfunctions (e.g., substance abuse, mental illness, domestic violence, crime, and divorce/separation). Participants answered yes or no to each of the ten questions. The total sum of items was calculated to determine participants' ACE score, with higher scores indicating greater exposure to childhood adversity. To illustrate the dose-response relationship between childhood adversity and adult health, Felitti et al. (1998) assigned participants to five categories of exposure based on their cumulative ACE score. Similarly in the present study, participants were also divided into five groups based on their ACE score: zero (n = 173; 33%), one (n = 113; 21%), two (n = 109; 20%), three (n = 51; 10%), and four or more (n = 87; 16%). Participants with four or more ACE were assigned to group 'four' (4+ ACE) as researchers have found that individuals who report four or more ACE have higher health risks (e.g., Felitti et al., 1998; Schalinski et al., 2016). The ACE demonstrated high reliability in the present study (see Table 1).

Table 1

Table of Means, Standard Deviations, and Reliability Scores for the T-RSQ; ACE; and the PCL-C for the Student Sample

	M	*SD*	*Range*	*α*
Attachment to Mother				
Secure	4.71	1.10	1.80-7.00	0.77
Fearful	2.75	1.27	1.00-6.56	0.85
Preoccupied	3.37	0.78	1.30-5.80	0.46
Dismissing	3.54	1.24	1.00-7.00	0.84
Attachment to Father				
Secure	4.09	1.20	1.40-7.00	0.79
Fearful	2.98	1.38	1.00-7.00	0.85
Preoccupied	3.11	0.84	1.00-7.00	0.47
Dismissing	3.87	1.45	1.00-7.00	0.88
ACE	1.69	1.74	0.00-8.00	0.83
PCL-C	2.41	1.00	1.00-4.94	0.95

Note. N = 533. ACE = Adverse Childhood Experiences; PCL-C = PTSD Checklist-Civilian.

The Life Events Checklist (LEC; Weathers et al., 2013; see Appendix E). The LEC is a 17-item questionnaire that assessed individuals' exposure to difficult or stressful experiences within their lives[2]. The LEC questionnaire includes a list of stressful events and individuals are asked to report if they have experienced the event (e.g., whether they experienced it personally, they witnessed it happen to someone else, they learned about it happening to someone, or they were exposed to it as a part of their job). The instructions for the LEC were modified for the present study. In the present study, participants were provided with a definition of a traumatic event and examples of traumatic experiences. Participants were then asked to indicate whether they had experienced trauma in any of the four categories proposed in the LEC. In total, 374 participants reported trauma happened to them personally, 402 participants witnessed trauma happen to someone else, 495 participants learned about trauma happening to a close family member/ friend, and 98 participants were exposed to trauma as a part of their job. Importantly, all participants

[2] See page 12. All participants who had not experienced a traumatic event were removed from the data set.

reported at least one of the four trauma categories; in other words, 100% of the sample reported that they experienced at least one type of trauma (see Data Screening section, p. 16).

PTSD Checklist-Civilian (PCL-C; Weathers et al., 1993; see Appendix F). The PCL-C is a 17-item self-report questionnaire which measured the severity of posttraumatic stress symptoms. Participants rated how much they had been affected by a symptom on a 5-point Likert scale ranging from *1 = not at all* to *5 = extremely* as it described their responses to stressful experiences in the past month (e.g., *Repeated, disturbing memories, thoughts, or images of a stressful experience from the past*). The average was calculated to determine participants' severity of posttraumatic stress symptoms, where higher scores indicated greater severity. Consistent with Weathers et al. (1993), the PCL-C demonstrated high reliability in the present study (see Table 1).

Results

Moderation Analyses

The purpose of the present study was to evaluate whether exposure to adverse childhood experiences (ACE) moderated the relationship between adult attachment to mother and father and posttraumatic stress symptoms in adulthood. To evaluate the proposed moderation model, I followed Baron and Kenny's (1986) four-step approach of a moderation analysis. I ran two separate regressions to test for attachment to mother and attachment to father. The first step was to standardize the predictor variable (adult attachment) to assist the interpretation of any data plots if a significant moderation was indicated. After I standardized the predictor variable, I calculated product terms that represented the interaction between the predictor (attachment) and moderator (ACE)

variables. To calculate the product term, I multiplied the standardized predictor (adult attachment) and moderator variable (ACE) together. Once the product term was created, I ran hierarchical multiple regressions to test for moderator effects. In the first step of the regressions, I regressed posttraumatic stress symptoms (criterion) on adult attachment (predictor) and ACE (moderator) to test the associations between the criterion and both the predictor and moderator variables[3]. The results revealed that adult attachment to mother and ACE significantly predicted 24% of the total variance of posttraumatic stress symptom scores ($R^2 = 0.24$, $F(5, 527) = 33.308$). In particular, the contribution of preoccupied attachment (ß = 0.153), fearful attachment (ß = 0.327), and the ACE groups (ß = 0.253) were significant. In the second step of the analyses, I added the interaction terms to determine whether there was evidence to support moderation. The small change in R^2 ($R^2 = 0.004$) was not significant; therefore, the association between adult attachment to mother and posttraumatic stress symptoms in adulthood was not different based on varying levels of childhood adversity (see Table 2). In other words, contrary to my hypothesis, the association between adult attachment to mother and posttraumatic stress symptoms was not stronger for participants who had been exposed to more adverse childhood experiences.

Similarly, adult attachment to father and ACE significantly predicted 18% of the total variance of posttraumatic stress symptom scores in the second regression ($R^2 = .183$, $F(5, 527) = 23.623$). In particular, the contribution of fearful attachment (ß = 0.185) and ACE groups (ß = 0.270) were significant. In the second step of the analyses, I added the interaction terms to determine whether there was evidence to support moderation. The

[3] According to Baron and Kenny's (1986) four-step approach to moderation analyses, the predictor and moderator variable can be added together in the first step of the regression or added separately in Step 1 and Step 2.

small change in R^2 ($R^2 = 0.003$) was not significant; therefore, the association between adult attachment to father and posttraumatic stress symptoms in adulthood was not different based on varying levels of childhood adversity (see Table 2). In other words, contrary to my hypothesis, the association between adult attachment to father and posttraumatic stress symptoms was not stronger for participants who had been exposed to more adverse childhood experiences.

Table 2

ACE as a Moderator between Attachment and Posttraumatic Stress Symptoms for the Student Sample

	Attachment to mother			Attachment to father		
	ß	ΔR^2	*F*	ß	ΔR^2	*F*
Step 1		0.240	33.070**		0.183	23.623**
Secure	-0.011			-0.030		
Fearful	0.327**			0.185*		
Preoccupied	0.153**			0.083		
Dismissing	-0.013			0.051		
ACE	0.253**			0.270**		
Step 2[a]		0.004	0.739		0.003	0.486
Secure X ACE	-0.119			-0.051		
Fearful X ACE	-0.051			-0.012		
Preoccupied X ACE	-0.041			-0.035		
Dismissing X ACE	-0.055			0.036		

Note. $N = 533$. ACE = Adverse childhood experiences. [a] = In Step 2 of the regression analyses, I entered the interactions between the four attachment representations (secure, fearful, preoccupied, and dismissing) and the ACE group (ACE score = 0, 1, 2, 3, and 4+).
*p < 0.05. **p < 0.001

Post Hoc Analyses

Although the moderation effect was not significant, the regression results revealed that there were differences among the group means for the ACE groups. To further understand these differences, I calculated a one-way ANOVA post hoc analysis to assess mean differences for attachment to mother, attachment to father, and posttraumatic stress symptoms across the five ACE groups (0 ACE, 1 ACE, 2 ACE, 3 ACE, and 4+ ACE). The post hoc analyses revealed that, with the exception of preoccupied attachment, there

were statistically significant differences between each of the group means (see Table 3). Participants who reported no adverse childhood experiences (0 ACE) reported higher security, lower fearful, lower dismissing, and lower posttraumatic stress symptoms than participants who reported four or more adverse childhood experiences (4+ ACE). However, the tests of homogeneity of variances revealed significant variance issues for avoidant attachment (fearful and dismissing). In particular, the Levene's test indicated that the variances for fearful attachment to both mother ($F(4, 528) = 5.275$, $p < .001$) and father ($F(4, 528) = 5.984$, $p < .001$) were not equal across the five ACE groups. Specifically, groups 2 ACE, 3 ACE, and 4+ ACE had a large range of variance for fearful attachment to mother and group 3 ACE had a large range of variance for fearful attachment to father. Similarly, the Levene's test indicated that the variances for dismissing attachment to both mother ($F(4, 528) = 3.616$, $p = .006$) and father ($F(4, 528) = 4.925$, $p < .001$) were also not equal across the five ACE groups. Specifically, group 4+ ACE had a large range of variance for dismissing attachment to mother and group 3 ACE had a large range of variance for dismissing attachment to father. The variance issues may be due to the unequal sample sizes of the ACE groups. As displayed in Table 3, there were more participants who reported no adverse experiences (0 ACE: $n = 173$) in comparison to the participants who reported four or more adverse experiences (4+ ACE: $n = 87$).

Table 3

Post Hoc Analyses for the Significant Main Effect of Adversity for the Student Sample

	0 ACE (n = 173)	1 ACE (n = 113)	2 ACE (n = 109)	3 ACE (n = 51)	4+ ACE (n = 87)	F
Mother						
Secure	4.97[a]	4.81[a]	4.55[ab]	4.62[ab]	4.30[b]	6.604**
Fearful	2.34[a]	2.54[ab]	3.03[bc]	3.32[c]	3.15[c]	12.258**
Preoccupied	3.30[a]	3.39[a]	3.41[a]	3.48[a]	3.34[a]	0.686
Dismissing	3.16[a]	3.38[ab]	3.79[bc]	3.83[bc]	4.02[c]	10.374**
Father						
Secure	4.53[a]	4.26[ab]	3.77[bc]	3.88[bc]	3.50[c]	15.451**
Fearful	2.48[a]	2.73[a]	3.37[b]	3.52[b]	3.49[b]	15.119**
Preoccupied	3.15[a]	3.17[a]	3.06[a]	3.17[a]	2.98[a]	0.926
Dismissing	3.36[a]	3.68[ab]	4.25[bc]	4.33[c]	4.47[c]	15.532**
PCL-C	1.98[a]	2.31[ab]	2.64[bc]	2.77[c]	2.91[c]	18.949**

Note: N = 533. PCL-C = posttraumatic stress symptoms. The subscripts identify the homogenous subset that the group belongs to.
*p < 0.05. **p < 0.001

All participants had experienced trauma, however, 374 participants reported that the trauma happened to them personally. It may be that the moderation effect is stronger for this group. To explore this, the moderation regressions were recalculated for just this group. However, the findings revealed that the interaction was still not statistically significant.

Study 2

The participants from the student sample (Study 1) completed a larger survey which included scales from three other studies. The participants in the community sample (Study 2), however, completed a survey with only scales relevant to my thesis. There were two reasons for including a second study within this thesis. First and foremost, I was able to conduct a partial replication of Study 1 (student sample) within a community sample. Second, I was able to collect a more diverse sample than what is typically achieved by recruiting university students.

Method

Data Screening

In total, 899 individuals from online communities (e.g., Facebook, Twitter, Instagram, and Reddit) began the survey. These participants lived predominantly in the United States (52%), Canada (20%), and the United Kingdom (14%) but ranged as far as South America, New Zealand, Australia, Europe, and Asia. Only 357 participants' data were coded as complete and included in the final analyses (see Figure 4 for a visual representation of the data screening process). The following steps were taken to determine the final community sample. The first step was to remove participants who did not report any traumatic experiences. In total, 587 participants reported a traumatic experience and had their data reviewed in the following step. Conversely, 312 participants who did not report traumatic experiences were removed from this study. The next step was to ensure that participants completed at least 70% of the items in each survey. Only 379 participants completed all the questionnaires and were included in the following step. In total, 208 participants' data were removed because they failed to complete one or more of the questionnaires (i.e., 71 participants did not complete the attachment to mother questionnaire, 125 participants did not complete attachment to father questionnaire, and 12 participants did not complete the posttraumatic stress symptoms questionnaire). The last step was to review participants' responses to three questions to check for the quality of the reported data by identifying participants who were either not reading the questions carefully or had previously completed this survey. The first question asked participants if they were abducted by aliens while completing the survey: 360 participants reported that they were not abducted while 19 participants

reported that they were abducted and were removed from the final analyses. The second question asked participants if this was the first time that they had completed this survey. Participants chose from three options: yes, this is the first time I have completed these surveys (n = 338); no, I have completed surveys like these surveys before (n = 17); and, I am not sure, they do seem familiar (n = 3). At the end of the survey, participants were asked again if this was the first time that they completed this survey and their responses to both questions were compared. In total, 359 participants reported that this was the first time they completed this survey while only one participant reported completing this survey earlier and was excluded from the final analyses. Finally, 357 participants reported that they paid attention while completing the survey and would like to have their data included in the final analyses, one participant reported that he or she did not read the questions carefully, and one participant did not want his or her data analyzed.

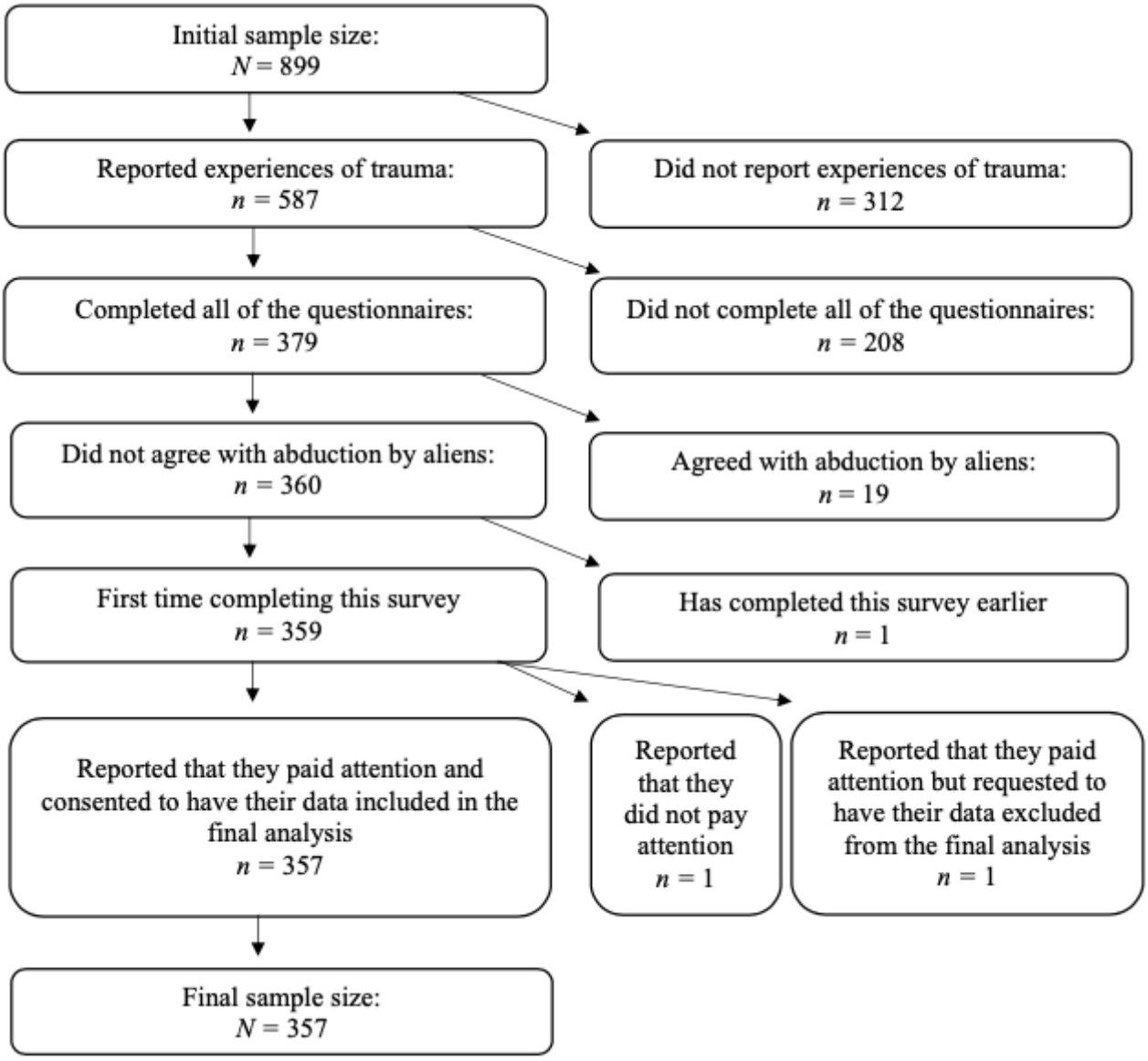

Figure 4. Data Screening Decision Tree for Community Sample

Next, I compared the participants who were included in the final analyses (n = 357) with the participants who were removed (n = 542) to test for significant differences between the two groups. I ran independent t-tests for the continuous variables (e.g., age, attachment to mother and father, ACE, and posttraumatic stress symptoms) and chi-square tests of independence for the categorical variables (e.g., gender, ethnicity, relationship status, sexual orientation, level of education, employment status, and ACE

group). The t-tests revealed that participants who were included in the final analyses were younger (M = 29.04, SD = 7.90) than the participants who were excluded from the analyses (M = 34.51, SD = 20.84), $t(784) = 4.51$, $p < .001$. Furthermore, the chi-square analyses revealed significant gender differences between the two groups. Based on the demographics, the participants who were more likely to be included in the final analyses identified as non-binary ($\chi^2 = 15.240$, $p < .001$, overall data from 61% of non-binary participants, 31% of males, 43% of females and were used and 39% of non-binary participants, 70% of males, and 57% of females were not used).

Participants

The final community sample consisted of 357 individuals recruited from online social networking sites (e.g., Facebook, Twitter, Instagram, and Reddit). Most of the participants identified as female (n = 273, 77%), reported their ethnicity as Caucasian (n = 268, 75%), identified as heterosexual (n = 189, 53%), and were in a relationship (n = 233, 65%). The participants' ages ranged between 18 and 65 years of age (M = 29.04, SD = 7.90).

Procedure

The community sample was recruited to participate in this study through various social networking sites including Facebook, Reddit, Instagram, and Twitter. I found public groups such as health groups and support groups for individuals who had experienced trauma. Before posting, I asked group moderators for permission to post my survey. Once approved, I uploaded a short description of the survey to these groups where individuals could access the link that opened the Qualtrics software program to complete the survey. Participants recruited from online websites were informed that their

participation was completely anonymous, and they could terminate the study at any time. After posting, I recorded the group name and other relevant information such as the year the group was created, the number of followers, the date of the first post, and any comments, likes, or shares of the post (See Appendix I).

Recruitment began on March 11, 2021, and it continued until July 5, 2021. In total, the link to my survey was posted in 75 social media groups (i.e., 35 Facebook groups, 38 Reddit groups, one Instagram account, and one Twitter account). I asked permission from 102 Facebook groups but was only permitted to post in 35 Facebook groups. The first post was made on March 15, 2021, and the last post was made on June 25th, 2021. Most of the groups were related to experiences of trauma such as the Coronavirus pandemic (e.g., "Stress Management in this Pandemic of Stress and Trauma"), childhood trauma (e.g., "Survivors of Child Abuse"), and sexual assault (e.g., "Warriors & Survivors of Abuse, Trauma, Sexual Assault & Mental Illness"). In addition, I asked permission to post on 121 Reddit pages, but I was only permitted to share the survey to a total of 38 Reddit pages. The first post was made on March 11, 2021, and the last post was made on June 14, 2021. The pages were related to experiences of trauma including war (e.g., "Veterans"), cancer diagnoses (e.g., "Brain Cancer"), and infidelity in adult relationships (e.g., "Adultery"). Of the 38 Reddit pages, I reposted the survey link to 13 pages that had an increase in followers since the date of the first post. For both Instagram and Twitter, the survey link and description were posted once on the Trent Attachment Lab account and shared on my personal accounts. I posted on the Instagram account March 12, 2021, and on the Twitter account March 17, 2021.

All participants were required to complete online consent forms to participate in this study. Once participants completed the consent forms, they were presented with demographic questions regarding their age, gender, ethnicity, marital status, level of education, and employment status. Next, the participants were provided five questionnaires to complete which included the Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016), the Adverse Childhood Experiences Questionnaire (ACE; Felitti et al., 1998), the Life Events Checklist (LEC; Weathers et al., 2013), the PTSD Checklist – Civilian Version (PCL-C; Weathers et al., 1993), and a qualitative question that asked participants about factors may have helped and/or hindered their experiences following trauma.

Measures

Demographic Questionnaire (see Appendix B). Participants completed a non-identifying demographic questionnaire at the beginning of the survey which included questions about age, gender, ethnicity, marital/relationship status, sexual orientation, education level, and employment status.

Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016; see Appendix C). The T-RSQ was identical to the one used in the student sample (Study 1). Consistent with Scharfe (2016), the alphas in the present study ranged from α = .50 to .85 (see Table 4). This sample had significantly lower secure scores (T= 15.600, $p < .001$), higher fearful scores (T = 16.624, $p < .001$), and higher dismissing scores (T = 16.669, $p < .001$) compared to the student sample (Study 1).

Adverse Childhood Experiences Questionnaire (ACE; Felitti et al., 1998; see Appendix D). The ACE questionnaire was identical to the one used in the student sample

(Study 1). Consistent with Study 1 (student sample), participants were divided into five groups based on their ACE score: zero (n = 24; 7%), one (n = 56; 16%), two (n = 72; 20%), three (n = 68; 19%), and four or more (n = 137; 38%). Participants with four or more ACE were assigned to group 'four' (4+ ACE) as researchers have found that individuals who report four or more ACE have higher health risks (e.g., Felitti et al., 1998; Schalinski et al., 2016). The ACE demonstrated high reliability in the present study (see Table 4). This sample had significantly higher ACE scores (T = 11.210, $p < .001$) compared to the student sample (Study 1).

The Life Events Checklist (LEC; Weathers et al., 2013; see Appendix E). The LEC is identical to the one used in the student sample (Study 1). In total, 326 participants reported trauma happened to them personally, 263 participants witnessed trauma happen to someone else, 294 participants learned about trauma happening to a close family member/ friend, and 60 participants were exposed to trauma as a part of their job. Consistent with the student sample, all participants reported at least one of the four trauma categories; in other words, 100% of the sample reported that they experienced at least one type of trauma (see Data Screening section, p. 28).

PTSD Checklist-Civilian (PCL-C; Weathers et al., 1993; see Appendix F). The PCL-C is identical to the one used in the student sample (Study 1). Consistent with Weathers et al. (1993), the PCL-C demonstrated high reliability in the present study (see Table 4). This sample had significantly higher posttraumatic stress symptom scores (T = 14.395, $p < .001$) compared to the student sample (Study 1).

Table 4

Table of Means, Standard Deviations, and Reliability Scores for the T-RSQ; ACE; and the PCL-C for the Community Sample

	M	*SD*	*Range*	α
Attachment to Mother				
Secure	3.53	1.11	1.30-6.60	0.75
Fearful	4.27	1.38	1.00-7.00	0.85
Preoccupied	3.25	0.86	1.33-5.60	0.50
Dismissing	4.94	1.22	1.20-7.00	0.85
Attachment to Father				
Secure	3.25	1.09	1.00-6.70	0.72
Fearful	4.19	1.29	1.00-7.00	0.79
Preoccupied	3.14	0.94	1.10-5.80	0.57
Dismissing	4.99	1.28	1.30-7.00	0.85
ACE	3.22	2.15	0.00-10.00	0.87
PCL-C	3.32	0.87	1.00-5.00	0.91

Note. N = 357. ACE = Adverse Childhood Experiences; PCL-C = PTSD Checklist-Civilian.

Results

Moderation Analyses

In this study, I tested whether exposure to adverse childhood experiences (ACE) moderated the relationship between attachment and posttraumatic stress symptoms in adulthood. I followed Baron and Kenny's (1986) four-step approach of a moderation analysis to evaluate the proposed moderation model. I ran two separate regressions to test for attachment to mother and attachment to father. The first step was to standardize the predictor variable (adult attachment) to assist the interpretation of any data plots. After I standardized the predictor variable, I calculated product terms that represented the interaction between the predictor (attachment) and moderator (ACE) variables. To calculate the product term, I multiplied the standardized predictor (attachment) and moderator (ACE) together. Once the product term was created, I ran hierarchical multiple regressions to test for any moderator effects. In the first step of the regression, I regressed posttraumatic stress symptoms (criterion) on adult attachment (predictor) and ACE

(moderator) to test the associations between the criterion and both the predictor and the moderator variables[4]. In the first step, the results revealed that adult attachment to mother and ACE significantly predicted 16% of the total variance of posttraumatic stress symptom scores ($R^2 = 0.161$, $F(5, 351) = 13.512$). In particular, the contribution of fearful attachment (ß = 0.407) and the ACE groups (ß = 0.182) were significant. In the second step of the analyses, I added the interaction terms to determine whether there was evidence to support moderation. The small change in R^2 ($R^2 = 0.009$) was not significant; therefore, the association between attachment to mother and posttraumatic stress symptoms in adulthood was not different based on varying levels of childhood adversity (see Table 5). In other words, contrary to my hypothesis, the association between adult attachment to mother and posttraumatic stress symptoms was not stronger for participants who were exposed to more childhood adversity.

Similarly, adult attachment to father and ACE significantly predicted 11% of the total variance of posttraumatic stress symptom scores in the second regression ($R^2 = 0.108$, $F(5, 351) = 8.534$). In particular, the contribution of secure attachment to father (ß = -0.202) and the ACE groups (ß = 0.214) were significant. In the second step of the analyses, I added the interaction terms to determine whether there was evidence to support moderation. The small change in R^2 ($R^2 = 0.002$) was not significant; therefore, the association between attachment to father and posttraumatic stress symptoms in adulthood was not different based on varying levels of childhood adversity (see Table 5). In other words, contrary to my hypothesis, the association between adult attachment to

[4] According to Baron and Kenny's (1986) four-step approach to moderation analyses, the predictor and moderator variable can be added together in the first step of the regression or added separately in Step 1 and Step 2.

father and posttraumatic stress symptoms was not stronger for participants who were exposed to more childhood adversity.

Table 5

ACE as a Moderator between Attachment and Posttraumatic Stress Symptoms for the Community Sample

	Attachment to mother			Attachment to father		
	ß	ΔR^2	*F*	ß	ΔR^2	*F*
Step 1		0.161	13.512**		0.108	8.534**
Secure	-0.027			-0.202*		
Fearful	0.407**			0.088		
Preoccupied	0.016			0.047		
Dismissing	-0.141			-0.068		
ACE	0.182**			0.214**		
Step 2[a]		0.009	0.945		0.002	0.174
Secure X ACE	0.034			0.155		
Fearful X ACE	-0.027			0.114		
Preoccupied X ACE	0.165			-0.060		
Dismissing X ACE	-0.041			0.009		

Note. *N* = 357. ACE = Adverse childhood experiences. [a] = In Step 2 of the regression analyses, I entered the interactions between the four attachment representations (secure, fearful, preoccupied, and dismissing) and the ACE group (ACE score = 0, 1, 2, 3, and 4+).
*p<0.05. **p<0.001.

Post Hoc Analyses

Consistent with the student sample, the moderation effect was not significant. The regression results revealed that there were differences among the group means for ACE groups. To further understand these differences, I calculated a one-way ANOVA post hoc analysis to assess mean differences for attachment to mother, attachment to father, and posttraumatic stress symptoms across the five ACE groups (0 ACE, 1 ACE, 2 ACE, 3 ACE, and 4+ ACE). The post hoc analyses revealed statistically significant differences between the group means for fearful attachment to mother, dismissing attachment to both mother and father, and posttraumatic stress symptoms (see Table 6). Participants who reported no adverse childhood experiences (0 ACE) reported lower fearful attachment to mother, lower dismissing attachment to mother and father, and lower posttraumatic stress

symptoms than participants who reported four or more adverse childhood experiences (4+ ACE). However, the tests of homogeneity of variances revealed significant variance issues for fearful attachment to mother and dismissing attachment to both mother and father. In particular, the Levene's test indicated that the variances for fearful attachment to mother ($F(4, 352) = 2.839$, $p = .024$) were not equal across the five ACE groups. Specifically, group 1 ACE had a large range of variance for fearful attachment to mother. Similarly, the Levene's test indicated that the variances for dismissing attachment to both mother ($F(4, 352) = 3.741$, $p = .005$) and father ($F(4, 352) = 2.939$, $p = .021$) were also not equal across the five ACE groups. Specifically, group 0 ACE had a large range of variance for dismissing attachment to both mother and father. The variance issues may be due to the unequal sample sizes of the ACE groups. As displayed in Table 6, there were fewer participants who reported no adverse experiences (0 ACE: $n = 24$) in comparison to the participants who reported four or more adverse experiences (4+ ACE: $n = 137$).

Table 6

Post Hoc Analyses for the Significant Main Effect of Adversity for the Community Sample

	0 ACE (n = 24)	1 ACE (n = 56)	2 ACE (n = 72)	3 ACE (n = 68)	4+ ACE (n = 137)	F
Mother						
Secure	3.88[a]	3.71[a]	3.64[a]	3.24[a]	3.49[b]	2.353
Fearful	3.55[a]	3.98[ab]	4.15[ab]	4.44[b]	4.50[b]	3.703*
Preoccupied	3.18[a]	3.21[a]	3.41[a]	3.21[a]	3.22[a]	0.813
Dismissing	4.36[a]	4.71[ab]	4.75[ab]	5.19[b]	5.12[b]	3.887*
Father						
Secure	3.66[a]	3.43[ab]	3.31[ab]	2.99[b]	3.20[ab]	2.383
Fearful	3.76[a]	3.87[a]	4.28[a]	4.30[a]	4.30[a]	2.026
Preoccupied	3.09[a]	3.18[a]	3.17[a]	3.11[a]	3.15[a]	0.077
Dismissing	4.57[a]	4.65[a]	4.95[a]	4.94[a]	5.25[a]	3.168*
PCL-C	2.76[a]	3.11[ab]	3.24[ab]	3.40[b]	3.52[b]	5.536**

Note: $N = 357$. PCL-C = posttraumatic stress symptoms. The subscripts identify the homogenous subset that the group belongs to.

*p < 0.05. **p < 0.001

All participants had experienced trauma, however, 326 participants reported that the trauma happened to them personally. It may be that the moderation effect is stronger for this group. To explore this, the moderation regressions were recalculated for just this group. However, consistent with the student sample, the findings revealed that the interaction was statistically not significant.

Qualitative Analysis

To better understand how participants in the community sample (Study 2) responded to trauma they were asked "In the textbox below, please elaborate if you have any insights into the types of things that helped and the types of things that hindered before, during, or after the event". Participants were most likely to report factors that helped including access to therapy or medication, a supportive group of family and friends they could talk to, and, engaging in physical and/or mental exercise. For example, one participant reported that "good therapy, social support, finding a stable and safe living environment, … [and] joining online support groups" were all factors that helped his/her experience following trauma. Another participant had a "supportive network of friends and family to care for [him/her]" which helped with "processing the event." Lastly, another participant mentioned that physical exercise such as hiking is a "temporary escape" that "gives [him/her] time to think things through and exert energy without worrying how other people will react or feel."

Interestingly, participants also reported similarities in the factors that inhibited coping. For example, a lack of safe and intimate relationships, unhelpful coping mechanisms (e.g., rumination, repression, and substance use), and not talking about their traumas were the most reported factors that *hindered* participants' experiences. For

example, one participant disclosed that "housing insecurity, lacking safe and supportive family relationships, [and] being unable to access resources in person during [the COVID-19] pandemic" were factors that hindered his/her experience following trauma. Another participant reported that "unhealthy coping strategies such as using drugs, drinking alcohol, [and] binge eating are good distractions but leave [him/her] feeling worse in the long-term." Lastly, some participants discussed the unhelpful cognitive processing strategies that hindered their experiences. One participant mentioned that it "holds [him/her] back to ruminate on things" and to "replay and think how [he/she] could have behaved differently." Comparatively, another participant reported that repressing their feelings by "holding in the emotion instead of letting them out usually compounds the negative symptoms."

Discussion

The goal of the present study was to further explore the relationship between adult attachment, childhood adversity, and posttraumatic stress symptoms. To explore this relationship, moderation regression analyses were used to test whether childhood adversity moderated the association between attachment to mother and father and posttraumatic stress symptoms in adulthood. The findings from Study 1 and Study 2 partially supported my hypotheses. Although childhood adversity did not significantly moderate the association between attachment and posttraumatic stress symptoms, the regression results suggested differences among the group means. To further understand these differences, I ran a one-way ANOVA post hoc analysis to assess mean differences among attachment and posttraumatic stress symptom scores across the five ACE groups (0, 1, 2, 3, and 4+). For the student sample (Study 1), the post hoc analyses revealed

significant group mean differences for secure, fearful, and dismissing attachment to both mother and father as well as posttraumatic stress symptoms. Consistent with the student sample, the community sample (Study 2) had significant group mean differences for fearful attachment to mother, dismissing attachment to both mother and father, and posttraumatic stress symptoms. Overall, the results both confirmed and challenged previous findings and extended previous research.

Moderation Regression Analyses

The results of the regression analyses partially supported the hypotheses. As expected, the results of the regression analyses suggested that childhood adversity and adult attachment were predictors of posttraumatic stress symptoms. However, there were similarities and differences regarding the individual predictor variables for Study 1 (student sample) and Study 2 (community sample). To start, the two studies were similar in that the ACE groups (0, 1, 2, 3, and 4+) was a significant predictor of posttraumatic stress symptoms in all four regressions. In contrast, the significant attachment variables were different for Study 1 and Study 2. For attachment to mother, fearful scores were a significant predictor in both Study 1 and Study 2; however, preoccupied scores were only significant in Study 1. In line with previous research, attachment anxiety (fearful and preoccupied attachment) was associated with posttraumatic stress symptoms. Individuals with high levels of attachment anxiety may have been at risk of developing posttraumatic stress symptoms due to their negative views of themselves (e.g., lack of confidence in their self-competency) and/or their negative view of others (e.g., lack of confidence in the support from others) as well as their tendency to exaggerate the severity of their traumas (e.g., Barazzone et al., 2019; Bowlby, 1969/1982; Ogle et al., 2014). The findings with

attachment to father were similar. Fearful scores were a significant predictor in Study 1 whereas attachment security was significant in Study 2. The latter result is not surprising considering that attachment security has been found to be a protective factor against the development of posttraumatic stress (Ogle et al., 2014; Pietromonaco & Powers, 2015). In other words, individuals who did not report high levels of secure attachments to their fathers may have developed internal working models that their fathers will not be there for support which could influence the development of posttraumatic stress symptoms following trauma. Finally, regarding Step 2 of the regression analysis, the interaction terms (attachment X ACE groups) did not significantly contribute additional variance in the posttraumatic stress symptom scores. As a result, there was no moderation effect of childhood adversity within the student (Study 1) or community sample (Study 2). Although there was no evidence to support a moderation in the present study, the findings were consistent with previous research that has found childhood adversity and adult attachment to be significant factors associated with the development of posttraumatic stress (e.g., Barazzone et al., 2019; Ogle et al., 2014; Tian et al., 2020; Woodhouse et al., 2015).

Post Hoc Analyses Testing Mean Differences

The results from the one-way ANOVA post hoc analyses revealed a relationship between adult attachment, childhood adversity, and posttraumatic stress symptoms at the mean level. In addition, the post hoc analyses revealed similar patterns for Study 1 (student sample) and Study 2 (community sample). The common pattern was that participants who reported no adverse experiences (0 ACE) reported lower posttraumatic stress symptoms than participants who reported four or more adverse experiences (4+

ACE). According to previous research, these results were expected considering the dose-dependent relationship between childhood adversity and adult health (see Felitti et al., 1998) and posttraumatic stress symptoms (Schalinski et al., 2016). Furthermore, there were differences in attachment for the post hoc analyses. In Study 1, participants who reported no adverse experiences (0 ACE) reported higher attachment security and lower attachment avoidance (fearful and dismissing attachment) to both mother and father than participants who reported four or more adverse experiences (4+ ACE). Similarly, in Study 2, participants who reported no adverse experiences (0 ACE) reported lower fearful attachment scores to mother and lower dismissing attachment scores to both mother and father. These findings supported previous researchers who have found associations between more adverse experiences and greater attachment insecurity (e.g., Barazzone et al., 2019; Perlman et al., 2016) and greater posttraumatic stress symptoms in adulthood (e.g., Schalinski et al., 2016). These findings may suggest that multiple adverse experiences in childhood may strengthen individuals' negative internal working models of themselves (e.g., poor sense of self-competency) and others (e.g., lack of support from attachment figures) which may influence how they respond to later traumas (Choi & Kangas, 2020). It is possible that individuals who reported more childhood adversity may be more likely to develop posttraumatic stress symptoms based on how they have learned to cope with their experiences of trauma.

The Influence of Attachment Orientations on How Individuals Respond to Trauma

Recently, researchers have explored how attachment orientations influence how individuals respond to trauma (Barazzone et al., 2019; Mikulincer et al., 2015; Ogle et al., 2014; Perlman et al., 2016; Tian et al., 2020; Woodhouse et al., 2015). The consistent

finding is that individuals with high levels of attachment security are likely to recover from trauma because they are confident in their own abilities, and they trust that others will be supportive if necessary. On the other hand, individuals with high levels of insecure attachment are likely to experience heightened stress for a prolonged time following trauma due to their unsupportive coping strategies.

In the present study, participants in the community sample (Study 2) were asked for their insight on the factors that helped or hindered their experiences following traumatic events. The most common reported factors that *helped* participants' experiences after trauma included: access to therapy or medication, a supportive group of family and friends they could talk to, and, engaging in physical and/or mental exercise. Conversely, a lack of safe and intimate relationships, unhelpful coping mechanisms (e.g., rumination, repression, and substance use), and not talking about their traumas were the most reported factors that *hindered* participants' experiences. These responses were interesting considering that the participants from the community sample reported high avoidant attachment average scores. To explain, the responses provided by the participants seemed to suggest each of the four categories of the model of adult attachment (e.g., secure, preoccupied, fearful, and dismissing attachment).

Drawing on the internal working models and the four-category model of adult attachment, it is important to discuss typical responses associated with each of the four attachment orientations. Typical responses that may have suggested high levels of attachment security would indicate a balance between self-reliance and relying on others for support. For example, the response "It helped me that I have taken classes on stress management and knowingly used tools to mediate my feelings. I had access to healthcare

and sought a licensed therapist out to help me navigate things" demonstrated the positive internal working models of secure attachment. This participant discussed how their past experiences (model of the self) and current support systems (model of the other) were helpful when coping with trauma. Typical responses that may have suggested high levels of preoccupied attachment would emphasize the need for external support to help with individuals' traumas. For example, listing "Not having a support network, feeling ashamed and embarrassed to reach out for help, feeling alone" as hindrances following trauma demonstrated the positive other-model of preoccupied attachment. This participant focused on their need to talk to someone about their trauma (model of the other) and found not being able to talk to someone to be emotionally distressing (model of the self). In contrast, typical responses that may have suggested high levels of dismissing attachment would focus on the participant's value of independence. For example, the response "Mostly cut off any and all feelings, dissociating, making the cat my support" highlighted the self-reliant strategies (positive model of the self, negative model of the other) common among individuals with high levels of dismissing attachment. Lastly, typical responses that may have suggested high levels of fearful attachment would refer to both being unable to promote feelings of security within themselves and not seeking out support from others. For example, a response such as "What hindered my recovery was putting too much guilt on myself and accepting all the blame. Not wanting to forgive oneself, not wanting to accept that there are just things that one cannot control" highlighted the self-reliant strategies (negative other model) and the negative thought patterns directed towards oneself (negative self-model) which are unique to fearful attachment. Previous researchers have insisted that individuals with high

levels of attachment avoidance (e.g., fearful and dismissing attachment) are more likely to experience heightened posttraumatic stress symptoms following trauma because of their self-reliant and unsupportive internal coping strategies (e.g., Barazonne et al., 2019; Mikulincer et al., 2006; Ogle et al., 2014; Woodhouse et al., 2015). That is, individuals who score high on attachment avoidance tend to avoid seeking support from other individuals when stressed. This insight is important when helping avoidant individuals who have experienced trauma and may be at risk of developing posttraumatic stress symptoms.

Extensions of Previous Research

Many researchers have explored the associations between attachment, childhood adversity, and posttraumatic stress; however, the underlying mechanisms remain unknown. The present study extended previous research in three ways. To begin, this study was the first, to my knowledge, to explore the moderating role of ACE in the relationship between attachment and posttraumatic stress symptoms in adulthood. Researchers have previously explored childhood adversity and attachment as two separate risk factors for the development of posttraumatic stress symptoms; however, because of their interactive relationship, it is important to also study these variables together. Second, in the present study adult attachment was measured by Bartholomew's (1990) four-category model of attachment instead of previously used questionnaires that only measure the anxiety and avoidance dimensions of attachment. Researchers have measured attachment using a form of the Experiences in Close Relationships Questionnaire (ECR); however, because it only provides scores for the anxiety and avoidance dimensions of attachment, the results cannot be interpreted using the four

attachment orientations (Scharfe, 2016). Lastly, participants in the present study were asked to report the factors that helped and/ or hindered their experiences following trauma. The open-ended format of the question was an important extension from previous research which allowed me to examine participants' experiences following trauma. As expected, the qualitative findings indicated that many participants reported behaviours consistent with attempts to feel secure. This finding is not surprising considering that humans are programmed to look for security when stressed. This insight reiterates the importance of considering attachment orientations when supporting individuals who experience trauma and may be at risk of developing posttraumatic stress symptoms.

Strengths and Limitations

Student samples are commonly criticized for lacking generalizability to other populations. For example, university students are often typically Caucasian, from high socioeconomic status households, and have higher education levels than the general population. As a result, researchers cannot make definitive conclusions about the public using research findings from student samples. The present study included a replication in a community sample which included individuals from different regions of the world. By doing so, I was able to explore the relationship between adversity, attachment, and posttraumatic stress symptoms within two different populations and compare the findings. The student sample (Study 1) reported high secure attachment average scores despite their reports of trauma. University students typically report high levels of attachment security which is necessary to help them adapt to the stresses and pressures unique to post-secondary education. The community sample (Study 2) were recruited from groups that focus solely on trauma and posttraumatic stress. As a result, these

individuals reported many adverse experiences and greater posttraumatic stress symptom scores. Overall, it is important to explore this relationship in both populations.

In addition, a potential limitation with the method of recruitment for this study was the reliance on participants to read the survey questions carefully and answer to the best of their abilities. Because the participants were both recruited and surveyed online, it is not possible to know whether they answered accurately and honestly to all the questions. As a result, there is a risk that the quality and integrity of the data was affected. However, to overcome this limitation, there were three questions placed throughout the surveys to help identify participants who were not answering the questions truthfully. In addition, participants were asked at the end of the survey whether they read the questions carefully and answered honestly. This question allowed participants to anonymously report the honesty of their responses and, in doing so, informed myself of the accuracy of their data. As a result, I was able to ensure the integrity of the data by removing all participants' data who reported that they did not complete the survey to the best of their abilities. In total, 137 participants from the student sample (Study 1) and 22 participants from the community sample (Study 2) were removed because of their answers to these questions.

Another limitation of this study may have been the online self-report format of data collection used in this study. Researchers have addressed the shortcomings of self-report surveys which include concerns of the social desirability bias. This bias implies that individuals inaccurately respond to hide undesirable answers and instead provide answers that they think would be more desirable to researchers. Furthermore, attachment researchers have found that attachment orientations influence how individuals report. Van

Assche et al. (2019) found that individuals with higher levels of attachment anxiety (e.g., preoccupied, and fearful attachment) tend to exaggerate their traumas and overreport their adverse experiences. Conversely, they found that individuals with higher levels of attachment avoidance (e.g., dismissing, and fearful attachment) tend to underestimate their traumas and underreport their experiences. The effects of social desirability and the influence of attachment orientation are important to remember when both analyzing and interpreting the findings. Future researchers may find it helpful to include various methods of data collection such as interviews to combat the issue of social desirability. By conducting interviews, researchers can ask certain follow up questions with the purpose of gaining a more accurate understanding of participants' experiences.

Future Directions

To begin, there were a few methodological issues in the present study that should be discussed. First, there were disproportionate sample sizes of the ACE groups in both Study 1 (student sample; 0 ACE = 173, 1 ACE = 113, 2 ACE = 109, 3 ACE = 109, and 4+ ACE = 87) and in Study 2 (community sample; 0 ACE = 24, 1 ACE = 56, 2 ACE = 72, 3 ACE = 68, and 4+ ACE = 137) which may have affected the homogeneity of variance in the post hoc analyses. In hindsight, it would have been beneficial to collect data from more individuals who reported zero ACE to correct any issues with homogeneity of variance. Future researchers who plan on recruiting participants from online communities, as done in the present study, should consider recruiting from unrelated groups (e.g., hobbies) instead of focusing solely on trauma groups to recruit more individuals with no childhood adversity (0 ACE).

Second, although I was interested in measuring posttraumatic stress symptoms, participants in the present study were not required to have a diagnosis of posttraumatic stress disorder (PTSD). As a result, the present sample may have experienced lower levels of posttraumatic stress symptoms in comparison to a sample of individuals diagnosed with PTSD. To further explore this, I compared the results from the present study with the findings from the original article by Weathers et al. (1993). Weathers et al. (1993) found that in their Study 1 and Study 2 participants diagnosed with PTSD had higher posttraumatic stress symptom scores (M = 63.6, SD = 14.1; M = 64.2, SD = 9.1) than participants not diagnosed with PTSD (M = 34.4, SD = 14.1; M = 29.4, SD = 11.5) respectively.[5] In the present study, the student participants (Study 1) had an average posttraumatic stress symptom score (M = 40.95, SD = 16.98) which was closer to the non-PTSD groups with present scores ranging from 16 to 84. Interestingly, the community participants (Study 2) had an average posttraumatic stress symptom score (M = 56.36, SD = 14.73) which was closer to the average of the PTSD groups with present scores ranging from 17 to 85. Therefore, the student participants (Study 1) scores seemed to be at the lower end of the range while the community participants (Study 2) were near the higher end of the range. Furthermore, Weathers et al. (1993) claimed that the clinical cut off score of 50 on the PCL is a good predictor of a diagnosis of PTSD. In the present study, more than 168 student participants (Study 1) and 245 community participants (Study 2) had scores higher than 50 and therefore met this cut off. Future researchers may find it important to replicate this research study in a sample of individuals who have been

[5] In the present study, posttraumatic stress symptom scores were calculated by averaging the scores across the 17 items whereas Weathers et al. (1993) calculated posttraumatic stress symptom scores by summing the total scores across the 17 items. To better compare the present study with the original study, I calculated and discussed the total posttraumatic stress symptom score here.

diagnosed with PTSD to further explore any differences between the two populations. Clinical researchers have reported childhood adversity and attachment orientations as two factors that may predispose individuals to posttraumatic stress symptoms (e.g., Ogle et al., 2014; Perlman et al., 2016; Woodhouse et al., 2015). To better explore this relationship, future research may benefit by replicating the findings in a clinical population.

The qualitative findings from the community sample (Study 2) may provide insight for future researchers studying attachment theory. Bowlby (1969/1982) theorized that attachment is a behavioural system that becomes activated when individuals are stressed, ill, or afraid. Researchers have since explored the influence of attachment on individuals' coping strategies following trauma (e.g., Barazzone et al., 2019; Mikulincer et al., 2015; Ogle et al., 2014; Woodhouse et al., 2015). The consistent finding is that individuals who report high levels of secure attachment are more likely to use effective coping strategies such as seeking support from attachment figures. In contrast, individuals with high levels of insecure attachment are more likely to use maladaptive coping strategies such as hyperactivating and deactivating strategies associated with anxiety and avoidance dimensions of attachment, respectively (Barazzone et al., 2019; Mikulincer et al., 2006; Pietromonaco & Powers, 2015). Future researchers may want to consider using the attachment framework to analyze the coping strategies that participants report using after trauma. Specifically, future researchers could extend the present study by coding participants' qualitative responses for attachment related terms and then compare the results to their attachment scores. By doing so, researchers could examine how attachment orientations influence whether individuals use supportive (e.g., seeking help

from a friend or family member) or unsupportive (e.g., substance use) factors following trauma. Further exploration may help expand our understanding on the relationship between attachment and posttraumatic stress symptoms; in particular, how individuals' attachment orientations relate to whether they develop posttraumatic stress symptoms after trauma.

The ACE questionnaire has been an informative measure used to detect a linear relationship between *cause* (childhood adversity) and *effect* (adult health). However, despite the increasing popularity of studying ACE in current research, the ACE framework has been recently criticized. Kelly-Irving and Delpierre (2019) argued that grouping ACE together in a cumulative score assumes that ACE and their consequences are the same for every individual. Instead, they claimed that there are individual differences regarding the severity, timing, and duration of these childhood adversities which lead to different outcomes for adult health. The cumulative ACE score does not consider the frequency, the timing, or the severity of the adverse experiences. For example, an individual who reported yes to the statement that "a family member had touched or fondled his or her body in a sexual way", regardless of how many times this event occurred, will receive an ACE score of one. This experience may have different psychological outcomes for individuals who were exposed to sexual abuse either multiple times or by multiple family members/ close friends. Similarly, Ogle et al. (2013) argued that exposure to repeated interpersonal trauma in childhood may result in more severe symptoms than a single-incident childhood trauma. Therefore, future researchers studying ACE should consider including questions that gather information on the timing, the frequency, and the severity of the event. These questions may further help us understand

the relationship between specific types of childhood adversity and its effects on later adult health. In addition, the information gathered by asking these questions could provide researchers an understanding on how early adversity influences the development and maintenance of attachment bonds.

In the present study, participants were provided with a list of examples of common traumatic experiences and were asked to indicate whether they had experienced a traumatic event. Future researchers studying traumatic experiences should consider differentiating between high betrayal traumas (e.g., trauma that is inflicted by someone close) and low betrayal traumas (e.g., trauma that is non-interpersonal or inflicted by non-close others). Researchers have found that high betrayal traumas are considered more psychologically harmful to individuals than low betrayal traumas due to the violative nature of the traumatic event (e.g., Choi & Kangas, 2020; Martin et al., 2013). In fact, researchers have reported a strong association between high betrayal traumas and posttraumatic stress symptomatology (e.g., Choi & Kangas, 2020; Martin et al., 2013). This finding can be explained by focusing on the relationship between the victim and perpetrator which affects how the trauma is processed. Choi and Kangas (2020) reported that high betrayal traumas are associated with misappraisals of the self and close others, whereas low betrayal traumas are associated with concerns of safety and the world. Future researchers who separate experiences into high betrayal and low betrayal categories may shed light on the unique effects of the different types of traumas and how they relate to attachment theory. In doing so, researchers may better understand how both forms of trauma influence attachment orientations and in turn who is at great risk of developing posttraumatic stress symptoms.

Implications

Overall, the findings from the present study have important theoretical and applied implications. From a theoretical perspective, the findings supported the previously established dose-dependent relationship of childhood adversity and adult health. The well-known health risks of childhood adversity continue to be recognized in research. From an applied perspective, 78% of individuals in the present study (68% in Study 1 and 93% in Study 2) reported at least one adverse childhood experience. Based on previous findings, exposure to childhood adversity is associated with poor mental and physical health (see Felitti et al., 1998) including posttraumatic stress symptoms (e.g., Schalinski et al., 2016) in adulthood. In total, 78% of individuals who reported at least one ACE may be at a greater risk of reporting an insecure attachment and developing posttraumatic stress symptoms following a traumatic experience as an adult. Individuals who work with victims of trauma should be aware of their clients' attachment orientations and histories of childhood adversity. In addition, the participants' responses regarding the factors that helped their experiences following trauma highlighted more adaptive attachment related coping strategies that individuals may use. Specifically, workers should recognize the importance of both attachment figures and supportive attachment related behaviours for individuals both during and after traumatic experiences which may help prevent any long-term and harmful effects of trauma.

Finally, it is important to consider that data analysis was limited to participants who reported experiencing at least one type of trauma in their lifetime. According to the Canadian Mental Health Association (2020), 15% of individuals will experience long-term and harmful effects from the traumatic event. Positive early experiences, including

the development of healthy attachment relationships with parents, continue to be important predictors of good mental and physical health in adulthood. Early childhood experiences and our relationships with our parents are key factors in how we learn how to respond to later trauma. Individuals who have experienced trauma may be at a higher risk of developing posttraumatic stress symptoms in adulthood if they have insecure attachment relationships with their parents and had childhoods characterized by high levels of adversity. These individuals have histories of stressful childhood events and may have learned that they cannot rely on their attachment figures for support. It is important to both consider and understand childhood experiences and adult attachment orientations when helping individuals who experience trauma.

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Appendix A

Student Information and Consent Form

Consent Agreement

You are being invited to participate in a research study. Please read this consent form so that you understand what your participation will involve. Before you consent to participate, ask any questions you need to be sure you understand what your participation will involve.

Title: The price of good behaviour: The effects of individual differences of attachment, childhood adversity and stress symptoms on behaviour

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If you have any questions or concerns about the research, please feel free to contact Dr. Elaine Scharfe, 705-748-1011 ext. 7354 or escharfe@trentu.ca

THE PURPOSE OF THIS RESEARCH:
It has long been accepted that personality influences our tendency to follow the rules. For example, researchers using the "Big 5" personality traits (you can find an explanation of this model of personality in your first year PSYC textbook) have demonstrated that individuals with higher levels of openness to experience and conscientiousness and lower levels of neuroticism are more likely to "obey the rules". In this study, we will expand the examination of these findings by exploring the effect of a number of additional variables that we believe may also be important. First, we believe that the quality of our close relationships may be important. In particular, our view of ourselves and our view of others may be associated with a disregard of some rules or our perceptions of breaking rules. These effects may be exacerbated depending on our childhood experiences (e.g., abuse or neglect) or our current symptoms (e.g., feelings of distress after a particularly traumatic experience). The purpose of this study is to explore how our views of our relationships, our childhood experiences, and our feelings of distress influence our tendency to follow the rules. Some of the data will be analyzed by the student researchers (listed above) to fulfill the requirements of their MSc thesis.

WHAT YOU WILL BE ASKED TO DO:

If you volunteer to participate in this study, you will be asked to complete an online survey which will include demographic questions and surveys about your relationships with others, including your relationships with your parents and adverse events that may have happened in your childhood, your feelings and perceptions of criminal acts, your COVID related behaviour, and your current distress and symptoms of stress following traumatic events. If you would like to review these questionnaires before you decide to participate email escharfe@trentu.ca for a copy of the survey. It will take approximately 50-55 minutes to complete the online questionnaires but will be open and available to you for up to 4 hours in case you need a break.

WHAT ARE THE POTENTIAL BENEFITS FOR YOU AS A PARTICIPANT:
Some people report that the survey gets them to think about their behaviors, feelings, experiences in childhood, and their relationships with others more deeply than they might do otherwise and that may be a benefit or a risk depending on the nature of your behaviours and relationships. You may also feel that the opportunity to participate in research and learn a bit more about the research process is a benefit to you. I cannot guarantee, however, that you will receive any benefits from participating in this study.

WHAT ARE THE POTENTIAL RISKS TO YOU AS A PARTICIPANT:
There is no expected harm from completing these questionnaires, however, the purpose of the study requires us to ask about potentially unsavory parts of humanity. For instance, some questions in this survey will ask you about your participation or beliefs about antisocial and/or illegal behaviours. It is important to note that all survey responses are confidential unless required by law (i.e., a subpoena). Furthermore, some of the questions about your relationships or your childhood experiences may be viewed as personal and potentially triggering for some participants. You can skip any question(s) without penalty and may stop participating at any time. While there are no known harms associated with reporting your experiences on a survey, a small possibility exists that some participants may experience an emotional reaction when completing the questionnaire.

CONFIDENTIALITY:
Your responses will be completely confidential and you can skip any question(s) that you are not comfortable answering. Your data will be identified by a SONA id number and that number will be recorded on all data – your name will never linked to your SONA data for the purposes of this study. No information regarding your identity will ever appear in any reports, presentations or publications. All data from the questionnaires will be completely anonymous and will be stored in a computer file using the SONA ID number for identification purposes. As stated above, your responses will remain confidential and will not be revealed to anyone unless required by law (i.e., a subpoena).

Electronic questionnaire data will be hosted on the servers of the survey hosting company Qualtrics. Qualtrics servers are both anonymous and secured/encrypted (i.e., via Transport Layer Security and an Intrusion Detection System). Qualtrics will not make this data available to any party unless required by a valid court order, search warrant, or subpoena. The data stored on Qualtrics is anonymous and could not be linked to your identity without considerable assistance from Trent University (which, once again would

require a subpoena). During data analysis, the researchers will store the anonymous data on a secured/password-protected computer. This anonymous data will be analyzed by members of Dr. Scharfe's research lab which will include Dr. Scharfe, her research collaborators, and graduate and undergraduate students working in her research lab. The anonymous data will be kept for at least five years after publication of the results and may be archived if required by journals for publication. All of the data will be used for research and teaching purposes by Dr. Elaine Scharfe. Some of the data will be used by Hannah Cahill, Scottie Curran, and Emmilie Lindon for their MSc thesis. The data will be published in journals, chapters, books or other venues."

INCENTIVES FOR PARTICIPATION:
Participants who continue to the end of the survey will be awarded 1% credit bonus toward their psychology course grade. If you stop the survey part way through, your credit will be prorated but if you continue to the end of the survey, regardless of how many questions you complete, you will receive the full credit.

COSTS TO PARTICIPATION:
There are no costs associated with participation in this study with the exception of your time. Participants who continue to the end of the survey will be awarded 1% credit bonus toward their psychology course grade. If you stop the survey part way through your credit will be prorated but if you continue to the end of the survey, regardless of how many questions you complete, you will receive the full credit.

VOLUNTARY PARTICIPATION AND WITHDRAWAL:
Participation in this study is completely voluntary. You can choose whether to participate or not. You can refuse to answer any question or quit participating at any time and there will be no negative consequences to you whatsoever. You may stop participating at any time and you will still be given the incentives and reimbursements described above. At the end of the survey you will be given an opportunity to decide if you would like your data to be retained and analyzed. If you decide at a later date that you would not like your data to be used in this study, you will need to email that request and your SONA ID to Dr. Elaine Scharfe (escharfe@trentu.ca). Your choice of whether to participate will not influence your future relations with Trent University or the investigators (Dr. Elaine Scharfe, Hannah Cahill, Scottie Curran, and Emmilie Lindon) involved in the research.

QUESTIONS ABOUT THE STUDY:
If you have any questions about this study, you can take this opportunity to ask questions now, so that your concerns are addressed to your satisfaction before you agree to participate, by emailing Dr. Elaine Scharfe (escharfe@trentu.ca; 748-1011 ext. 7354). A summary of the data will be posted on Dr. Elaine Scharfe's website (www.attachmentmatters.ca) when the study is completed (Fall 2021). If you would like clarification regarding any part of this research, you can contact Dr. Elaine Scharfe.

This study has been reviewed by the Trent University Research Ethics Board, the study number is REB 26416. If you have questions regarding your rights as a participant in this study please contact:

Michele J McIntosh, Chair Research Ethics Board
c/o Office of the Vice President, Research and Innovation
Trent University
1600 West Bank Dr
Peterborough, ON K9L 0G2
705-748-1011 ext. 7896
jmuckle@trentu.ca

CONFIRMATION OF AGREEMENT:

By agreeing to participate in this research, you are not giving up or waiving any legal right in the event that you are harmed during the research.

"I have read and given consent to completing the following questionnaire. I agree to participate in this study and I understand that by proceeding I am giving informed consent. I understand that I should print a copy of my consent form—now before I continue—for my records."

To confirm that I agree to the consent form I will check the boxes below:

☐ I have read the information in this agreement;
☐ I have asked any questions I have about the study;
☐ I agree to participate in the study;
☐ I am aware I can change my mind and withdraw consent to participate at any time;
☐ I understand that these data will be used for research purposes; and
☐ I understand that these data will be used for educational purposes; and
☐ I have printed a copy of this agreement; and
☐ I am not giving up any legal rights by signing this consent agreement.

If you do not wish to participate, do not continue and please close your browser

Appendix B

Community Information and Consent Form

Consent Agreement

You are being invited to participate in a research study. Please read this consent form so that you understand what your participation will involve. Before you consent to participate, ask any questions you need to be sure you understand what your participation will involve.

Title: Effects of Attachment and Childhood Adversity on Posttraumatic Stress Symptoms

Psychology MSc student researcher
Emmilie Lindon, MSc candidate, Department of Psychology, Trent University, Peterborough, ON, Canada, emmilielindon@trentu.ca

Faculty Researcher: Elaine Scharfe, PhD., Department of Psychology, Trent University, Peterborough, ON, Canada, 705-748-1011 ext. 7354, escharfe@trentu.ca

If you have any questions or concerns about the research, please feel free to contact Emmilie Lindon emmilielindon@trentu.ca or Dr. Elaine Scharfe escharfe@trentu.ca

THE PURPOSE OF THIS RESEARCH:
This study will explore why some individuals are more vulnerable to experiencing posttraumatic stress. Psychologists have found that both histories of childhood adversity and adult attachment are associated with posttraumatic stress symptomatology in adulthood. Both factors influence how individuals interpret and respond to traumatic events and may explain why some are at risk of experiencing posttraumatic stress symptoms. To our knowledge, no research has examined the interactive effects of childhood adversity and attachment on posttraumatic stress. We believe the relationship between adult attachment and posttraumatic stress symptoms will be stronger for individuals who reported high levels of childhood adversity. The purpose of this research is to expand on previous literature to evaluate how reports of adult attachment and childhood adversity influence posttraumatic stress symptoms in adulthood.

WHAT YOU WILL BE ASKED TO DO:
If you volunteer to participate in this study, you will be asked to complete an online survey. The survey includes demographic questions and surveys about your relationships. Questions about your relationships with your parents will be asked if you have contact with them. Next, you will be asked about your history of adverse childhood experiences and current posttraumatic stress symptoms. You will also be asked about your COVID related behaviour. If you would like to view these questionnaires before you decide to

participate, email attachmentmatters@trentu.ca for a copy of the survey. It will take approximately 20-30 minutes to complete the online questionnaires. The survey will be open and available to you for as long as you need. This way, you can take a break if you want to.

WHAT ARE THE POTENTIAL BENEFITS FOR YOU AS A PARTICIPANT:
Some people report that the survey gets them to think more deeply about their behaviours. You may also think more deeply about your feelings and relationships with others. These thoughts may be a benefit or a risk to you. You may also feel that the opportunity to participate in research and learn more about the process is a benefit to you. However, I cannot guarantee that you will receive any benefits from participating in this study.

WHAT ARE THE POTENTIAL RISKS TO YOU AS A PARTICIPANT:
There is no expected harm from completing these questionnaires. However, the purpose of the study requires us to ask questions about your childhood. For example, some questions in this survey will ask you about certain childhood adversities including experiences of sexual abuse. It is important to state that all survey responses are completely anonymous. Even if required by law (i.e., a subpoena), we would have no way to identify you. Furthermore, some of the questions about your relationships may be viewed as personal. You can skip any question(s) and may stop participating at any time. There are no known harms associated with reporting your experiences on a survey. A small possibility still exists that some participants may experience an emotional reaction when completing the questionnaire. We have provided some links to supports at the end of the survey. If you wish, you can see this feedback now by following this link: www.attachmentmatters.ca/lindon

CONFIDENTIALITY:
Your responses will be completely anonymous. You can skip any question(s) that you are not comfortable answering. No identifying information will ever appear in any reports, presentations and publications. All data from the questionnaires will be completely anonymous. Your responses will remain anonymous and will not be revealed to anyone.

Electronic questionnaire data will be hosted on the servers of the survey hosting company Qualtrics. Qualtrics servers are both anonymous and secured/encrypted (i.e., via Transport Layer Security and an Intrusion Detection System). Qualtrics will not make this anonymous data available to any party unless required by a valid court order, search warrant, or subpoena. The data stored on Qualtrics is anonymous and could not be linked to your identity. During data analysis, the researchers will store the anonymous data on a secured/password-protected computer. Members of Dr. Scharfe's research lab will analyze this anonymous data. These members include Dr. Scharfe, her research collaborators, graduate students, and undergraduate students working in her research lab. The anonymous data will be kept for at least five years after publication of the results. The data may be archived if required by journals for publication. The data will be used for research and teaching purposes by Dr. Elaine Scharfe. The data will also be used by

Emmilie Lindon for her MSc thesis. The data will be published in journals, chapters, books or other venues.

INCENTIVES FOR PARTICIPATION:
You may feel that the participating in research is a beneficial opportunity. You may also learn more about the research process. This was stated above as a potential benefit as well. I cannot guarantee that you will receive any benefits from participating in this study. There are no financial incentives for participation.

COSTS TO PARTICIPATION:
There are no costs associated with participation in this study with the exception of your time.

VOLUNTARY PARTICIPATION AND WITHDRAWAL:
Participation in this study is completely voluntary. You can choose whether to participate or not. You can refuse to answer any question. You can also quit participating at any time. There will be no negative consequences to you whatsoever if you stop participating. At the end of the survey you will be given an opportunity to decide if you would like your data to be used in the study. Your choice of whether to participate will not influence your future relations with Trent University or the investigators (Dr. Elaine Scharfe and Emmilie Lindon) involved in the research.

QUESTIONS ABOUT THE STUDY:
If you have any questions about this study, you can ask questions now. To ask questions and address any concerns before you agree to participate, email Dr. Elaine Scharfe (escharfe@trentu.ca). A summary of the data will be posted on Dr. Elaine Scharfe's website (www.attachmentmatters.ca) when the study is completed (Fall 2021). If you would like clarification regarding any part of this research, you can contact Dr. Elaine Scharfe.

This study has been reviewed by the Trent University Research Ethics Board, the study number is REB# 26560. If you have questions regarding your rights as a participant in this study please contact:

Michele J McIntosh, Chair Research Ethics Board
c/o Office of the Vice President, Research and Innovation
Trent University
1600 West Bank Drive
Peterborough, ON K9L 0G2
705-748-1011 ext. 7896
jmuckle@trentu.ca

CONFIRMATION OF AGREEMENT:
By agreeing to participate in this research, you are not giving up or waiving any legal right in the event that you are harmed during the research.

"I have read and given consent to completing the following questionnaire. I agree to participate in this study and I understand that by proceeding I am giving informed consent. I

understand that I should print a copy of my consent form—now before I continue—for my records."

To confirm that I agree to the consent form I will check the boxes below:

☐ I have read the information in this agreement;
☐ I have asked any questions I have about the study;
☐ I agree to participate in the study;
☐ I am aware I can change my mind and withdraw consent to participate at any time;
☐ I am aware that these data will be used for research purposes; and
☐ I understand that these data will be used for educational purposes; and
☐ I have printed a copy of this agreement; and
☐ I am not giving up any legal rights by signing this consent agreement.

If you do not wish to participate, do not continue and please close your browser

Appendix C

Demographic Questionnaire

Your age _____

Indicate your gender:

- ☐ Male
- ☐ Female
- ☐ Non-binary
- ☐ I prefer _____
- ☐ Prefer not to disclose

Ethnicity: (please fill in all that apply)

- ☐ White/Caucasian (please specify) _____
- ☐ First Nations, Métis, Inuit (please specify) _____
- ☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan; please specify) _____
- ☐ East Asian (e.g., Chinese, Japanese, Korean; please specify) _____
- ☐ South East Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese; please specify) _____
- ☐ Filipino
- ☐ Latin American/Hispanic (please specify) _____
- ☐ West Indian (e.g., Guyanese, Trinidadian; please specify) _____
- ☐ Black (e.g., African, Haitian, Jamaican, Somali; please specify) _____
- ☐ Arab / West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan; please specify) _____
- ☐ Other (please specify) _____

Growing up, what was the primary language(s) spoken at home? _____

Relationship status (check option that best describes your current situation)

- ☐ Single, not seeing someone
- ☐ Single, seeing someone
- ☐ In a committed relationship
- ☐ In an open relationship
- ☐ Engaged
- ☐ Married/Common-Law/Domestic Partnership
- ☐ Separated/divorced
- ☐ Widowed

How long have you been in this relationship? _____

Is this a sexual relationship?

- ☐ Yes

- ☐ No

Are you living together?

- ☐ Yes
- ☐ No

Sexual Orientation:

- ☐ Heterosexual
- ☐ Homosexual/Gay/Lesbian
- ☐ Bisexual
- ☐ Pansexual
- ☐ Queer
- ☐ Questioning
- ☐ Asexual
- ☐ Other _____

What is your highest level of education (choose all that apply)

- ☐ High school or less
- ☐ Some college or university
- ☐ Completed college
- ☐ Complete undergraduate degree
- ☐ Completed a professional degree (e.g., BEd, LLB, MD)
- ☐ Completed a graduate degree (e.g., MA, MSc, PhD)

What is your current employment status?

- ☐ Employed full-time (30 or more hours/week)
- ☐ Employed part-time (less than 30 hours/week)
- ☐ Unemployed (out of work but looking for work)
- ☐ Student employed part-time
- ☐ Student employed full-time
- ☐ Student not employed
- ☐ Retired
- ☐ Homemaker
- ☐ Other (please specify) _____

What type of contact do you ***currently*** have with your biological/adopted mother (Check all that apply)?

- ☐ No contact, my mother is deceased
- ☐ No contact, my mother is living but I do not have contact with her
- ☐ Letters or emails
- ☐ Skype
- ☐ Phone calls or texts
- ☐ Visits during the day
- ☐ Overnight visits
- ☐ I live with my mother
- ☐ My mother lives far away but I have visited her at least once in the past year

How often do you have contact with your biological/ adopted mother ***now?***

- ☐ Never or rarely
- ☐ Once year or less
- ☐ Twice/year
- ☐ Three or four times each year
- ☐ At least once month
- ☐ At least once week
- ☐ Daily or almost every day

What type of contact do you ***currently*** have with your biological/ adopted father (select all that apply)

- ☐ No contact, my father is deceased
- ☐ No contact, my father is living but I do not have contact with him
- ☐ Letters or emails
- ☐ Skype
- ☐ Phone calls or texts
- ☐ Visits during the day
- ☐ Overnight visits
- ☐ I live with my father
- ☐ My father lives far away but I have visited him at least once in the past year

How often do you have contact with your biological/adopted father ***now?***

- ☐ Never or rarely
- ☐ Once year or less
- ☐ Twice/year
- ☐ Three or four times each year
- ☐ At least once month
- ☐ At least once week
- ☐ Daily or almost every day

What is your parent's relationship status now?

- ☐ Never married
- ☐ Married or common-law
- ☐ Separated
- ☐ Divorced
- ☐ Widowed

Were you separated from one or both of your parents for at least one month at anytime before you finished your high school education?

- ☐ Yes
- ☐ No

Were you separated from your mother for at least one month at any time before you finished your high school education?

- ☐ Yes

☐ No

Were you separated from your mother because (check all that apply)

☐ Your mother was in jail
☐ Your mother was deployed (in the armed forces)
☐ Your mother was working
☐ Your mother was hospitalized
☐ Your mother went to live somewhere else
☐ You were in jail
☐ You were away at school
☐ You were away at camp
☐ You were hospitalized
☐ You went to live somewhere else (with relatives)
☐ You went to live somewhere else (with friends)
☐ You went to live somewhere else (in a foster home)
☐ You went to live somewhere else (in a group home)
☐ Other _____

Were you ever separated from your father for at least one month at any time before you finished your high school education?

☐ Yes
☐ No

Were you separated because (check all that apply)

☐ Your father was in jail
☐ Your father was deployed (in the armed forces)
☐ Your father was working
☐ Your farther was hospitalized
☐ Your farther went to live somewhere else
☐ You were in jail
☐ You were away at school
☐ You were away at camp
☐ You were hospitalized
☐ You went to live somewhere else (with relatives)
☐ You went to live somewhere else (with friends)
☐ You went to live somewhere else (in a foster home)
☐ You went to live somewhere else (in a group home)
☐ Other: _____

Using the scale below rate how likely you are to agree with the following statements about COVID health directives

1	2	3	4	5	6	7
Always			Sometimes			Never

_____ 1. How likely are you to wear a face mask when indoors (e.g., inside campus buildings or

inside stores)?
_____ 2. How likely are you to wear a face mask when outdoors (e.g., walking in your neighbourhood, waiting for the bus)?
_____ 3. How likely are you to adhere to 2 metre social distancing requirements when indoors (e.g., inside campus buildings or inside stores)?
_____ 4. How likely are you to adhere to 2 metre social distancing requirements when outdoors (e.g., walking in your neighbourhood, waiting for the bus)?
_____ 5. How likely are you to use hand sanitizers when entering and leaving a building/restaurant?
_____ 6. How likely are you to adhere to the current guidelines around the size of your social bubble?
_____ 7. How likely are you to adhere to the current shelter in place guidelines?

Using the sliding scale from 0 to 100% rate how likely you are to agree with the following statements about COVID health directives

0 10 20 30 40 50 60 70 80 90 100

_____ 1. What % of time did you stay home last week? (range from 0 to 100% of the time)
_____ 2. How likely are you to get a flu vaccine this year? (range from 0 to 100% likely)
_____ 3. How likely are you to get a COVID vaccine when it is available? (range from 0 to 100% likely)

Appendix D

Trent Relationship Scales Questionnaire (T-RSQ; Scharfe, 2016)

Trent Relationship Scales Questionnaire (T-RSQ) - Mother

Please read each of the following statements and rate the extent to which it describes your feelings about your **relationship with your mother (or your most significant mother figure)** on the 7-point scale. Please think about your relationship with your mother, past and present, and respond in terms of how you generally feel in this relationship. If you do not have a mother or mother-figure please skip to the next survey.

1	2	3	4	5	6	7
Not at all Like me			Somewhat Like me			Very much Like me

_____ 1. I find it difficult to depend on my mother.
_____ 2. It is very important to me to feel independent from my mother.
_____ 3. I find it easy to get emotionally close to my mother.
_____ 4. I worry that I will be hurt if I allow myself to become too close to my mother.
_____ 5. I am comfortable without a close emotional relationship with my mother.
_____ 6. I want to be completely emotionally intimate with my mother.
_____ 7. I worry about being alone.
_____ 8. I am comfortable depending on my mother.
_____ 9. I find it difficult to trust my mother completely.
_____ 10. I am comfortable having my mother depend on me.
_____ 11. I worry that my mother does not value me as much as I value her.
_____ 12. It is very important to me to feel self-sufficient from my mother.
_____ 13. I prefer not to have my mother depend on me.
_____ 14. I am somewhat uncomfortable being close to my mother.
_____ 15. I find that my mother is reluctant to get as close as I would like.
_____ 16. I prefer not to depend on my mother.
_____ 17. I worry about having my mother not accept me.
_____ 18. I tend to let problems build up with my mother before dealing with them.
_____ 19. I would like to spend more time with my mother, but she does not have enough time for me.
_____ 20. It took a long time for me to become close to my mother.
_____ 21. I am affectionate in my relationship with my mother.
_____ 22. I am too busy to form a close relationship with my mother.
_____ 23. I tend to be emotionally expressive in my relationship with my mother.
_____ 24. I am honest and open in my relationship with my mother.
_____ 25. I am shy in social situations with my mother.
_____ 26. When I disagree with my mother, I find that she is often defensive.
_____ 27. I do not disclose personal information to my mother.
_____ 28. It is difficult to accept advice from my mother because her views are so different from

mine.
_____ 29. I like to deal with conflict with my mother immediately, regardless of how long it
_____ 29. I like to deal with conflict with my mother immediately, regardless of how long it
takes to resolve the conflict.
_____ 30. I am usually a good judge of how my mother is feeling.
_____ 31. I cry easily with my mother.
_____ 32. I handle conflicts differently with my mother.
_____ 33. I do not express my feelings openly for fear that my mother might disagree with me.
_____ 34. I believe that it is a waste of time to argue/disagree with my mother.
_____ 35. I am comfortable crying in front of my mother.
_____ 36. Many of the problems in my relationship with my mother are primarily my fault.
_____ 37. When I am upset, I go to my mother for comfort or support.
_____ 38. I do not go to my mother when I am upset because I like to deal with problems on my own.
_____ 39. Although I want to be accepted, sometimes I feel like I do not fit in with my mother.
_____ 40. I wish that I could be more open in my relationship with my mother, but I do not know
how to change.
_____ 41. I can go to my mother to help me feel better when I am upset or when something bad
happens.
_____ 42. I can count on my mother to always be there for me and care about me no matter what.
_____ 43. I need to see or talk regularly with my mother.
_____ 44. I would be upset if I knew that I was not going to see my mother for a long time.
_____ 45. I am anxious and I worry when I cannot have immediate contact with my mother.
_____ 46. I know that my mother will always accept me, no matter what I say or do.
_____ 47. My resolution of conflicts with my mother changes depending on the situation.
_____ 48. My resolution of conflicts with my mother is always the same – we always do the
same thing when we disagree.
_____ 49. I prefer to deal with problems on my own so I do not go to my mother for support or
advice.
_____ 50. I am comfortable not having a close emotional relationship with my mother.

Who did you think about when you completed the questions above? (Select all that apply)

- ☐ Your biological mother
- ☐ Your adopted mother

☐ Your step mother
☐ Your foster mother
☐ A relative who fulfilled a mother role (specify who): _____

Trent Relationship Scales Questionnaire (T-RSQ) – Father

Please read each of the following statements and rate the extent to which it describes your feelings about your **relationship with your father (or your most significant father figure)** on the 7-point scale. Please think about your relationship with your father past and present, and respond in terms of how you generally feel in this relationship. If you do not have a father or father-figure, please skip to the next survey.

1	2	3	4	5	6	7
Not at all Like me			Somewhat Like me			Very much Like me

_____ 1. I find it difficult to depend on my father.
_____ 2. It is very important to me to feel independent from my father.
_____ 3. I find it easy to get emotionally close to my father.
_____ 4. I worry that I will be hurt if I allow myself to become too close to my father.
_____ 5. I am comfortable without a close emotional relationship with my father.
_____ 6. I want to be completely emotionally intimate with my father.
_____ 7. I worry about being alone.
_____ 8. I am comfortable depending on my father.
_____ 9. I find it difficult to trust my father completely.
_____ 10. I am comfortable having my father depend on me.
_____ 11. I worry that my father does not value me as much as I value them.
_____ 12. It is very important to me to feel self-sufficient from my father.
_____ 13. I prefer not to have my father depend on me.
_____ 14. I am somewhat uncomfortable being close to my father.
_____ 15. I find that my father is reluctant to get as close as I would like.
_____ 16. I prefer not to depend on my father.
_____ 17. I worry about having my father not accept me.
_____ 18. I tend to let problems build up with my father before dealing with them.
_____ 19. I would like to spend more time with my father, but he does not have enough time for me.
_____ 20. It took a long time for me to become close to my father.
_____ 21. I am affectionate in my relationship with my father.
_____ 22. I am too busy to form a close relationship with my father.
_____ 23. I tend to be emotionally expressive in my relationship with my father.
_____ 24. I am honest and open in my relationship with my father.
_____ 25. I am shy in social situations with my father.
_____ 26. When I disagree with my father, I find that he is often defensive.
_____ 27. I do not disclose personal information to my father.
_____ 28. It is difficult to accept advice from my father because his views are so different from

mine.
_____ 29. I like to deal with conflict with my father immediately, regardless of how long it takes
to resolve the conflict.
_____ 30. I am usually a good judge of how my father is feeling.
_____ 31. I cry easily with my father.
_____ 32. I handle conflicts differently with my father compared to others.
_____ 33. I do not express my feelings openly for fear that my father might disagree with me.
_____ 34. I believe that it is a waste of time to argue/disagree with my father.
_____ 35. I am comfortable crying in front of my father.
_____ 36. Many of the problems in my relationship with my father are primarily my fault.
_____ 37. When I am upset, I go to my father for comfort or support.
_____ 38. I do not go to my father when I am upset because I like to deal with problems on my own.
_____ 39. Although I want to be accepted, sometimes I feel like I do not fit in with my father.
_____ 40. I wish that I could be more open in my relationship with my father, but I do not know
how to change.
_____ 41. I can go to my father to help me feel better when I am upset or when something bad
happens.
_____ 42. I can count on my father to always be there for me and care about me no matter what.
_____ 43. I need to see or talk regularly with my father.
_____ 44. I would be upset if I knew that I was not going to see my father for a long time.
_____ 45. I am anxious and I worry when I cannot have immediate contact with my father.
_____ 46. I know that my father will always accept me, no matter what I say or do.
_____ 47. My resolution of conflicts with my father changes depending on the situation.
_____ 48. My resolution of conflicts with my father is always the same – we always do the
same thing when we disagree.
_____ 49. I prefer to deal with problems on my own so I do not go to my father for support or
advice.
_____ 50. I am comfortable not having a close emotional relationship with my father.

Who did you think about when you completed the questions above? (Select all that apply)

- ☐ Your biological father
- ☐ Your adopted father
- ☐ Your step father
- ☐ Your foster father
- ☐ A relative who fulfilled a father role (specify who): _____

Is this the first time you have completed this survey?

- ☐ Yes, this is the first time I have completed these surveys
- ☐ No, I have completed surveys like these surveys before
- ☐ I am not sure, they do seem familiar

Appendix E

Adverse Childhood Experiences Questionnaire (ACE; Felitti et al., 1998)

For the following questions, please respond to them with either a yes or a no

During your first 18 years of life:

_____ 1. Did you live with anyone who was a problem drinker or an alcoholic?
_____ 2. Did you live with anyone who used street drugs?
_____ 3. Was anyone in your household depressed or mentally ill?
_____ 4. Did anyone in your household attempt to commit suicide?
_____ 5. Were your parents ever separated or divorced?
_____ 6. Did anyone in your household ever go to prison?
_____ 7. Touch or fondle your body in a sexual way?
_____ 8. Have you touched their body in a sexual way?
_____ 9. Attempt to have any type of sexual intercourse (oral, anal or vaginal) with you?
_____ 10. Actually have any type of sexual intercourse with you (oral, anal, or vaginal) with you?

Appendix F

Traumatic Event Questionnaire

These instructions were modified from the Life Events Checklist (LEC; Weathers et al., 2013).

A traumatic event is an incident that causes physical, emotional, psychological, or spiritual harm (Cafasso, 2012). Examples of such events include but are not limited to the death of a loved one, divorce, accidents, serious illness, natural disaster, war, terrorism, and parental abandonment.

Please indicate whether you have experienced a traumatic life event in any of the categories below.

1	2
Yes	No

_____ a) Happened to you personally.
_____ b) You witnessed happen to someone else.
_____ c) You learned about it happening to a close family member or close friend.
_____ d) You were exposed to it as part of your job (for example, paramedic, police, military, or other first responder).

If you think of the most recent traumatic event that happened to you, did it occur:

- ☐ In the last year
- ☐ 1-2 years ago
- ☐ 3-5 years ago
- ☐ 6-10 years ago
- ☐ 10 years or more

Appendix G

PTSD Checklist – Civilian Version (PCL-C; Weathers et al., 1993)

Below is a list of problems and complaints that individuals have in response to stressful experiences. Please consider the life event that you reported in previous question. If you have had more than one traumatic event, please think of the most recent. Please read each of the following statements and rate the extent to which it describes your experiences *in the last month*.

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

_____ 1. Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?
_____ 2. Repeated, disturbing dreams of a stressful experience from the past?
_____ 3. Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?
_____ 4. Feeling very upset when something reminded you of a stressful experience from the past?
_____ 5. Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stressful experience from the past?
_____ 6. Avoid thinking about or talking about a stressful experience from the past or avoid having feelings related to it?
_____ 7. Avoid activities or situations because they remind you of a stressful experience from the past?
_____ 8. Trouble remembering important parts of a stressful experience from the past?
_____ 9. Loss of interest in things that you used to enjoy?
_____ 10. Feeling distant or cut off from other people?
_____ 11. Feeling emotionally numb or being unable to have loving feelings for those close to you?
_____ 12. Feeling as if your future will somehow be cut short?
_____ 13. Trouble falling or staying asleep?
_____ 14. Feeling irritable or having angry outbursts?
_____ 15. Having difficulty concentrating?
_____ 16. Being “super alert” or watchful on guard?
_____ 17. Feeling jumpy or easily startled?

Please consider the challenging life event that you reported in the previous question. If you have had more than one traumatic event, please think of the most recent. In the textbox below, please elaborate if you have any insights into the types of things that helped and the types of things that hindered before, during, or after the event.

Appendix H

Check questions

	1	2	3	4	5
	Never	Once or twice	Sometimes	Often	Very Often
_____	5.	Pick 5 for this question			

I was abducted by aliens while completing this survey.

- ☐ Yes
- ☐ No

Thank you for completing this survey. We rely on participants to read the survey questions carefully and answer to the best of their ability. In other words, the results of our study are only as good as the responses we receive from our participants. We understand that people sometimes find it difficult to give online survey questions their complete attention throughout and to answer the questions carefully and honestly. You can help us maximize the quality and integrity of our data--and thus our results--by responding honestly to the questions below.

Is this the first time you have completed this survey?

- ☐ Yes, this is the first time I completed this survey.
- ☐ No, I completed this survey earlier.

Given the attention you gave to this survey, and how carefully and thoughtfully you answered the questions, please answer the following question.

Did you read the survey questions carefully and answer to the best of your ability?

- ☐ Yes I did.
- ☐ No I did not read the questions carefully or answer honestly.
- ☐ Yes, I did but I would rather you did not use my data in your final analyses.

Appendix I

Student Participant Feedback Form

Title: The price of good behaviour: The effects of individual differences of attachment, childhood adversity and stress symptoms on behaviour

Faculty Researcher: Elaine Scharfe, PhD., Department of Psychology, 705-748-1011 ext. 7354, escharfe@trentu.ca

Psychology MSc student researchers

Hannah Cahill (hannahcahill@trentu.ca), Scottie Curran (scottiecurran@trentu.ca), Emmilie Lindon (emmilielindon@trentu.ca)

If you have any questions or concerns about the research, please feel free to contact Dr. Elaine Scharfe, 705-748-1011 ext. 7354 or escharfe@trentu.ca

Participant Feedback

It has long been accepted that personality influences our tendency to follow the rules. In this study, we are particularly interested in who is likely to break the rules and why. We expect that the quality of your close relationships will be associated with your views of rules about antisocial or illegal activities and more recently COVID restrictions In particular, our view of ourselves and our view of others may be associated with a disregard of some rules or our perceptions that it is okay to break some rules, sometimes. These effects may be exacerbated depending on your childhood experiences (e.g., abuse or neglect) or your current symptoms (e.g., feelings of distress after a particularly traumatic experience). We expect that participants with negative childhood experiences may be more likely to report a higher tolerance to some rule breaking. Similarly, your current levels of distress may also be associated with a higher tolerance with rule breaking.

If you have any questions about this study, or you would like clarification regarding any part of this research, please email Dr. Elaine Scharfe (escharfe@trentu.ca). A summary of the data will be posted on Dr. Elaine Scharfe's website (www.attachmentmatters.ca) when the study is completed (Fall 2021). If you have any problems or concerns as a result of your participation in this study, please contact Trent Research Ethics Board by either phoning Jamie Muckle at 748 1011 x 7050 or e-mailing him at jmuckle@trentu.ca

Thank you for your participation.

Suggested Readings

Bartholomew, K., & Horowitz, L. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226-244. doi: 10.1037/0022-3514.61.2.226

Götz, F. M., Gvirtz, A., Galinsky, A. D., & Jachimowicz, J. M. (2020). How personality and policy predict pandemic behavior: Understanding sheltering-in-place in 55

countries at the onset of COVID-19. *American Psychologist,* doi:10.1037/amp0000740

Simha, A., & Parboteeah, P. K. (2019). The big 5 personality traits and willingness to justify unethical behavior—a cross-national examination. *Journal of Business Ethics,* doi:10.1007/s10551-019-04142-7

If you have experienced any distress while completing the study, personal counselling is available to all students through the Counselling Centre. Many students seek support for specific concerns related to anxiety, depression, grief, and relationship challenges. Other students come to the Centre with less clearly defined difficulties such as low motivation, poor self-image/esteem, stress, loneliness and adjustment issues, all of which can seriously interfere with one's daily functioning and academic performance. Through discussion and goal-setting, counsellors can help students to more fully understand themselves, their concerns and to learn effective coping strategies. A few sessions of individual counselling are often sufficient to find a solution or at least to view the problem from a more manageable perspective. The opportunity to speak freely about one's concerns in a confidential and non-judgemental atmosphere can provide a source of comfort and relief. Relevant referrals within the Trent and Peterborough communities can be arranged as appropriate. Group therapy and workshops on selected topics are offered throughout the year. Limited psychiatric services are also provided. To book an appointment, please call (705) 748-1386 or drop by Blackburn Hall, Suite 113.

Counselling Centre
Blackburn Hall, Suite 113
Telephone: (705) 748-1386 Fax: 705: 748-1137
E-mail: counselling@trentu.ca

Web: www.trentu.ca/counselling
Office Hours: Monday - Friday
9:00-12:00, 1:00-4:00
Please phone ahead for an appointment

You may also find some of the resources below helpful

Kids Help Phone: www.kidshelpphone.ca

Canadian Mental Health Association: www.ontario.cmha.ca

Telehealth Ontario: This is a confidential phone service, where you can talk to a Registered Nurse for free 24 hours a day, 7 days a week. Phone Number: 1-866-797-0000

Appendix J

Community Participant Feedback Form

Title: Effects of Attachment and Childhood Adversity on Posttraumatic Stress Symptoms

Psychology MSc student researcher: Emmilie Lindon, MSc candidate, Department of Psychology, Trent University, Peterborough, ON, Canada, emmilielindon@trentu.ca

Faculty Researcher: Elaine Scharfe, PhD., Department of Psychology, Trent University, Peterborough, ON, Canada, 705-748-1011 ext. 7354, escharfe@trentu.ca

If you have any questions or concerns about the research, please feel free to contact Emmilie Lindon emmilielindon@trentu.ca or Dr. Elaine Scharfe escharfe@trentu.ca

Participant Feedback

This study explores the effects of childhood adversity and adult attachment on the development of posttraumatic stress symptoms in adulthood. Psychologists have found that histories of childhood adversity and adult attachment orientations influence how we interpret and respond to traumatic events. These two factors may cause us to be more or less vulnerable to the negative outcomes of trauma such as posttraumatic stress. We believe that exposure to more adverse childhood experiences will influence the relationship between attachment and posttraumatic stress symptoms. In particular, we expect the relationship between attachment and posttraumatic stress symptoms to be stronger for individuals who report four or more childhood adversities. The purpose of this study is to expand on previous literature by exploring the interactive effects of two risk factors associated with posttraumatic stress symptoms in adulthood.
If you have any questions about this study, please email Emmilie Lindon (emmilielindon@trentu.ca) or Dr. Elaine Scharfe (escharfe@trentu.ca). Please email if you would like related readings or clarification about this research as well. A summary of the data will be posted on Dr. Elaine Scharfe's website (www.attachmentmatters.ca) when the study is completed (Fall 2021). If you have any problems or concerns as a result of your participation in this study, please contact Trent Research Ethics Board by either phoning Jamie Muckle at 748 1011 x 7050 or e-mailing him at jmuckle@trentu.ca.

Thank you for your participation.

Suggested Reading

To learn more about Attachment Relationships, click this link to a PDF version of an academic research article (Bartholomew & Horowitz, 1991):
https://pdfs.semanticscholar.org/6b60/00ae9911fa9f9ec6345048b5a20501bdcedf.pdf?_ga=2.196618028.1804098414.1612926596-7237194.1598319302

To learn more about the research on the effects of Adverse Childhood Experiences (ACE), click this link to a PDF Resource Packet created by health professionals: https://www.childhealthdata.org/docs/default-source/cahmi/aces-resource-packet_all-pages_12_06-16112336f3c0266255aab2ff00001023b1.pdf

To learn more about Posttraumatic Stress Disorder, click this link to a pamphlet created by the Canadian Mental Health Association:
https://cmha.ca/wp-content/uploads/2016/02/PTSD-NTNL-brochure-2014-web.pdf

You may also find some of the resources below helpful
If you have experienced any distress while completing the study, please refer to the information listed below for resources to deal with this distress.

Resources in Canada

Canadian Mental Health Association: www.ontario.cmha.ca

Telehealth Ontario: This is a confidential phone service, where you can talk to a Registered Nurse for free 24 hours a day, 7 days a week. Phone Number: 1-866-797-0000

Kids Help Phone: www.kidshelpphone.ca

Canadian Association of Elizabeth Fry Societies: https://www.caefs.ca/

John Howard Society of Canada: http://www.johnhoward.ca/

Resources in the United States

The Osborne Association: www.osborneny.org

National Suicide Prevention Lifeline: This resource is a national helpline that offers support for anyone that requires emotional support. Emotional support is available whether you are thinking about suicide or need someone to talk to for any other reason. This resource also provides specific options for individuals that are deaf or hard of hearing. https://suicidepreventionlifeline.org/talk-to-someone-now/

Centre for Suicide Awareness Hopeline: You can text this service at any time to receive emotional support. Text HOPELINE to 741741 to talk with a trained specialist that can help you with any stressful or emotional experiences you may have. https://centerforsuicideawareness.org/hopeline

Additional Resources

World Health Organization: This organization provides global resources that promote access to mental health supports and guides to managing your own mental stress https://www.who.int/teams/mental-health-and-substance-use

Appendix K

Online Participant Recruitment Information

Facebook	
Group Name	**Date(s) Posted**
Attachment Matters	March 15; March 26,2021
Personal Profile: Emmilie Lindon	March 15; June 25, 2021
Personal Profile: Chantelle Lindon	March 15, 2021
Posttraumatic Stress Disorder and Traumatic Brain Injury	March 18, 2021
Posttraumatic Stress Disorder After Childbirth	March 19, 2021
Adverse Childhood Experiences – Trauma-Informed … UK	March 19, 2021
Healing Trauma for Women	March 19, 2021
Maslow Before Bloom (Education, Trauma & Mental Health)	March 22, 2021
Stress Management in this Pandemic of Stress and Trauma	March 22, 2021
Trauma Psychotherapy	March 22, 2021
Warriors & Survivors of Abuse, Trauma, Sexual … Illness	March 22, 2021
Trauma-Informed Schools Group	March 22, 2021
T. I. P. Trauma Informed Parenting	March 22, 2021
Trauma Informed Parent	March 22, 2021
Beyond Trauma and Attachment – BeTA	March 22, 2021
Trauma Informed Recovery	March 22, 2021
Healing Path to Complex PTSD Recovery	March 23, 2021
Trauma Dissociation	March 23, 2021
Surviving Trauma	March 29, 2021
Student Survey Exchange	March 29, 2021
Trauma Research UK	March 29, 2021
Trauma, PTSD, Depression, Anxiety, Dissociation … Group	April 6, 2021
Adult Survivors of Childhood Trauma and PTSD	April 8, 2021
My Bad Car Accident	April 15, 2021
Motor Vehicle Accident Survivors	April 15, 2021
Scam Victims United	April 15, 2021
Men Are Victims Too	April 15, 2021
Victims of Narcissism	April 15, 2021
Narcissist Victim & Survivor Group	April 15, 2021
TodayISawRoadAccident	April 19, 2021
PTSD – Through childhood trauma – raising awareness	April 19, 2021
Survivors of Child Abuse	April 19, 2021
Divorce Club	April 19, 2021
From Trauma to Triumph – overcoming trauma for … women	April 20, 2021
Twitter	
Group Name	**Date(s) Posted**
Attachment Matters	March 17, 2021
Personal Profile: Emmilie Lindon	March 17, 2021
Instagram	
Group Name	**Date(s) Posted**

Attachment Matters	March 12, 2021
Personal Profile: Emmilie Lindon	March 12, 2021
Personal Profile: Chantelle Lindon	March 12, 2021

Reddit

Group Name	**Date(s) Posted**
r/ptsd	March 11; April 26, 2021
r/CPTSD	March 12; April 26, 2021
p/Psychology (Survey thread)	March 12; March 25, 2021
r/SampleSize	March 16; April 6, 2021
r/survivorsofabuse	March 17; April 26, 2021
r/SomaticExperiencing	March 17; April 26, 2021
r/secondary_survivors	March 23; April 26, 2021
r/traumatoolbox	March 23, 2021
r/TooAfraidToAsk	March 25, 2021
r/askscience	March 25, 2021
r/EverythingScience	March 25, 2021
r/mentalillness	March 26; May 4, 2021
r/therapy	March 26; April 26, 2021
r/psychologystudents	March 26; April 26, 2021
r/Veterans	March 29, 2021
r/malementalhealth	March 29; April 26, 2021
r/MentalHealthUK	March 29; April 26, 2021
r/takemysurvey	April 6, 2021
r/attachment_theory	April 7, 2021
r/AnxiousAttachment	April 8, 2021
r/braincancer	April 8, 2021
r/Divorce	April 8, 2021
r/Marriage	April 8, 2021
r/adultery	April 8, 2021
r/exmuslim	April 8, 2021
r/stepparents	April 12, 2021
r/CoronavirusUK	April 12, 2021
r/Bad_Cop_No_Donut	April 12, 2021
r/raisedbynarcissists	April 13; April 26, 2021
r/anxiety	April 13, 2021
r/HealthAnxiety	April 13, 2021
r/MentalHealthPH	April 14, 2021
r/childhood	April 14, 2021
r/Dissertation	April 14, 2021
r/AdultHood	April 15, 2021
r/COVID19_support	April 18, 2021
r/Earthquakes	April 22, 2021
r/abandonment	April 22, 2021
r/AdultChildren	April 22, 2021
r/emotionalneglect	April 26, 2021
r/Divorce_Men	May 4, 2021

r/CPTSDpartners May 4, 2021

Note.