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Susan Elizabeth Ocean
University of Montana

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FAMILY ENVIRONMENT AND ATTACHMENT
IN RELATION TO COMPLEX TRAUMA AND C-PTSD

By

SUSAN ELIZABETH OCEAN

Master of Arts, University of Montana, Missoula, MT, 2014
Bachelor of Science, Old Dominion University, Norfolk, VA, 2009

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Approved by:

Scott Whittenberg,
Graduate School Dean

Christine Fiore, PhD, Chair
Department of Psychology

Cameo Stanick, PhD
Department of Psychology

Paul Silverman, PhD
Department of Psychology

James Caringi, PhD
School of Social Work

Rick van den Pol, PhD
Department of Psychology

Family Environment and Attachment in Relation to Complex Trauma and C-PTSD

Chairperson: Christine Fiore, Ph.D.

Childhood traumatic experiences occurring during critical developmental stages are strongly linked to poor mental health outcomes during adulthood, including PTSD. Yet, individuals who have experienced multiple traumas (and across developmental stages) report a profile of symptoms that is not well-represented by traditional PTSD diagnostic criteria. Recent research suggests that resulting post-traumatic stress after the experience of complex trauma should be considered a separate, yet related, disorder from the well-established PTSD. Since traumatic experiences are commonplace and often detrimental, establishing which factors contribute to risk and resilience is of great importance. Having secure attachment to a primary caregiver and family cohesion are consistently supported in the literature as contributors to resilience. The primary objective of the current research was to contribute to the ongoing development and understanding of complex trauma and the proposed C-PTSD categorization. Additionally, this study evaluated the relationship between experiencing trauma, developing trauma symptomology, and familial factors of (1) a positive family environment in youth and (2) secure attachment. Results provided supportive evidence of a significant relationship between a higher number of potentially traumatic events (PTEs) and increased trauma symptomology, specifically PTSD and C-PTSD. A positive family environment and a more secure attachment style were found to be associated with less PTSD and C-PTSD symptomology. This study provides preliminary support and suggests further exploration of factors that may strengthen resilience and protect against trauma-related symptoms would be beneficial.

Introduction

Childhood experiences of trauma are a significant public health concern in the United States. In a general population sample of children and adolescents, Costello, Erkanli, Fairbank, and Angold (2002) found that one in four had experienced at least one high-magnitude stressor (such as the death of a caregiver) in their lifetime. Over half (57%) reported experiencing additional significant life stressors. In a nationally representative sample, estimating rates of victimization in youth aged 2 to 17 years old, only 29% had experienced no victimization, concluding that childhood exposure to violence, crime, maltreatment, and other forms of victimization are a “routine part of ordinary childhood in the United States” (Finkelhor, Ormrod, Turner, & Hamby, 2005; p.18). In minority, refugee, and clinical populations, a single experience of trauma is the exception rather than the rule (Kira, 2008) and victimized youth are then at greater risk, as they are frequently re-victimized (Finkelhor, Ormrod, & Turner, 2007; Herman, 1992). Childhood trauma literature suggests that an early history of maltreatment or severe adversity significantly affects the mental health of these individuals (Briere & Jordan, 2009; Felitti et al., 1998; Rees et al., 2011).

In addition to causing a host of issues in childhood, traumatic experiences that occur during critical developmental stages are thought to have considerable negative influence on adult mental health (Briere & Jordan, 2009; Felitti et al., 1998; Rees et al., 2011). The Centers for Disease Control and Prevention (CDC) reported information about adverse childhood experiences collected from approximately 9,000 adult health maintenance organization (HMO) members (Felitti, et al., 1998). Over 30% of participants reported being physically abused, 23.5% reported being exposed to family alcohol abuse, 19.9% reported being sexually abused, 18.8% reported experiencing mental illness in their family, 12.5% reported witnessing

interparental violence, 11% reported emotional abuse as a child, and almost 5% of participants reported having experienced family drug abuse. The authors outlined relationships between these experiences and depression, suicidality, domestic violence, alcohol and drug abuse, sexual promiscuity and sexually transmitted diseases, as well as other serious health-related concerns in adulthood. Further, the more cumulative and stressful the traumatic experiences, the more likely individuals were to develop health problems later in life such as cancer, stroke, heart disease, and diabetes.

The development of posttraumatic stress disorder (PTSD) is one of the most common psychological sequelae of trauma in adults (Copeland, Gordon, Angold, & Costello, 2007; Feeny, Foa, Treadwell, & March, 2004). Individuals who develop PTSD following trauma have an even greater risk of developing life course impairments, including major depression, substance dependence, unemployment, and marital instability (Breslau, Davis, Peterson, & Schultz, 2000). Lifetime prevalence rate estimates for adults with PTSD range from 6.8% (Kessler, et al., 2005) to 25% (Hidalgo & Davidson, 2000).

Individuals who experience trauma at an early age or for a prolonged period of time, or who experience trauma of an interpersonal nature, may show symptoms that fall outside the range covered by PTSD (van der Kolk, 2005). These symptoms often give rise to “comorbid” diagnoses, frequently thought of and treated separately, and as unrelated to the traumatic experience. In fact, individuals who have experienced trauma across a variety of time spans and developmental stages have reported numerous symptoms not represented by a PTSD diagnosis. Reported symptoms have included depression, anxiety, dissociation, substance misuse, self-hatred, self-destructive and risk-taking behavior, difficulties with interpersonal relations (including parenting), as well as medical and somatic concerns (Courtois, 2008). These

symptoms are commonly categorized as comorbid diagnoses rather than identified as meaningful components of a complex posttraumatic adaptation.

In addition to recognizing complicated reactions, another area of importance remains the identification of factors that promote both risk and resiliency. Family environment and secure attachment have been identified as primary protective factors that influence resilience to trauma-related disorders. Family unity and cohesion are associated with resilience (Liem et al., 1997; Resnick et al, 1997). Further, children are thought to develop different patterns of attachment organization based on their experiences with their primary caregivers (Ainsworth et al., 1978). When these experiences are positive, and the caregiver is accessible and responsive, the social development of the child will follow a “normal course” (Ainsworth et al.; p. 9). Attachment styles impact the development of the internal working models applied to future relationships (Paley, Cox, Burchinal, & Payne, 1999). They influence individuals’ beliefs regarding their own self-worth and schemas of how others will respond to their needs. When a secure attachment representation is developed, others are considered supportive and reliable, and self-worth healthy. When an insecure model is established, others are believed to be unavailable, rejecting, or inconsistently available and self-value is not as strongly developed. The influence of attachment styles within adult relationships is an important area to consider in relation to overall health and wellness. In Bowlby’s words (as cited in Hazan & Shaver, 1994), attachment is an essential consideration when studying human behavior “from the cradle to the grave.”

The result of traumatic experience during developmental stages is either stronger, more resilient individuals who are better able to successfully maneuver life experiences, or more vulnerable, less resistant individuals who may be limited in their ability to effectively navigate these same experiences. The comprehensive view of developmental consequences is summed up

by Sroufe (1997): “Disturbance is not a given; it is supported. Pathology is not something a child ‘has’; it is a pattern of adaptation reflecting the totality of the developmental context to that point.” Those who move through traumatic experiences and manage to remain on a normal developmental trajectory are said to have resilience.

Since traumatic experiences are commonplace and may be detrimental, establishing which factors contribute to risk and to resilience is a topic of great importance for children, their clinicians, their families, and the community. Although the field is vast and there are difficulties defining a fluid construct such as resilience, research currently suggests that building resiliency may not be the obscure and daunting task it was once thought to be (Bonanno, 2008; Masten, 2001; Yehuda, 2004). In order to protect individuals and communities from considerable mental health difficulties, a better understanding of the complexity of trauma experiences and resulting sequelae is imperative. The ability to accurately identify trauma-related developmental disruptions, factors that facilitate resilience, and treatment options that appropriately address both of these will aid in fewer long-term mental and physical health problems (Jonkman et al., 2013; Lindauer, 2012).

Review of Literature

Posttraumatic Stress Disorder May Be Insufficient

A clinical diagnosis of posttraumatic stress disorder (PTSD) includes these criteria: (1) exposure to a traumatic event, (2) re-experiencing the event, (3) avoidance of the trauma-related stimuli, (4) negative thoughts or feelings related to the traumatic event, (5) prolonged physiological hyperarousal, (6) symptom duration of longer than one month, and (7) functional impairment due to these symptoms (American Psychiatric Association [APA], 2013). Re-experiencing symptoms of PTSD may include disturbing, intrusive thoughts and nightmares;

negative thoughts and feelings may include a negative affect, feelings of isolation, and exaggerated blame of self or others; hyperarousal may include disruptive hypervigilance and a decrease in sleep quality.

PTSD is less frequently diagnosed in childhood than during adulthood (Feeny, et al., 2004; Yule, 2001). A general population sample of 1,420 children (nine-, eleven-, and thirteen-year-olds) were followed annually through sixteen years of age (Copeland, et al., 2007). Though trauma experiences were common, clinical PTSD was rarely found in this age group. According to the Diagnostic and Statistical Manual, 4th edition Text Revision (DSM-IV-TR; APA, 2000), childhood symptoms may present differently than adult symptoms and may include disorganized or agitated behavior, recurrent or distressing thoughts, repetitive play, nightmares, sleep disturbance, and difficulties concentrating. The DSM-5 (APA, 2013) now includes updated guidelines for a PTSD diagnosis in children less than six years of age: (1) exposure to a traumatic event, (2) intrusive re-experiencing, (3) avoidance of trauma-related stimuli, and (4) trauma-related physiological arousal that includes the possibility of negative behavior.

Those individuals exposed to trauma in formative periods of development are thought to be at risk for symptoms and functional impairment well beyond a PTSD diagnosis (Ford, 2017). Hodges et al. (2013) found that youth who experienced cumulative interpersonal trauma developed symptom complexity rather quickly, supporting the proposed developmental trauma disorder (DTD; van der Kolk, 2005). DTD would classify those individuals with a high number of varying symptoms associated with repeated trauma exposure along the developmental continuum. A DTD diagnosis continues to be debated and falls within the ongoing discussion surrounding complex trauma and diagnoses that fit these experiences.

Complexity of Traumatic Experiences and Resulting Symptomology

What happens when an individual experiences complex trauma? Courtois (2008) has said it quite simply, “complex trauma generates complex reactions” (p. 86). Van der Kolk (2005, p.2) defines complex trauma in childhood as “the experience of multiple, chronic and prolonged, developmentally adverse traumatic events, most often of an interpersonal nature, often within the child’s caregiving system.” Herman (1992) found that there have been multiple independent recommendations to expand on an insufficient PTSD diagnosis for various specific populations dating back to Niederland’s work with Holocaust survivors in the 1960’s. Niederland concluded that the single concept of ‘traumatic neurosis’ was insufficient for the multitude of clinical presentations he observed. Herman (1992) also indicated that Tanay, who worked with Holocaust survivors at about the same time, described character changes in traumatized individuals that fell outside a typical trauma response (Krystal, 1968). When childhood and developmental considerations enter the traumatic response equation, Gelinis (1983) spoke of “complicated traumatic neurosis” of survivors of childhood sexual abuse. Goodwin (1988) referred to the symptomatology of prolonged childhood abuse survivors as “severe post-traumatic syndrome.” As noted, van der Kolk (2005) has suggested “developmental trauma disorder,” a term that seems to encapsulate the importance of both the complexity of the traumatic experience itself and the stage at which it occurs.

Given the complicated nature of prolonged and interpersonal traumatic experiences and the effects of these on individuals and on society, it is not surprising that the diagnosis of complex-posttraumatic stress disorder (C-PTSD) is also complex, and even controversial (Ford, 2017). Despite Hermann’s proposal over two decades ago, that trauma should be evaluated with more breadth, C-PTSD does not yet exist as a diagnostic category in the standard diagnostic

reference for the mental health field, the Diagnostic and Statistical Manual (DSM). Though C-PTSD had not yet been formally defined and no standardized measurement had been agreed upon, Hermann's appeal resulted in numerous aspects of complex trauma being evaluated by research. There was enough consensus to warrant the proposed C-PTSD diagnosis in the newest edition of the International Classification of Diseases (ICD-11; World Health Organization, 2019). The current diagnosis consists of six symptoms clusters that include the three PTSD criteria of reexperiencing, avoidance, and hypervigilance and three disturbances of self-organization (DSO) symptoms defined as emotional dysregulation, interpersonal difficulties, and negative self-concept.

In both the American Psychiatric Association's DSM and the World Health Organization's ICD, the complexity of PTSD criteria has increased through the years. "Enduring personality change after catastrophic experience (EPCACE)," a posttraumatic syndrome, was added to the ICD-10 (WHO, 1992) category of adult personality and behavior disorders. EPCACE may be preceded by PTSD and must be chronic (at least two years). In addition to PTSD symptoms, EPCACE also includes changes in beliefs about the world, self, and the future that endure. In alignment with the ongoing categorical versus spectrum debate and discussion of how diagnoses might be more accurately assessed and treated, the complex trauma construct has begun to gain momentum in research. There are a number of proposed diagnoses being explored along the trauma continuum that will likely expand our understanding of trauma-related disorders beyond PTSD. These include: *complex PTSD* (C-PTSD), which labels those who have survived prolonged, repeated, or multiple traumatic experiences (Herman, 1992); *disorders of extreme stress* (DESNOS), a diagnostic category catching those that do not neatly fit the PTSD criteria and most often indicating that the victim was in some way captive by the perpetrator of

the trauma (Herman, 1992); “*cumulative trauma*,” a term used to identify the number of different types of interpersonal trauma an individual has experienced (Briere, Hodges, & Godbout, 2010; Briere, Kaltman, & Green, 2008; Follette, Polusny, Bechtle, & Naugle, 1996); *continuous traumatic stress* (CTS), which identifies those individuals living in realistic and ongoing fear of continual victimization (Eagle, 2013); *partial PTSD*, for those meeting sub-threshold PTSD symptoms (Friedman et al., 2011); and *developmental trauma disorder* (DTD; van der Kolk, 2005), which classifies those individuals with a high number of varying symptoms associated with repeated trauma exposure along the childhood developmental continuum. It should be noted that complex trauma and complex PTSD are often thought to be associated with childhood experiences. Although this relationship is certainly established in the literature, trauma events that are sustained, repeated, or complex in nature do not only occur in childhood; hence, ‘complex trauma’ will be considered an umbrella term, under which DTD falls.

In the eleventh edition of the World Health Organization (WHO) International Classification of Diseases (ICD-11; 2019), there are separate and distinct definitions for posttraumatic stress disorder (PTSD) and complex PTSD (C-PTSD; Maercker et al., 2013). Many of the symptoms that are currently associated with the C-PTSD diagnosis in the ICD-11 are included in DSM-5’s PTSD category. The difference is in how they are classified. In the DSM-5 all symptoms are included under one umbrella category and in the ICD-11 there are two separate, yet related, diagnoses. DSM-IV-TR included three major symptom clusters: re-experiencing, avoidance and/or numbing, and arousal. DSM-5 has broken the avoidance and/or numbing cluster into two distinct categories: avoidance and persistent negative alterations in cognitions and mood. This new category, called “alterations in arousal and reactivity,” contains most of DSM-IV-TR’s numbing symptoms and also now includes irritable or aggressive

behavior and reckless or self-destructive behavior as well. In the most recent DSM (DSM-5, APA, 2013), PTSD has changed substantially in ways that are similar to the EPCACE symptoms. Criterion A no longer requires the intense emotional reaction of fear, hopelessness, or horror at the time of the traumatic event. Criterion D now includes negative alterations in cognitions and mood: persistent negative beliefs about oneself, distorted blame of self or others, and overwhelming emotional distress (i.e., anger, guilt, shame). These changes mean that persistent difficulties with beliefs and emotions are now included as core elements of PTSD. The hyperarousal symptom category now includes dysregulated behavior in the form of verbal or physical aggression and self-destructive behavior.

Further, a new PTSD subtype was added to DSM-5 that is characterized by hypo-arousal and dissociative depersonalization or derealization symptoms. PTSD no longer falls in the anxiety disorder category and is placed in a new section of trauma and stressor-related disorders. As proposed, PTSD will continue to result from symptoms related to the experience of trauma (re-experiencing, avoidance, and hyperarousal). The ICD-11 C-PTSD diagnosis requires that an individual meet all criteria for PTSD and additional symptoms related to disturbances in self-organization: (1) affective dysregulation, (2) a negative sense of self and identity, and (3) difficulty in interpersonal relatedness (Hyland, 2017; Marinova & Maercker, 2015; WHO, 2019). These categories propose to cover the array of difficulties experienced by those who have undergone sustained, repeated, or complex trauma (Cloitre et al., 2015). DSM-5 also added special criterion for those with dissociative symptoms or delayed expression of symptoms and included verbiage for developmental considerations in youth. Again, it is noted that youth symptomology may present differently than adult symptoms and often manifests in behavior.

The ICD-11 C-PTSD diagnosis does not specify particular traumatic experiences that are required to result in the C-PTSD diagnosis. However, it does suggest that repeated or prolonged traumas, from which escape is difficult or impossible are commonly associated with this diagnosis (Cloitre, Garvert, Brewin, Bryant, & Maercker, 2013; Maercker et al., 2013; WHO, 2019). Identifying the most appropriate method of evaluating and measuring the complexity of potentially traumatic events (PTEs) is a challenging task. Identifying frequency has been the most commonly used method of determining severity of PTEs (Tolin & Foa, 2006). Whether this is an adequate measure of complexity is debated. Cumulative trauma has been operationalized as the number of different types of interpersonal trauma experienced (Briere, Hodges, & Godbout, 2010; Cloitre et al.). This count has been shown to be a robust predictor of negative psychosocial outcomes (Cloitre et al., 2009). However, there is disagreement about which is the best way to account for symptom complexity – whether counting individual trauma types, experiences of trauma regardless of type, or some combination of these two variables being the best method is yet to be determined (Briere et al, 2008; Cloitre et al.).

Cloitre et al. (2015) argue that the effects of exposure to trauma are heterogeneous and that the current PTSD diagnosis and related available treatments do not adequately address this heterogeneity. Increases in trauma complexity (measured as number of types of trauma exposure) are associated with an increase in number of symptoms that occur beyond those found in PTSD (Cloitre et al., 2008; Briere, Kaltman, & Green, 2008; Karam et al., 2014). Commonly, these include emotional dysregulation, difficulties with interpersonal relations, substance misuse, anger, dissociation, and suicidality (Cloitre et al.). Complex trauma experiences both in adulthood and during childhood predict symptom complexity; however, cumulative trauma experiences during childhood developmental stages were found to be stronger contributors to

symptomology (Cloitre et al., 2009). Complex psychological trauma interferes with individual adaptive growth, adversely affects numerous biopsychosocial outcomes, and interferes with development of resilience (D'Andrea et al., 2012). Traumas identified as complex may include: violence that occurs within relationships where the individual should be able to expect safety and protection; sexual, physical, or emotional abuse and neglect of a youth; betrayal of caregiver or authority trust; and intentional violation of physical boundaries and integrity. Ford (2017) links these different forms of trauma with four descriptors: intentional, interpersonal, inescapable, and creating insecurity. Complex psychological trauma is identified by a violation of social compacts and moral principles of beneficence, dignity, autonomy, and justice (Ford, 2017). Whether these are the crucial aspects of traumatic experiences in determining outcomes is yet to be agreed upon.

Hyland (2017) sought to contribute construct validity to this diagnosis and to assess whether gender, trauma history, and psychological risk factors (anxiety and dysthymia) distinctly identified PTSD from C-PTSD-specific disturbances in self-organization (DSO). Being female and the number of instances of sexual abuse experienced in childhood showed greater effects on PTSD symptoms than on DSO symptoms. Higher levels of anxiety were more predictive of PTSD symptoms, where higher levels of dysthymia were strongly predictive of DSO symptoms. These results are consistent with the ICD-11 conceptualization of C-PTSD.

There is a growing body of evidence that supports the construct validity of C-PTSD as a distinct diagnosis (Hyland, 2017). According to Cloitre et al. (2015), six studies have shown support for the ICD-11 formulation of PTSD and C-PTSD. Cloitre, Garvert, Brewin, Bryant, and Maercker (2013) evaluated those who had experienced a range of interpersonal violence, while Elklit, Hyland, and Shevlin (2014) looked at rape victims, domestic violence victims, and those

who had experienced traumatic bereavement. Community samples of both young adults (Perkonigg, Hofler, Wittchen, Trautmann, & Maercker, 2015) and veterans (Wolf et al., 2015), as well as a population of institutional abuse victims (e.g., foster care, religious organizations; Knefel, Garvert, Cloitre, & Lueger-Schuster, 2015) have shown support. Preliminary data from a clinical sample of trauma-exposed youth also found distinct PTSD and C-PTSD categories (Stolbach, Garvert, & Cloitre, 2014). Further, analyses indicate that C-PTSD is more frequently found among those who have suffered complex trauma histories and is correlated with more severe symptomology (Cloitre et al., 2013).

There has also been disagreement surrounding the definitions of individual variables included in the C-PTSD discussion. Some researchers have indicated that C-PTSD lacks discriminant validity because there is a great deal of overlap between PTSD and C-PTSD (Bryant, 2012). Cloitre et al. (2011) argues that the overlap is part of the definition and that C-PTSD is a complex variation of PTSD. Bryant (2012) further justifies the construct by arguing that while emotional dysregulation is in some way part of every diagnostic category, that it is the *requirement* of emotional dysregulation that distinguishes C-PTSD from PTSD and other diagnoses.

Factors That May Promote Resilience

In addition to causing a host of issues in childhood, exposure to trauma during developmental years may considerably and negatively impact the more vulnerable individual well into adulthood (Briere & Jordan, 2009; Felitti et al., 1998; Rees et al., 2011). Since traumatic experiences are commonplace and often detrimental, establishing which factors contribute to risk and resiliency is of great importance. “By examining the processes that contribute to positive adaptation in situations that more typically result in maladaptation, we

should be better able to devise ways of promoting positive outcomes in high-risk children and youth” (Werner, 1993).

As Sroufe (1997) suggested, disturbance and pathology are developmental patterns of adapting. Those who move through traumatic experiences and manage to remain on a normal developmental trajectory are said to have resilience. In less favorable outcomes, negative consequences may include pathological developments. How we think about these outcomes drives what we do about them. Research now suggests that though resilience most certainly exists in a complex system, building resilience is much easier, less elusive, and a far more ordinary process than once believed (Bonanno, 2008; Masten, 2001; Yehuda, 2004).

Researchers typically categorize the building blocks of resiliency into three primary groups: individual, familial, and community factors (Luthar et al., 2000; Punamäki, Qouta, Miller, & El-Sarraj, 2011; Rutter, 1999; Werner, 2000). Individual protective factors may include such strengths as an internal locus of control, the use of flexible coping strategies, an easy temperament, higher intelligence, a positive self-concept, and sociability (Werner, 2000). Dispositions are often thought to have a strong genetic base; however, they may certainly be supported or thwarted by family and community influence (i.e., genotype-environment effects; Scarr & McCartney, 1983). Familial protective factors may include a developed secure attachment, well-adjusted and competent caregivers, low birth order, a small family size, and strong religious beliefs (Werner & Smith, 1992). While the individual exists within the context of family, the family also functions within the larger context of community. Protective factors in this category may include close friendships, a positive educational environment and experience, as well as positive role models (e.g., teachers; Luthar et al., 2000). The familial factors of a

positive family environment in youth and a securely developed attachment are the primary focus of the current study.

Family Environment as a Protective Factor

Primary protective factors that fall within the family context and are consistently supported in the current literature include: parents who are physically and psychologically healthy, parental support, and family cohesion. Childhood is the period of time during which self-regulation, self-soothing, identity formation, and the ability to be in relationship with others is developed (Cook et al., 2005; Kinniburgh, Blaustein, Spinazzola, & van der Kolk, 2005). Not only do caregiving relationships during this stage of development form the foundation for youth representation of self, but also of others, and, of how to interact with their community at large (Cook et al., 2005). When the environment is negative, the child has little support, and traumatic experiences are commonplace, development is greatly hindered (McCormack & Thomson, 2017). Maltreatment negatively influences secure attachment and other biological systems meant to aid affect, behavior, and cognition throughout developmental stages (Cook et al., 2005; Kinniburgh, et al., 2005). Further, McCormack and Thomson (2017) suggest that impaired emotional, intellectual, and psychosocial development may prevent these individuals from later seeking treatment and contribute to misdiagnoses in adulthood.

Punamäki et al. (2011) analyzed the prevalence of resilience within a sample of 640 Palestinian children and adolescents living in conditions of armed conflict and military occupation on the Gaza Strip. The resilient children had psychologically healthy parents, who were supportive and practiced fewer punishing methods of parenting. Literature on resilience generally suggests that parents who are able to regulate their own emotions are more likely able to provide a safe family environment, despite potentially traumatic events. These parents are

successful in comforting their children and providing hope and safety, even in the terrifying circumstances of war.

One of the most powerful supports for young children in the face of trauma is a positive relationship with a primary caregiver (e.g., secure attachment; Scheeringa & Zeanah, 2001; Zeanah, Boris, & Larrieu, 1997). Parenting quality may include structure, warmth, and expectations. Maternal avoidance and insensitive responses to a child's traumatic experiences have been strongly related to less positive outcomes in young children (Deblinger, Steer, & Lipmann, 1999; Laor et al., 1997; Scheeringa & Zeanah, 2001). Punamäki et al. (2011) suggest that family support, as a protective factor, crosses cultural boundaries; all children benefit from this positive and powerful foundational experience.

Not only in various cultures, but also with various types of trauma and health risks, family unity and cohesion have been found to have associations with resilience. In a study of adult survivors of childhood sexual abuse, individuals categorized as having resilience were more likely to have experienced a less stressful family environment, fewer family disruptions (e.g., death, divorce), and more stable and cohesive family relations (Liem et al., 1997). Further, in the National Longitudinal Study on Adolescent Health, 12,118, seventh- through twelfth-grade adolescents were interviewed to identify risk and protective factors in relation to their emotional health, violence, substance use, and sexuality (Resnick et al., 1997). Parent and family connectedness was found to be a primary protective factor in relation to almost every health risk behavior studied, with the exception of teenage pregnancy. As previously reported, a primary focus of the current study is the familial factor of a positive family environment in youth.

Parenting quality and the strength of the parent-child relationship has also consistently been found to contribute to social competence (Masten et al., 1999). Further, positive role-

models and a safe and stable environment encourage children's social competence and their pursuit of additional skills (Brown, Kallivayalil, Mendelsohn, & Harvey, 2012). All individuals showing resilience in the Kauai Longitudinal Study reported at least one person in their life that provided unconditional support (Werner, 2000). Developmental psychopathology currently emphasizes the "ordinary magic" of resilience (Masten, 2001, p. 227). Human growth and adaptation normally include processes that strengthen it. However ordinary, these processes are vulnerable to assaults from potentially traumatic events, which disrupt healthy regulation.

"Dysfunction cannot be fully understood without a deeper understanding of health and resilience" (Bonanno, 2008, p.110). Although it is difficult to quantify "normal," much resilience research suggests that recovery from stress and traumatic experiences indicate mental health and resilience is the more typical path. In reviewing the state of resilience research to date, Luthar et al., (2000) suggest that it is yet too early to merge the concepts of "resilience" and "positive adjustment." However, as research continues to identify and refine protective and risk factors along developmental pathways, we may find less need to focus on and refine the construct of resilience itself and simply understand that there are unlimited points along an individual's trajectory where positive supports may be beneficial.

Secure Attachment as a Protective Factor

In the 1940's, John Bowlby developed a theory of human protection and survival that is still widely researched and supported. Since that time, its application and implications have continued to be expanded upon in the literature (Bretherton, 1992). Bowlby's attachment theory (1951) described a set of innate behaviors of humans, mainly focused in infancy and childhood, which operate to establish proximity to caregivers in order to assure protection from danger. This attachment behavioral system incorporates evolutionary, social, behavioral, emotional, and

biological aspects that interact in order to accomplish three main functions of an attachment relationship: proximity maintenance, a feeling of having a safe haven, and establishing a secure base (Hazan & Shaver, 1994).

Mary Ainsworth's observations of infant-mother attachment relationships and contributions to the theory began in 1953 (Bretherton, 1992). Ainsworth, Blehar, Waters, and Wall (1978) described the attachment system as a set of stable behaviors that are concerned with reproduction, care, and protection of young. A child's attachment behavior focuses on achieving and maintaining close proximity to other people. It is developmentally typical that by the child's sixth or seventh month of life, these behaviors are primarily directed toward one person, the primary caregiver (Ainsworth et al., 1978; Hazan & Shaver, 1994). Complementary behavior that has the same protection and survival function is activated in the caregiver (Ainsworth et al.). When the caregiver is supportive and caring in response, the child is able to achieve a state of *felt security* that then allows the activation and use of other behavioral systems (Hazan & Shaver). A caregiver's inconsistent, unavailable, and unreliable responses result in the child experiencing a sense of insecurity.

Bowlby (1969; 1973) and Ainsworth et al. (1978) explained that the role of affect and emotion within the attachment system is to evaluate, appraise, and interpret environmental conditions, both consciously and unconsciously. Advantageous to an individual's survival is the ability to respond to dangerous situations automatically and to recognize certain danger cues without having to learn them. Bowlby (1973) indicated that humans' innate danger cues include: unusual or strange situations, sudden changes in environment, being alone, and having others rapidly approach. The emotional appraisal of these cues then activates the attachment system, causing behavior meant to bring the caregiver close. When more than one danger cue is present,

or when a person is tired or ill (Feeney & Collins, 2001), the individual is likely to respond with particularly strong reactions.

Interference with the primary goal of proximity is likely to result in anxiety and protest. Emotional reactions meant to bring a caregiver close are predictable and most often occur in a particular sequence (Hazan & Shaver, 1994). Protest occurs first, which may include crying, searching, and resistance to comfort from anyone other than the primary caregiver. If these actions do not bring the caregiver closer, despair, passivity, and sadness are likely to follow, with emotional detachment being the final stage if the child's attempts result in failure. Bowlby regarded these responses as highly adaptive (Hazan & Shaver). Other signaling behavior of human infants and children includes calling, smiling, and when the child is old enough, crawling or walking toward the caregiver on his own (Ainsworth et al., 1978).

The critical aspect of proximity is not just the simple presence of the caregiver, but their availability and responsiveness, even when separation occurs (Ainsworth et al., 1978). When a child develops a sense of security in the caregiver's reliability, attachment behavior decreases and is less likely to occur with short periods of separation. Ainsworth et al. refer to this low level of attachment behavior activation as "using the mother as a secure base from which to explore" (p. 22). Additional factors that may contribute to a child's attachment security include his or her own temperament and the sensitivity of the caregiver's responsiveness (Hazan & Shaver, 1994; Pederson & Moran, 1999). When a child is able to use the primary caregiver as a secure base, he is able to engage in non-attachment behaviors that include exploration.

If a child experiences positive separation from and reunion with his caregiver, these experiences help him to build a positive internal working model of his attachment figure (Ainsworth et al., 1978). This representational model allows the attachment bond to be

maintained while the child is able to accept longer periods of absence without serious distress. Although these inner representations cannot replace proximity or contact with the caregiver, much research is based on the presumption that they are carried into adulthood and influence relationships throughout the lifespan (Roisman, Madsen, Henninghausen, Sroufe, & Collins, 2001).

Narrowly defining Bowlby's theory to include only the physical proximity of child and caregiver or their attachment interactions would be a misinterpretation of his work (Ainsworth et al., 1978). In defense of broadly defining and applying attachment theory, Pederson and Moran (1999) explain that the attachment system could also function to establish a stable relationship in which to develop social skills. The authors interpret Bowlby's statements that attachment functions include comfort and assistance as support for expanding on the theory's conceptualization of child and caregiver relations. They argue that the socialization process of the human child during its lengthy period of dependency would confer survival and reproductive advantage.

Childhood Attachment

Children are thought to develop different patterns of attachment organization based on their experiences with their primary caregivers (Ainsworth et al., 1978). When these experiences are positive, and the caregiver is accessible and responsive, the social development of the child will follow a "normal course" (Ainsworth et al.; p. 9). In their recommendation to use attachment theory as an organizational framework for research on other important close relationships, Hazan and Shaver (1994) boil the attachment system conclusion down to a single question: "Can I count on my attachment figure to be available and responsive when needed?" (p. 5). The authors indicate that there are three possible answers to this question: yes, no, and maybe.

These patterns of caregiver behavior lead to three primary attachment organization styles in the child (Hazan & Shaver, 1994). Where the caregiver is consistently available and responsive, the child's attachment style is said to be *secure*. When the caregiver is consistently unavailable and unresponsive, the attachment style is considered *anxious/avoidant*. Inconsistent caregiver responses result in the child's *anxious/ambivalent* attachment. An additional category of *disorganized/disoriented* has been recognized when one pattern cannot be specifically identified or the child's attachment has become confused due to caregiver pathology or interruptions in caregiving relationships.

These attachment styles affect the development of the internal working models applied to future relationships (Paley, Cox, Burchinal, & Payne, 1999). They influence individuals' beliefs regarding their own self-worth and schemas of how others will respond to their needs. As would be expected, if a secure representation is developed, others are considered supportive and reliable. Self-worth is high. When an insecure model develops, others are expected to be unavailable, rejecting, or inconsistently available and self-worth is low. Although more research is needed in this area, the impact of attachment styles within various aspects of adult relationships is a diverse and growing field of research. Attachment as a construct has continued to broaden since its inception and has grown to include different types of social relationships and numerous aspects within them (Pederson & Moran, 1999).

Adult Attachment

The impact of early attachment relationships and the resulting internal working models have been shown to influence an individual's functioning in close relationships and across the lifespan (Barry & Lawrence, 2013; Paley et al., 1999). Furthermore, overall romantic relationship fulfillment is thought to be greatly dependent on satisfaction within the category of

safety and security needs (Hazan & Shaver, 1994). For these reasons, attachment theory provides a useful framework for researching and understanding social relationship processes, experiences, and well-being.

According to attachment theory, the central function of close relationships is to provide comfort, care, support, and intimacy to those in the relationship (Barry & Lawrence, 2013). These needs become more salient during times of illness, stress, or danger. For the human animal, close relationships are of utmost importance and one of the primary indicators of psychological health and well-being throughout all life stages (Hazan & Shaver, 1994). Parents, or other primary caregivers, are our first social relationships. While their position as primary attachment relations and models for our first internal representations of relationship are not typically given up completely, their roles shift to more peer-like as we become adults (Hazan & Shaver). Romantic relationships often take their place in meeting primary attachment needs.

The expansion of attachment theory to adulthood and extended social relationships allows for the exploration of the processes that motivate humans to establish and sustain attachment bonds with significant others. Within these reciprocal relationships, research indicates that meaning and experience can be effectively evaluated within the attachment framework (Birnbaum et al., 2006). Makinen and Johnson (2006) refer to the attachment bond as, “an active, affectionate, reciprocal relationship in which partners mutually derive and provide closeness, comfort, and security” (p. 1055). Adults typically rely primarily on their romantic partner as their main, and often most important, source of comfort and care (Feeney & Collins, 2001). Even in these most important and intimate relations, where individuals feel willing and able to express their innermost thoughts and feelings, “expression of inner states” (p. 515) need to be monitored and regulated to some degree in order to maintain equilibrium within the relationship (Ben-

Naim, Hirschberger, Ein-Dor, & Mikulincer, 2013). Intimate and close relations result in heightened emotional responses, sensitivity, and vulnerability. In adult romantic relationships, much like in caregiver-child relationships, Hazan and Shaver's (1994) bottom line attachment question becomes, "Can I trust my partner to be available and responsive to my needs?" (p. 13). Possible answers continue to be yes, no, and maybe.

Current research suggests that a two-dimensional model is ideal when conceptualizing attachment; the two dimensions being anxiety and avoidance (Brennan, Clark, & Shaver, 1998; Fraley & Waller, 1998). *Attachment anxiety* is characterized by patterns of intensive effort in seeking close proximity, as well as hypersensitivity and focused attention around relational nuances. *Attachment avoidance* is characterized by generally evading close relational proximity, as well as denial of attachment needs and vulnerability (Mikulincer & Florian, 1998). Lower levels of both dimensions are indicative of more secure and healthier attachment (Schachner, Shaver, & Mikulincer, 2005). Attachment styles are believed to remain relatively stable as developed in childhood, into and through adulthood (Bowlby, 1988). There are, of course, instances when this is not the case (e.g., earned security), however, generally speaking, adult attachment orientations can be thought of as "chronic interpersonal styles" (Feeney & Collins, 2001, p. 973) reflecting patterns of expectations, emotions, and behaviors regarding the self and relationships with others (Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006).

One of the most widely used and well-validated self-report measures of adult attachment, the Experiences in Close Relationships-Revised scale (ECR-R; Fraley, Waller, & Brennan 2000), measures individuals on two subscales of attachment: avoidance and anxiety. The measure provides an average score for both attachment-related avoidance and for anxiety. In general,

avoidant individuals find discomfort with intimacy and seek independence, while anxious individuals tend to fear rejection and abandonment (Fraley, Waller, & Brennan, 2000).

A Note on Categorical versus Dimensional Measurement of Attachment

As in diagnostic conceptualization, there is a fair amount of controversy regarding the best way to measure attachment concepts: categorically or dimensionally. Categorical coding is typically seen as the gold standard in the field (Roisman et al., 2007). However, the four attachment orientations are achieved by measuring adults' placement on the two fundamental dimensions of anxiety and avoidance (Feeney & Collins, 2001). Securely attached adults are low on both the anxiety and the avoidance dimensions. Insecurely attached adults are high on either the anxiety or avoidance dimensions, or both. Dismissing (avoidant) individuals are low in anxiety and high in avoidance. Those who are fearfully avoidant report high anxiety and high avoidance. Finally, preoccupied (anxious) adults are high in anxiety and low in avoidance.

Researchers working to use dimensional models argue that statistical power and precision of measurement are compromised when cut-points are arbitrarily determined (Roisman et al., 2007). Furthermore, categorical measurement may lead to the underestimate of attachment stability longitudinally. Roisman et al. argue that the differentiations made by the well-known and frequently used Adult Attachment Interview match more closely with a dimensional model and that using the anxiety and avoidance dimensions may offer a better understanding of attachment security than the categorizations that are currently used. The authors suggest that the same research questions could be addressed with increased statistical power and greater insight, strengthening the research base relating to attachment.

A Note on Continuous-Secure versus Earned-Secure Attachment

Yet another topic of disagreement that is found within the attachment literature is the usefulness of identifying *continuous-secure* versus *earned-secure* categories. Continuous-secure individuals convey a generally positive state of mind regarding positive experiences throughout their childhood (Paley et al., 1999). Earned-secure individuals communicate stories of difficult childhoods in a generally positive and realistic way that indicates they are not likely controlled by these experiences. Although Paley et al. indicate differences regarding the two divisions of secure attachment, results of their study on marital functioning indicated that current state of mind regarding childhood experiences was more likely related to future relationship problems than the experiences themselves. This does not support the need for a distinction. Furthermore, Roisman, Fortuna, and Holland (2006) conducted a study that manipulated mood in order to compare earned and continuous attachment security. Their results indicated that categorization of earned-secure versus continuous-secure was altered with a simple mood induction exercise, while categorization of the over-arching categories of secure versus insecure was not. While this distinction is an interesting consideration, it is currently unclear whether it is useful. More research is needed.

Current Project

The purpose of the current research is to contribute knowledge regarding the experiences of potentially traumatic events (PTEs), as well as factors that may insulate against complex trauma symptomology. While it is generally accepted that a positive family environment in youth and a securely developed attachment style contribute to resilience and are considered protective factors, the literature has not yet evaluated these factors in relation to complex trauma experiences and the development of C-PTSD. Therefore, this study aims to provide unique

information regarding the potentially moderating effects of a positive family environment in youth and a securely developed attachment style on the relationship between PTEs and the occurrence of complex trauma symptoms.

Further, C-PTSD is currently being considered a separate, yet related, disorder from the well-established PTSD. The most recent research has supported a distinct display of symptoms for those individuals who have experienced prolonged and interpersonal violence (e.g., childhood abuse, domestic violence, being a prisoner of war). Using the ICD-11 models of PTSD and C-PTSD will be associated with differing profiles of those individuals who endorse symptoms. Current review suggests that the ICD-11 model, using the ITQ measure, has only begun to be evaluated and has not yet been used in a college sample. The current study evaluating this categorization will also contribute knowledge to the growing literature on complex trauma.

Youth with trauma histories are a difficult population with whom to conduct research due to their dependent status, reliance on caregivers or other family members, their hesitancy to report on illegal or unsafe traumatic experiences, and their overall ‘vulnerable’ status (Campbell, Greeson, & Fehler-Cabral, 2014; McDonald, 2015). As such, an undergraduate college sample is seemingly the ideal sample to query; the majority being near the end of their childhood development, they are more likely of an age young enough to be competent reporters of recent experiences and relations, yet less dependent on caregivers and therefore more likely to report on negative traumas that may have occurred in or related to the family framework.

The hypotheses of the current study were as follows:

The primary objective of the current study is to contribute additional understanding to the ongoing development and knowledge of complex trauma and resulting C-PTSD symptomology,

as well as to evaluate whether the factors of family environment and attachment account for significant variability in relationship to trauma symptoms.

The current study uses a non-clinical sample of college students in order to determine qualitatively different groups or classes of participants, using the only self-report symptom scale currently available that is designed to measure C-PTSD classification as defined by the ICD-11 (International Trauma Questionnaire for ICD-11; ITQ; Cloitre, Roberts, Bisson, & Brewin, 2014). While identifying trauma symptoms in a non-clinical college population sample, this study will contribute to the ongoing evaluation of the three-tier classification of the International Trauma Questionnaire (ITQ). Research has demonstrated that participants would belong in one of three categories that include (a) those with low or no symptom endorsement, (b) those who endorse symptoms indicating they meet criteria for PTSD, and (c) those who endorse symptoms indicating they meet criteria for C-PTSD. Because this is a community sample and not a clinical population, it was important to assess the degree to which the population has clinical symptoms.

Those individuals who are thought to have built resilience have been identified by research to be resistant to the development of mental health diagnoses (D'Andrea et al., 2012; Sroufe, 1997). As described above, factors that contribute to the development of resilience include individual, familial, and community factors (Luthar et al., 2000; Punamäki, Qouta, Miller, & El-Sarraj, 2011; Rutter, 1999; Werner, 2000). The current study investigated whether participants who reported having (1) a more positive family environment in youth and (2) secure attachment were less likely related to those who developed trauma symptomology, and more specifically C-PTSD symptomology.

Specifically, it was predicted that:

1. Trauma Symptomology:
 - a. There is a relationship between number of PTEs an individual has experienced, as reported on the Childhood Trauma Questionnaire (CTQ) and the Life Events Checklist for DSM-5 (LEC-5), and their ITQ-determined group belonging (non-clinical, PTSD, and C-PTSD).
2. Family Environment:
 - a. There is a relationship between an individual's family environment experience and their trauma symptomology categorization. Participant's reported scores on the Family Environment Scale (FES) will result in and discriminate between three distinct categorizations of participants: a non-clinical, a PTSD, and a C-PTSD group.
3. Attachment:
 - a. There is a relationship between an individual's attachment anxiety and PTSD categorization. Individuals' higher scores on the anxiety dimension of attachment, as measured by the ECR-R, will be significantly associated with categorization of PTSD symptomology, as indicated by the ITQ.
 - b. There is a relationship between an individual's attachment avoidance and C-PTSD categorization. Individuals' higher scores on the avoidance dimension of attachment, as measured by the ECR-R, will be significantly associated with categorization of C-PTSD symptomology.
 - c. There is a relationship between an individual's overall attachment style and their trauma symptomology categorization. Participant's reported scores on the

Experiences in Close Relationships – Revised (ECR-R) will result in significant variation between three distinct categorizations of participants: a non-clinical, a PTSD, and a C-PTSD group.

4. Potentially Protective Factors in Relation to Trauma Experiences:
 - a. Factors of (1) a more positive family environment, as indicated by scores on five relational subscales of the Family Environment Scale (FES), and (2) more secure attachment, as indicated by lower scores on the Experiences in Close Relationships-Revised (ECR-R) anxiety and avoidance dimensions, will account for significant variance variability in group belonging (non-clinical, PTSD, and C-PTSD) when participants' PTE experiences are controlled.

Method

Participants

Participants are undergraduate students enrolled at The University of Montana during the Fall 2018 and Spring 2019 semesters, who participated voluntarily for research credit in their psychology or related courses. As expected, the study sample was predominantly freshman and sophomore; there was no exclusion criteria for age or class standing. Current research into various aspects of complex trauma has primarily evaluated participants seeking or participating in treatment, or those known to have experienced trauma. This study aims to contribute to the data by analyzing a non-clinical community sample of college undergraduates attending a mid-sized northwestern public university and by evaluating an individual's experience of a positive family environment in youth and a securely developed attachment style as potentially protective factors in relation to C-PTSD symptomology. Further, current research does not include using the ITQ with a non-clinical sample.

A total of 469 college students participated in the study. Data from 30 respondents was discarded due to excessive missing data (more than 10%). In addition, 13.5% of participants had one or more missing data points (but missing less than 5%) for one or more of the assessment measures. Missing data points on individual measures were replaced with respondents' mean scores, based on completed items from that particular scale. Power analyses (Faul, Erdfelder, Buchner, & Lang, 2009) conducted prior to data collection revealed a sample size of 336 would provide sufficient power for the purposes of this study. Certain statistical analyses used in the current project required a higher number of participants in analyzed groupings. Adjustments were made to the analyses and are specifically addressed in those sections. Participants in the remaining sample ($n = 439$) ranged in age from 18 to 66 years old (mean age = 21.90 years, $SD = 6.48$). The majority reported freshman class standing (46.7%), with a minority sophomore (21.6%), junior (15.9%), senior (14.1%), and graduate (0.2%). Six participants (1.4%) were unsure of their class standing. Participants consisted predominantly of persons who identified as White/Non-Hispanic (84.1%). Respondents also identified as belonging to two or more races (5%), being Native American/Alaska Native (3.9%), Hispanic (3%), Asian/Pacific Islander (2.7%), and Black (1.1%). More than 90% of participants reported having an adult attachment figure who loved and supported them, and with whom they felt close. The majority of respondents identified their mother or step-mother as that person (37%). Participants also identified their father or step-father (30%) or both parents (12%) as primary attachment figures.

Analyses were performed to determine whether composition of participants' ITQ classification of group belonging (non-clinical, PTSD, and C-PTSD) differed demographically. When comparing participants' group belonging (non-clinical, PTSD, and C-PTSD), groups did not differ significantly in age $F(2) = 0.762, p > .05$, class standing $F(2) = 2.659, p > .05$, or

racial/ethnic composition $F(2) = .616, p > .05$. There were significant differences between the groups in whether or not they reported having a primary attachment figure $F(2) = 0.494, p = .000$; this relationship will be evaluated further. Demographic information on participants is reported in Table 1.

Measures

Clinician-administered interviews and self-report instruments are both integral pieces of assessment, diagnoses, and treatment. However, for the purpose of the current study, self-report surveys were administered in consideration of both time and expense. Further, it has been reported that individuals may be more comfortable and therefore more forthcoming, when responding to a questionnaire than to another individual (Nader, 2008). All self-report measures were administered via the university's web-based portal.

Demographic information. A demographic questionnaire was developed for this study (see Appendix B). Participants were asked to provide their age, class standing, ethnicity, current marital/relationship status, and history of an important attachment relationship.

Potentially traumatic events. In an effort to obtain the most accurate information regarding the relationship between complex trauma and potentially traumatic events (PTEs) experienced by participants, these events were measured by both a childhood and a lifetime experience measure. Further, as explained previously, cumulative trauma has been most commonly operationalized as the number of different types of interpersonal trauma an individual has experienced (Briere, Hodges, & Godbout, 2010; Cloitre et al.). PTEs will be measured by adding the total number of distinct types of traumatic experiences from the following two measures. Table 2 provides information on PTEs.

Table 1

Demographic Information of sample

Variable	Total Sample	Non-Clinical	PTSD	C-PTSD
Age (mean +/-SD)	21.90 +/- 6.48	21.81 +/- 6.30	21.00 +/- 7.45	22.77 +/- 7.18
Ethnicity (%)				
White	84	82	4.9	13.1
Black/African American	1.1	80	0	20
Hispanic/Latino	3.0	92.3	0	7.7
Asian / Pacific Islander	2.7	83.3	16.7	0
American Indian / Alaska Native	3.9	41.2	11.8	47.1
Bi-cultural / Multi-cultural	5.0	90.9	4.5	4.5
Other / Unspecified	0.2	100	0	0
Class Standing				
Freshman	46.7	80	5.9	14.1
Sophomore	21.6	76.8	8.4	14.7
Junior	15.9	78.6	4.3	17.1
Senior	14.1	93.5	0	6.5

Note. Mean age and standard deviation of total sample and participants by ITQ-categorized trauma group belonging. Percentage of total sample and participants by ITQ-categorized trauma group belonging.

The Childhood Trauma Questionnaire (CTQ: Bernstein and Fink, 1997; see Appendix C) is a 28-item self-report questionnaire that measures exposure to a range of abuse experiences specific to childhood. The CTQ includes five subscales: Emotional Abuse, Physical Abuse, Sexual Abuse, Emotional Neglect, and Physical Neglect. Participants are asked to report their experiences “growing up as a child and as a teenager” within five domains using a 5-point scale ranging from 1 (never true) to 5 (very often true) regarding the frequency the event was experienced. Bernstein and Fink also provide interpretive guidelines to allow the identification of likely cases of abuse and neglect for three levels of severity: low, moderate, and severe. Bernstein et al. (2003) utilized four samples (clinical and nonclinical, N = 1978) to examine internal consistency/reliability and found the following coefficient alpha ranges: .84-.89 for emotional abuse, .81 to .86 for physical abuse, .92 to .95 for sexual abuse, .85 to .91 for emotional neglect, and .61 to .78 for physical neglect. In addition, Bernstein et al. provided results suggesting good validity, as evidenced by the measurement invariance of the scale across four diverse populations, as well as the criterion-related validity of corroborative data between therapists’ ratings of abuse and neglect and participants’ responses. The CTQ also has three items that assess minimization/denial in order to detect possible under-reporting of traumatic events. Cronbach’s Alpha for the current study was .90.

The Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013; see Appendix D) is a 17-item self-report measure designed to assess for exposure to potentially traumatic events (PTEs) in a participants’ lifetime. The events referenced in the LEC-5 do not include childhood abuse or neglect, but do include other traumatic events that may have occurred during childhood. The measure prompts participants to rate their exposure to 16 events known to potentially result in traumatic stress, including natural disaster, fire/explosion, accident, exposure to toxic

substance, sexual assault, combat, captivity, illness/injury/human suffering, violent or accidental death, and/or harm caused by respondent. One additional item assesses exposure to “*Any other very stressful event or experience,*” which is used to capture experiences not listed. Participants respond to each item (e.g., *Serious accident at work, home, or during recreational activity*), by selecting one of six responses: “happened to me”, “witnessed it”, “learned about it”, “part of my job”, “not sure”, and “does not apply.” The LEC-5 is a recent revision of the Life Events Checklist for DSM-IV (Gray, Litz, Hsu, & Lombardo, 2004). Psychometric characteristics for the LEC-5 are not yet available. Because there are minimal changes between the versions, LEC-5 psychometric characteristics are expected to be similar to those demonstrated by the LEC (Weathers et al., 2013). The LEC has demonstrated strong convergence with measures of psychopathology that are known to be associated with trauma exposure. Changes to the new measure include addition of the “Part of my job” response option, and a wording change to one of the items. The LEC does not produce a total score, rather it yields a total number of PTEs experienced by direct exposure to self or others.

Potentially protective factors. The current study evaluated both the experience of a positive family environment in youth and a securely developed attachment style as potentially protective factors in the development of trauma symptomology, and more specifically the development of C-PTSD, after exposure to PTEs.

Attachment. Adult attachment was measured using the Experiences in Close Relationships-Revised scale (ECR-R; Brennan, Clark, & Shaver, 1998; Fraley, Waller, & Brennan, 2000; see Appendix E). The ECR-R is a 36-item self-report measure containing two dimensional subscales: attachment anxiety (defined as discomfort with relational closeness and depending on others; 18 items) and attachment avoidance (fear of rejection and abandonment; 18

items). Participants are asked to indicate the extent to which they agree with each item on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree) and to respond regarding how they feel in emotionally intimate relationships (i.e., how they “*generally* experience relationships”). A third attachment variable was created by plotting the intersection of the anxiety and avoidance dimensions on a four-quadrant graph resulting in an attachment style categorization: (1) secure, (2) pre-occupied, (3) fearful-avoidant, or (4) dismissing-avoidant.

Studies completed by Sibley, Fischer, and Liu (2005) demonstrated high internal reliability ($\alpha=.93$ for attachment anxiety and $\alpha=.94$ for attachment avoidance), high test-retest reliability over a 3-week period ($r=.90$ for attachment anxiety and $r=.92$ for attachment avoidance), and an accurate fit for the hypothesized two-factor solution as examined through confirmatory factor analysis. In addition, the ECR-R demonstrated good validity, as measured by its association with interaction diary ratings by subjects, as well as the scales’ moderate correlations with another attachment questionnaire (Relationship Questionnaire; Bartholomew & Horowitz, 1991; see Sibley et al., 2005). Cronbach’s Alpha for the current study was .95.

Family Environment. The Family Environment Scale (FES; Moos & Moos, 1981; see Appendix F) is a 90-item, True-False, self-report questionnaire with ten subscales designed to measure the social and environmental characteristics of a family. The FES is useful for understanding how family members perceive the family and how each member’s behavior affects the family unit during a time of crisis or transition. For the current study, participants were asked to respond to items in relation to their family of origin. There are three versions of the FES: the ‘Real Form,’ which measures participants’ perceptions of their family environment; the ‘Ideal Form,’ which measures how participants would conceptualize the ideal family environment; and the ‘Expectations Form,’ which measures participants’ expectations of what

their future family will be like. For the purposes of the current research, only the 'Real Form' was used.

Scores load on three primary scales that include the Relationship, System Maintenance, and Personal Growth Scales. The Relationship Scale is comprised of three subscales: (1) expressiveness, (2) conflict, and (3) cohesion. Items include questions about the extent of help, support, and commitment family members have for one another. These scales also assess the degree that family members are able to express their feelings directly, act openly, and openly express aggression, conflict, and anger within the family environment. The System Maintenance Scale is comprised of two subscales: (4) control and (5) organization. These subscales measure clear organization and structure in family planning and the degree to which set rules and procedures are used by the family. The Personal Growth Scale includes: (6) achievement orientation; (7) active-recreational orientation; (8) moral-religious emphasis; (9) intellectual-cultural orientation; and the (10) independence subscales all assess the Personal Growth dimensions. The degree that members of the family are self-sufficient, assertive, and make their own decisions is assessed by these subscales, as is the extent that activities are placed into a competitive or achievement-oriented framework; the degree of family interest in social, political, cultural, and intellectual activities; the degree of importance placed on religious and ethical issues; and the degree of involvement in recreational and social activities. According to the authors, the Relationship and System Maintenance dimensions primarily reflect internal functioning and the Personal Growth dimension primarily reflects relations between the family and social or community contexts. For this reason, and for the purposes of this study, only the five subscales of the Relationship and System Maintenance dimensions will be evaluated: (1) Cohesion, (2) Expressiveness, (3) Conflict, (4) Organization, and (5) Control.

Table 2

Percentage of Participants Who Reported Potentially Traumatic Events in the Total Sample and Categorized by ITQ-determined Group-Belonging

Potentially Traumatic Event	N	% of Total Sample	Non-Clinical % of Total	PTSD % of Total	C-PTSD % of Total
Childhood					
Emotional Abuse	46	10.5	65.2	6.5	28.3
Physical Abuse	26	5.9	61.5	11.5	26.9
Sexual Abuse	44	10	61.4	2.3	36.4
Emotional Neglect	13	3	53.8	7.7	38.5
Physical Neglect	19	4.3	47.4	10.5	42.1
CTQ Endorsed Events					
None	347	79	85.6	4.9	9.5
One	53	12.1	73.6	7.5	18.9
Two	29	6.6	55.2	0	44.8
Three	4	0.9	50	50	0
Four	5	1.1	60	0	40
Five	1	0.2	0	0	100
Lifetime					
Natural Disaster	130	29.6	80	3.8	16.2
Fire / Explosion	101	23	75.2	7.9	16.8
Transportation Accident	274	62.4	81.1	5.6	13.3
Serious Accident	144	32.8	79.7	7.7	12.6
Toxic Substance Exposure	39	8.9	64.1	10.3	25.6

Physical Assault	170	38.7	75.9	5.3	18.8
Assault with Weapon	56	12.8	67.9	7.5	24.5
Sexual Assault	105	23.9	66	7.8	26.2
Other Unwanted Sexual Experience	166	37.8	76.2	5.5	18.3
Exposure to War	32	7.3	60.9	8.7	30.4
Captivity	13	3	46.2	0	53.8
Life-threatening Illness	183	41.7	80.1	4.5	15.3
Severe Human Suffering	71	16.2	69	8.5	22.5
Violent Death	78	17.8	69.2	7.7	23.1
Unexpected Death	268	61	78.1	3.5	18.4
Harm You Caused	23	5.2	69.6	13	17.4
Other	75	17.1	76	5.2	18.8

Note. Sample sizes and percentage of populations listed were determined by hand categorizing seventy-nine participants who had reported traumatic experiences in the *other* category. Percentages of PTEs categorized by ITQ group belonging were determined by SPSS with *other* category as self-reported.

The answer sheet used to score the questionnaire is arranged so that each column of responses comprises an FES subscale. The subscale raw scores of each participant are determined by summing the number of responses provided in each column. The total raw score was determined by summing the total number of responses across the columns. Raw scores were converted to standard scores using tables found in the FES Manual.

The FES normative sample for the 'Real Form' subscales was based on 1,125 non-distressed and 500 distressed families. When compared to non-distressed families, distressed families were lower on cohesion and expressiveness and higher on conflict and control (Moos & Moos, 1981). For each of the five relevant FES subscales, Cronbach's alpha fell within an acceptable range (varying from a high of .78 for the cohesion subscale, to a low of .67 for the control subscale), indicating an adequate amount of internal consistency for the subscales. Test-retest reliability for all subscales was calculated using data from 47 individuals who responded to the 'Real Form' twice, with an eight-week interval between pre- and post-test responses. Test-retest reliability was found to be within an acceptable range, varying from a low of .73 for the expressiveness subscale to a high of .86 for the cohesion subscale. Cronbach's Alpha for the current study ranged from a modest low of .62 for the cohesion subscale to a high of .82 for the conflict subscale (expressiveness = .65, organization = .72, and control = .73).

Psychological symptomology. The International Trauma Questionnaire (ITQ; Cloitre, Roberts, Bisson, & Brewin, 2017; Appendix G) is a self-report measure that was developed for the assessment of ICD-11 PTSD and C-PTSD diagnoses. The ITQ results in a three-tier classification that identifies participants' group belonging in one of three categories that include (1) those with low or no symptom endorsement (i.e., non-clinical), (2) those who endorse symptoms indicating they meet criteria for PTSD, and (3) those who endorse symptoms

indicating they meet criteria for C-PTSD. As mentioned previously, there is overlap in these diagnostic categorizations; C-PTSD is a complex variation of PTSD. However, specific emotional dysregulation distinguishes C-PTSD from PTSD. The ITQ categorization of group belonging was used throughout the analyses of this study.

Previously referred to as the ICD-11 Trauma Questionnaire (ICD-TQ), the ITQ is a 20-item self-report measure with nine PTSD and nine Disturbances in Self-Organization (DSO) items. Three items are used to measure Re-experiencing (RE; items P1–P3), two items to measure avoidance (AV; items P4–P5), and two items to measure Sense of Threat (Th; items P6–P7). CPTSD includes PTSD as well as three clusters reflecting disturbances in self-organization (DSO). Nine items represent the three DSO clusters of Affective Dysregulation (AD; items C1–C2), Negative Self-Concept (NSC; items C3–C4), and Disturbances in Relationships (DR; items C5–C6). Symptom endorsement is scored on a Likert scale, indicating how much a symptom has been bothersome in the past month, with scores ranging from 0 (not at all) to 4 (extremely). The PTSD items are answered in response to the question ‘how much have you been bothered by that problem for the past month?’ and the DSO items are answered in terms of how one ‘typically feels, thinks about themselves, or relates to others.’ A diagnosis of PTSD requires that: (i) an individual has experienced a traumatic event, (ii) indicates the presence of at least one symptom in each of its three clusters (as indicated by a score of ≥ 2 on the Likert scale – ‘Moderately’), and (iii) indicates functional impairment associated with these symptoms. A diagnosis of C-PTSD requires that: (i) PTSD criteria are met, (ii) indicates the presence of at least one symptom in each of the three DSO clusters (as indicated by a score of ≥ 2 on the Likert scale – ‘Moderately’), and (iii) indicates functional impairment associated with these symptoms.

In an evaluation of this measure and its distinct symptom profiles, Karatzias et al. (2017) found evidence to support the measure. Reported Cronbach's alpha was high for the DSO indicators (AD = .79, NSC = .91, and DR = .83) and was modest for the PTSD indicators (RE = .55, AV = .63, and Th = .78). Cronbach's Alpha for the current study was high for both the DSO indicators (AD = .60, NSC = .88, and DR = .80) and the PTSD indicators (RE = .80, AV = .78, and Th = .78).

Procedure

This study was conducted in accordance with the code of conduct of the American Psychological Association and was submitted for approval from the Institutional Review Board of the University of Montana prior to data collection. A description of the survey was posted on an online psychology research board and participants completed an online anonymous survey. When participants entered the online survey site, they were presented with a study description that explained their participation and explicitly stated they were free to elect not to complete the survey or to skip any question. The study description also included contact information for the University of Montana's Counseling Services in the event they wished to talk regarding any stress due to study participation (see Appendix A). After completing the survey, participants were directed to a separate website where they received extra credit for their participation; however, their identity was not linked to the data.

Descriptive Statistics and Preliminary Analyses

Data from a total of 439 participants with acceptable levels of data was evaluated and is reported on in the current study. Internal consistency was calculated for all the measures and, as reported in the Method section, all alphas were found to be acceptable. All statistical analyses

were carried out with IBM's Statistical Package for the Social Sciences (SPSS) for Mac, version 25 and the R Project for Statistical Computing.

Results

Psychological symptomology

The International Trauma Questionnaire (ITQ; Cloitre, Roberts, Bisson, & Brewin, 2017) categorized participants into three groups based on trauma symptomology: (1) non-clinical (n = 357), (2) meeting criteria for PTSD (n = 23), and (3) meeting criteria for C-PTSD (n = 59). The current C-PTSD diagnosis consists of six symptoms clusters that include the three PTSD criteria of reexperiencing, avoidance, and hypervigilance and an additional three symptoms of disturbed self-organization (DSO), including emotional dysregulation, interpersonal difficulties, and negative self-concept.

These group categorizations were used in each of the following hypotheses. A priori power analyses for proposed statistical methods indicated that overall, 336 participants were needed and between 59-168 were needed per ITQ-determined group belonging for adequate power. Although total sample size (N = 439) was sufficient, group belonging did not have adequate sample size. Despite being under-powered, this study resulted in numerous significant findings.

Experiences of Potentially Traumatic Events

Participants reported childhood abuse experience through the CTQ (Bernstein & Fink, 1997), which measures emotional, physical, and sexual abuse, as well as emotional and physical neglect. Bernstein and Fink offer guidelines for classifying varying abuse and neglect experiences into four categories: (1) none to minimal, (2) low to moderate, (3) moderate to severe, and (4) severe to extreme. For the purpose of this study, participants were dichotomized

into two groups for each of the five categories of abuse and neglect. For each category, participants with scores in the none to moderate range were classified as not having endorsed that PTE. Participants in the moderate to extreme range were classified as having endorsed that PTE. The majority of respondents (79%) reported no childhood abuse/neglect experiences. Of those who did experience abuse/neglect in childhood, emotional abuse was the most commonly endorsed (10.5%). Ten percent endorsed sexual abuse, 5.9% endorsed physical abuse, 4.3% endorsed physical neglect, and 3% reported experiences of emotional neglect.

Participants reported other lifetime potentially traumatic events (PTEs) on the Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013). This measure did not include childhood abuse. Every category of PTE listed on the LEC-5 was endorsed. The most commonly experienced event was having been in a transportation accident (62.4%), the sudden and unexpected death of someone close (61%), and a life-threatening illness or injury (41.7%). A significant number of participants also reported an experience of physical assault (38.7%), and unwanted or uncomfortable sexual experience (37.8%), and a serious work or recreational accident (32.8%). Other categories frequently endorsed included having experienced a natural disaster (29.6%), a sexual assault (23.5%), and a fire or explosion (23%).

When comparing potentially traumatic events in the overall sample, the Native American population stands out. While making up only 3.9% of the total sample size, Native Americans represented almost 12% of those who endorsed symptom criteria for PTSD and 47% of those who endorsed C-PTSD symptomology. This is a salient illustration of the increased vulnerability and serious health inequities within this population.

In order to examine lifetime reports of participants' PTEs, scores for both the CTQ and the LEC-5 were combined to obtain a total number of potential traumatic events experienced.

When these reports were totaled, only 6.6% of respondents had not experienced PTEs in their lifetime. The most common number of PTEs experienced were two or three (12.3%, respectively), with 11.8% of participants endorsing five PTEs, 11.2% endorsing four PTEs, 10.7% endorsing one, 10.3% endorsing six, 6.8% endorsing seven, and 5.7% endorsing eight PTEs. Just over 12% of participants endorsed nine or more PTEs. See Table 2 for specific information on PTEs.

Briere et al. (2008) warn that cumulative trauma and symptom complexity variables are unlikely to be normally distributed, recommending that statistical analyses used to evaluate this data is resistant to normality violations. Hayes and Rockwood (2017) debunk this as “myth” and indicate that centering independent and dependent variables will not affect interaction tests, but simply change the metric of measurement. Because there are conflicting ideas on how normalcy of data distribution influences results in relation to trauma, this assumption was given particular consideration. Non-parametric models were used to evaluate data that violated normality assumptions.

Hypothesis 1: There is a relationship between number of PTEs an individual has experienced, as reported on the Childhood Trauma Questionnaire (CTQ) and the Life Events Checklist for DSM-5 (LEC-5), and their ITQ-determined group belonging (non-clinical, PTSD, and C-PTSD).

Due to the fact that the dependent variable is a positive integer that fits the Poisson distribution, Poisson regression was used to test this association. Two separate regressions were conducted due to complications resulting from combining childhood and lifetime experiences (i.e., total number of PTEs). Thus, the dependent variables in these analyses were the number of PTEs experienced by participants (1) related to abuse in childhood and (2) all other traumatic

events throughout their lifetime. The independent variables were participants' group belonging (0 = non-clinical, 1 = PTSD, 2 = C-PTSD).

Both the likelihood ratio chi-square test ($\chi^2 = 39.719$, $DF = 2$, $p < .0001$) and the deviance-based goodness of fit ($D = 460.4361$, $DF = 436$, $D/DF = 1.06$) indicated that the full model using the CTQ childhood PTEs measure was a significant improvement in fit over a null model (i.e., no predictors). Though belonging to the PTSD group was not a significant predictor of the number of experienced PTEs, the incidence rate ratio (1.744) indicated that for those in the PTSD group, the incidence rate for childhood PTEs was 1.74 times greater than that for the non-clinical group. In other words, the incidence rate for those with PTSD was 74.4% greater than that for the non-clinical group. Belonging to the C-PTSD group was a significant predictor of the number of experienced PTEs ($b = 1.203$, $S.E. = .1779$, $p < .0001$). The incidence rate ratio (3.331) indicated that for those in the C-PTSD group, the incidence rate for childhood PTEs was 3.33 times greater than that for the non-clinical group. In other words, the incidence rate for those with C-PTSD was 233% greater than that for the non-clinical group.

Although the likelihood ratio chi-square test ($\chi^2 = 38.796$, $DF = 2$, $p < .0001$) indicated that the full model using the LEC lifetime PTEs measure was a significant improvement in fit over a null model (i.e., no predictors), the deviance-based goodness of fit ($D = 982.892$, $DF = 436$, $D/DF = 2.254$) did not. The deviance-based test provided a better result because it indicated how well outcomes met assumptions that the outcome is a positive integer, and that the mean and variance of the outcome are equal.

Belonging to the PTSD group was not a significant predictor of the number of experienced PTEs ($b = 0.185$, $S.E. = .0972$, $p = .057$). The incidence rate ratio (1.203) indicated that for those in the PTSD group, the incidence rate for lifetime PTEs was 1.203 times greater

than that for the non-clinical group. In other words, the incidence rate for those with PTSD was only 20.3% greater than that for the non-clinical group. Belonging to the C-PTSD group was found to be a significant predictor of the number of experienced PTEs ($b = 0.376$, $S.E. = .0592$, $p < .0001$). Further, the incidence rate ratio (1.456) indicated that for those in the C-PTSD group, the incidence rate for lifetime PTEs was 1.456 times greater than that for the non-clinical group. In other words, the incidence rate for those with C-PTSD was 45.6% greater than that for the non-clinical group. PTEs in relation to trauma are reported in Table 3.

Family Environment

Hypothesis 2: A more positive family environment, as reported on the FES, will result in less trauma symptomology, as reported on the ITQ: non-clinical, PTSD, and C-PTSD.

In order to evaluate this relationship, it was proposed that five separate between-subjects one-way analyses of variance (ANOVAs) would be conducted. While meeting criteria for the assumption of homogeneity of variance, all collected FES subscale data distributions violated assumptions of normality. For this reason, the Kruskal-Wallis H test for non-parametric data was used instead. The dependent variables in these analyses were participants' scores on the five FES subscales (cohesion, expressiveness, conflict, organization, control), and the independent variable was participants' ITQ group belonging (0 = non-clinical, 1 = PTSD, 2 = C-PTSD). FES subscales were examined for multicollinearity and found to be independent; tolerance scores ranged between 0.524 – 0.790 and VIF scores ranged between 1.27 – 1.91. Family environment subscales information is reported in Table 4.

Table 3

Potentially Traumatic Events in Relation to Trauma Symptomology

Childhood Trauma	B	SE	Wald	Sig	Exp(B)	95% C.I.	
Intercept	-1.389	0.1060	171.734	.000	0.249	-1.597	-1.181
C-PTSD	1.203	0.1779	45.763**	.000	3.331	0.855	1.552
PTSD	0.556	0.3335	2.781	.095	1.744	-0.097	1.210
Lifetime Trauma							
Intercept	1.416	0.0261	2949.279	.000	4.120	3.915	4.336
PTSD	0.376	0.0592	40.296**	.000	1.456	1.297	1.635
C-PTSD	0.185	0.0972	3.611	.057	1.203	0.994	1.455

Note. Hypothesis 1. Potentially traumatic event (childhood, lifetime) variables evaluating variance in relation to group belonging (non-clinical, trauma symptomology).

** $p < .01$.

Cohesion Subscale

Cohesion subscale scores met criteria for homogeneity of variance according to Levene's test, $F(2,436) = .212, p = .809$. However, Shapiro-Wilk's ($W(439) = .914, p < .000$) indicated that data were not normally distributed. A Kruskal-Wallis H test showed that there was a statistically significant difference among the three ITQ group belonging categorizations on FES cohesion subscale scores, $H(2) = 7.428, p = .024$. The family cohesion mean rank was 224.93 for the non-clinical sample, 245.26 for those who met criteria for PTSD, and 180.32 for those who met criteria for C-PTSD. Dunn's pairwise tests with Bonferroni corrections were conducted to make post hoc comparisons. The participants in the C-PTSD group ($M = 37.64, SD = 14.77$) scored significantly lower than the non-clinical group ($M = 42.66, SD = 13.79$). There was no evidence of a significant difference between other groups. Effect size was small ($\epsilon^2 = 0.017$).

Expressiveness Subscale

Expressiveness subscale scores met criteria for homogeneity of variance according to Levene's test, $F(2,436) = .109, p = .897$. However, Shapiro-Wilk's ($W(439) = .956, p < .000$) indicated that data were not normally distributed. A Kruskal-Wallis H test showed that there was a statistically significant difference among the three ITQ group belonging categorizations on FES expressiveness subscale scores, $H(2) = 20.157, p < .000$. The family expressiveness mean rank for the non-clinical sample was 231.99, 204.85 for those who met criteria for PTSD, and 153.34 for those who met criteria for C-PTSD. Dunn's pairwise tests with Bonferroni corrections were conducted to make post hoc comparisons. The participants in the C-PTSD group ($M = 40.34, SD = 13.77$) scored significantly lower than the non-clinical group ($M = 49.18, SD = 13.58$). There was no evidence of a significant difference between other groups. Effect size was small ($\epsilon^2 = 0.046$).

Table 4

Family Environment Subscales

Family Factor	M	SD	<i>H</i> (2)	<i>p</i>	ϵ^2
Cohesion	42.10	13.98	7.428*	.024	.017
Expressiveness	47.84	13.91	20.157**	.000	.046
Conflict	52.79	14.21	24.513**	.000	.056
Organization	48.50	12.60	1.689	.430	-
Control	51.64	13.40	6.727*	.035	.015

Note. Hypothesis 2. Family Environment Scale subscale means, standard deviations, and statistics used to compare group belonging.

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

Conflict Subscale

Conflict subscale scores met criteria for homogeneity of variance according to Levene's test, $F(2,436) = .796, p = .452$. However, Shapiro-Wilk's ($W(439) = .930, p < .000$) indicated that data were not normally distributed. A Kruskal-Wallis H test showed that there was a statistically significant difference among the three ITQ group belonging categorizations on FES conflict subscale scores, $H(2) = 24.513, p < .000$. The family conflict mean rank score was 207.44 for the non-clinical sample, 222.20 for those who met criteria for PTSD, and 295.12 for those who met criteria for C-PTSD. Dunn's pairwise tests with Bonferroni corrections were conducted to make post hoc comparisons. The participants in the C-PTSD group ($M = 61.29, SD = 12.93$) scored significantly higher than the non-clinical group ($M = 51.36, SD = 13.90$). There was no evidence of a significant difference between other groups. Effect size was small ($\epsilon^2 = 0.056$).

Organization Subscale

Organization subscale scores met criteria for homogeneity of variance according to Levene's test, $F(2,436) = .622, p = .537$. However, Shapiro-Wilk's ($W(439) = .957, p < .000$) indicated that data were not normally distributed. A Kruskal-Wallis H test showed that there was not a statistically significant difference among the three ITQ group belonging categorizations on FES Organization subscale scores, $H(2) = 1.689, p = .430$. The family organization mean rank was 223.52 for the non-clinical sample, 214.48 for those who met criteria for PTSD, and 200.84 for those who met criteria for C-PTSD.

Control Subscale

Control subscale scores met criteria for homogeneity of variance according to Levene's test, $F(2,436) = .155, p = .856$. However, Shapiro-Wilk's ($W(439) = .958, p < .000$) indicated

that data were not normally distributed. A Kruskal-Wallis H test showed that there was a statistically significant difference among the three ITQ group belonging categorizations on FES Control subscale scores, $H(2) = 6.727, p = .035$. The family conflict mean rank was 214.24 for the non-clinical sample, 281.93 for those who met criteria for PTSD, and 230.70 for those who met criteria for C-PTSD. Dunn's pairwise tests with Bonferroni corrections were conducted to make post hoc comparisons. Participants in the PTSD group ($M = 58.17, SD = 12.55$) scored significantly higher than the non-clinical group ($M = 51.01, SD = 13.37$). There was no evidence of a significant difference between other groups. Effect size was small ($\epsilon^2 = 0.015$).

Attachment

Hypothesis 3: There is a relationship between an individual's attachment, as reported on the ECR-R, and their ITQ trauma symptomology categorizations: non-clinical, PTSD, and C-PTSD.

As will be reported individually, ECR-R anxiety and avoidance subscale data distributions met criteria for the assumption of homogeneity of variance, while violating assumptions of normality. In order to test predicted results, Mann-Whitney U tests (New Procedure) were conducted. It was also decided to explore these relationships further. For this reason, the Kruskal-Wallis H test for non-parametric data was also used. The dependent variables in these analyses were participants' scores on the dimensional attachment subscale, and the independent variable was participants' ITQ group belonging (binary categorization for Mann-Whitney U tests; 0 = non-clinical, 1 = PTSD, 2 = C-PTSD). ECR-R subscales were examined for multicollinearity and found to be independent (Tolerance = 1.00, VIF = 1.00). Attachment anxiety and avoidance statistical tests are provided in Table 5.

Table 5

Attachment Anxiety and Avoidance

Attachment Dimension	M	SD	U / H	df / n	<i>p</i>	ε^2 / η^2
Anxiety – Non-Clinical	3.43	1.25				
Anxiety – PTSD	3.78	1.10				
Anxiety – C-PTSD	4.50	1.30				
Mann-Whitney U			3361	380	.145	-
Kruskal-Wallis H			31.932**	2	.000	.079
Avoidance – Non-clinical	3.01	1.17				
Avoidance – PTSD	3.15	1.02				
Avoidance – C-PTSD	3.61	1.17				
Mann-Whitney U			7412**	416	.000	.031
Kruskal-Wallis H			13.819**	2	.001	.030

Note. Hypotheses 3A and 3B. Experiences in Close Relationships – Revised (ECR-R) attachment anxiety and avoidance statistics used to compare group belonging.

** $p < .01$.

Hypothesis 3a: PTSD symptomology will be associated with higher scores on the anxiety dimension of attachment, as measured by the ECR-R.

As previously reported, research has shown that higher levels of anxiety may be more predictive of PTSD symptoms when compared with those of C-PTSD (Hyland, 2017). While ECR-R anxiety scores met criteria for homogeneity of variance according to Levene's test, $F(1,378) = 2.762, p = .097$, Shapiro-Wilk's, $W(380) = .981, p < .000$, indicated that data were not normally distributed. In order to determine if the PTSD group had experienced less secure attachment, as measured by higher mean ranks on attachment anxiety, than the non-clinical group, a Mann-Whitney U test was conducted. The dependent variable was participants' scores on the anxiety dimension of the ECR-R. The independent variable was participants' group belonging (0 = non-clinical, 1 = PTSD). The shapes of the distributions of attachment anxiety mean ranks for both the PTSD group and non-clinical group were similar. Results, (N = 380) $U = 3361, Z = -1.458, p = .145$, indicate that the participants in the PTSD group (Mean Rank = 222.87) did not have significantly different mean ranks on the ECR-R anxiety subscale than non-clinical participants (Mean Rank = 188.41).

The ECR-R anxiety subscale was evaluated beyond the hypotheses in order to identify other significant relationships with group belonging. A Kruskal-Wallis H test showed that there was a statistically significant difference among the three ITQ group belonging categorizations on the ECR-R anxiety subscale scores, $H(2) = 31.932, p < .0001$. The ECR-R anxiety mean rank was 204.66 for the non-clinical sample, 242.00 for those who met criteria for PTSD, and 304.25 for those who met criteria for C-PTSD. Dunn's pairwise tests with Bonferroni corrections were conducted to make post hoc comparisons. The participants in the C-PTSD group (Mean Score = 4.50, SD = 1.30) were ranked significantly higher than the non-clinical group (Mean Score =

3.43, SD = 1.25). There was no evidence of a significant difference between other groups. Effect size was small ($\epsilon^2 = 0.079$).

Hypothesis 3b: C-PTSD symptomology will be associated with higher scores on the avoidance dimension of attachment, as measured by the ECR-R.

Levene's test, $F(1,414) = .012, p = .912$ indicated that data met criteria for homogeneity of variance. Shapiro-Wilk's ($W(416) = .978, p < .000$) confirmed that data were not normally distributed. In order to determine if the C-PTSD group had experienced less secure attachment, as measured by higher scores on the avoidance dimension of the ECR-R, than the non-clinical group, a Mann-Whitney U test was conducted. The dependent variable was participants' scores on the avoidance dimension of the ECR-R. The independent variable was participants' group belonging (0 = non-clinical, 1 = C-PTSD). The shapes of the distributions for attachment avoidance scores of both the C-PTSD group and the non-clinical group differed. Results, (N = 416) $U = 7412, Z = -3.647, p = .000$, indicate that the participants in the C-PTSD group (Mean Rank = 261.37) had significantly different mean ranks on the ECR-R avoidance subscale than non-clinical participants (Mean Rank = 199.76). Effect size was small ($\eta^2 = 0.031$).

The ECR-R avoidance subscale was evaluated further in order to identify other significant relationships with group belonging. A Kruskal-Wallis H test showed that there was a statistically significant difference among the three ITQ group belonging categorizations on the ECR-R anxiety subscale scores, $H(2) = 13.819, p = .001$. The ECR-R avoidance mean rank was 209.91 for the non-clinical sample, 234.54 for those who met criteria for PTSD, and 275.41 for those who met criteria for C-PTSD. Dunn's pairwise tests with Bonferroni corrections were conducted to make post hoc comparisons. The participants in the C-PTSD group (Mean Score = 3.61, SD = 1.17) scored significantly higher than the non-clinical group (Mean Score = 3.01, SD

= 1.17). There was no evidence of a significant difference between other groups. Effect size was small ($\epsilon^2 = .030$).

Hypothesis 3c: Overall attachment scores on the ECR-R, which combines the anxiety and avoidance dimensions to create an ordinal quadrant score, will result in three distinct categorizations of participants: a non-clinical, a PTSD, and a C-PTSD group.

In order to determine if there was a difference between these groups, a Cochran-Mantel-Haenszel (CMH) test, using the ‘row mean scores differ’ statistic, with three degrees of freedom was used. The CMH test determined if the distribution of data in the attachment groups was the same or different than the ITQ-determined grouped belonging distribution. When the null hypothesis is rejected, it indicates that there is a disproportionate distribution of participants in one or more of the two groups. A significant association between group belonging and attachment groups was found ($\chi^2 = 36.501$, $DF = 3$, $p < 0.0001$). When compared to both those who were non-clinical and those with PTSD, there was a smaller proportion of participants with C-PTSD in the securely attached group (1) and a higher proportion in the pre-occupied (3) and fearfully avoidant (4) attachment groups. Further, proportionately almost half of the study participants (46%) were both non-clinical and securely attached. The distribution of participants across the four ECR-R groups was approximately the same for the non-clinical and the PTSD groups. Attachment overall categorization statistic is provided in Table 6.

Although the categorization portion of this analysis was conducted as a way to contribute additional information to the dimensional aspects of attachment measured in this study, it is worth noting that the attachment measure used here did not allow for a category of disorganized attachment. Disorganized attachment has been recognized when one pattern cannot be specifically identified or the individual’s attachment has become confused due to pathology or

interruptions in caregiving relationships. The ability to account of these individuals in regard to attachment style may significantly change the distribution of participants across group belonging.

Potentially Protective Factors in Relation to Trauma Symptomology

Hypothesis 4: Protective factors of (1) a more positive family environment and (2) a more secure attachment will account for significant variability in the relationship between experiencing trauma and symptomology categorization.

In order to explore relationships between the experience of a positive family environment and secure attachment, the number of experienced PTEs, and trauma symptomology, a logistic regression was conducted. It was originally proposed that this relationship would be evaluated with moderation analyses; however, due to a lower sample size than anticipated, it was determined that a binomial logistic regression would identify relationships between the data more clearly. In this analysis, the PTSD and C-PTSD groups were combined in order to provide appropriate power. Therefore, the dependent variable of the regression was participants' ITQ group belonging (binary; 0 = non-clinical, 1 = PTSD and C-PTSD combined). Independent variables of the regression model included: (1) participants' experienced PTEs, measured as individual CTQ and LEC scores; (2) participants' reported family environment, measured as FES subscale scores (previously determined significant relationships; cohesion, expressiveness, conflict, and control); and (3) participants' attachment, measured as ECR-R avoidance and anxiety dimensions. The logistic regression model was found to be a good fit, explaining 23% (Nagelkerke R^2) of the variance in trauma symptomology and correctly classifying 84.1% of the cases. Results were statistically significant ($\chi^2 = 68.373$, $DF = 8$, $p < 0.0001$). Family cohesion, expressiveness, and conflict, as well as attachment anxiety, and childhood trauma exposure were each found to have significant relationships with reported trauma symptomology. There was no

evidence of significant relationships between family control, attachment avoidance, or lifetime number of trauma exposure types and trauma symptomology.

A one unit increase in an individual's family cohesion score was associated with 1.05 times greater odds of having a clinically significant trauma symptomology (95% CI = 1.02 – 1.07). Although increased scores on family cohesion were associated with an increased probability of belonging in the trauma symptomology group ($\chi^2 = 12.14$, DF = 1, $p < 0.0001$), the increase in probability was quite small. Essentially, family cohesion has very little effect on the overall outcome.

Family expressiveness was the only protective variable significantly associated with decreased odds of clinically significant trauma symptomology. A one unit increase in an individual's family expressiveness score was associated with 0.969 times decreased odds of having clinically significant trauma symptomology (95% CI = .95 - .99). Decreased scores on family expressiveness were associated with an increased likelihood of clinically significant trauma symptomology ($\chi^2 = 6.50$, DF = 1, $p = .011$). Again, the decrease in probability and the effect of family expressiveness on the overall outcome is very small.

Increased scores on family conflict were associated with an increased likelihood of clinically significant trauma symptomology ($\chi^2 = 4.51$, DF = 1, $p = .034$). A one unit increase in an individual's family conflict score was associated with 1.03 times greater odds of having clinically significant trauma symptomology (95% CI = 1.00 – 1.05). As with cohesion and expressiveness, the increase in probability and the effect of family conflict on the overall outcome is very small.

Table 6

Attachment Categorization Comparison

ECR-R Attachment Quadrants	Non-Clinical	PTSD	CPTSD
Secure	200	10	9
Dismissing Avoidant	26	3	8
Pre-Occupied	95	9	26
Fearful Avoidant	35	2	16

Note. Hypothesis 3C. Cochran-Mantel-Haenszel (CMH) ‘row mean scores differ’ statistic evaluation of the Experiences in Close Relationships – Revised (ECR-R) measured attachment categorization, created by crossing dimensional anxiety and avoidance scores on a four-quadrant graph.

A one unit increase in an individual's attachment anxiety score was associated with 1.65 times greater odds of having clinically significant trauma symptomology (95% CI = 1.29 - 2.12). Increased scores on attachment anxiety were associated with an increased likelihood of clinically significant trauma symptomology ($\chi^2 = 15.566$, DF = 1, $p < .0001$). An individual with a one unit increase in attachment anxiety had a 65% greater probability of meeting criteria for trauma symptomology.

A one unit increase in an individual's childhood trauma exposure was associated with 1.73 times greater odds of having clinically significant trauma symptomology (95% CI = 1.21 – 2.47). Increased scores on childhood trauma exposure were associated with an increased likelihood of clinically significant trauma symptomology ($\chi^2 = 8.89$, DF = 1, $p = .003$). For each additional childhood trauma type an individual experienced, that individual had a 73% higher probability of meeting criteria for trauma symptomology. Logistic regression results for protective factors in relation to trauma are provided in Table 7.

Table 7

Protective Factors in Relation to Trauma Symptomology

Variable	B	SE	Wald	Sig	Exp(B)	95% C.I.	
Childhood Trauma	0.546	0.183	8.886**	.003	1.726	1.206	2.472
Lifetime Trauma	0.080	0.045	3.171	.075	1.083	0.992	1.183
Family Cohesion	0.045	0.013	12.143**	.000	1.046	1.020	1.073
Family Expressiveness	-0.032	0.012	6.504**	.011	0.969	0.946	0.993
Family Conflict	0.025	0.012	4.506*	.034	1.025	1.002	1.049
Family Control	-0.010	0.012	0.743	.389	0.990	0.967	1.013
Attachment Anxiety	0.501	0.127	15.566**	.000	1.650	1.287	2.116
Attachment Avoidance	0.100	0.128	0.616	.433	1.106	0.860	1.421

Note. Hypothesis 4. Potentially traumatic events (childhood, lifetime), family environment (cohesion, expressiveness, conflict, control), and attachment (anxiety, avoidance) variables in relation to group belonging (non-clinical, trauma symptomology).

* $p < .05$. ** $p < .01$.

Discussion

The purpose of the current study was to examine relationships between family environment and attachment factors that may have a protective relationship with potentially traumatic events, and self-reported clinical categorization related to trauma. In this study, traumatic experiences in both childhood (addressed primarily as childhood abuse) and throughout one's lifetime were considered in relation to traumatic symptomology. Not surprisingly, and consistent with previous research (Goodwin, 1988; Hermann, 1992; van der Kolk, 2005), the current study found significant relationships between experiencing potentially traumatic events (PTEs) in childhood (e.g., childhood abuse) and also throughout one's lifetime and the development of trauma symptomology. Additionally, factors hypothesized to be protective in relation to experiencing PTEs were explored: experiencing a more positive family environment and having a more secure attachment style. Significant relationships were found between family cohesion, expressiveness, conflict, and control, and trauma symptomology. Finally, an individual's attachment style was also found to be significantly related to reported trauma symptoms. While identification of significant relationships in the current research cannot discern directionality and certainly does not imply causation, the importance of these variables in relation to trauma has been supported and warrants further investigation.

Trauma Symptomology

Of the current sample, 79% reported no to low incidence of childhood abuse/neglect experiences. This observation aligns with current data, which indicate that 1 in 4 youth in the U.S. experience some form of child abuse and maltreatment in their lifetimes (Finkelhor, Turner, Ormond, & Hamby, 2013). Of those who reported childhood abuse, emotional abuse was the most commonly experienced, with more than 10% of the sample reporting this PTE. When

measuring across the lifetime, all 16 categories of PTEs were endorsed. Having been in a transportation accident was the most common, with more than 62% reporting this PTE, and the unexpected death of someone close (61%) was almost as common. Just over 12% of the sample reported having experienced two or three PTEs in their lifetime, with the same percentage endorsing that they had experienced nine or more. When both childhood and lifetime PTEs were considered together, only 6.6% of participants reported having experienced none at all.

The first hypothesis in this study predicted that the number of potentially traumatic events (PTEs) an individual experienced would be related to their trauma symptomology and categorization in either a non-clinical, PTSD, or C-PTSD group. As hypothesized, higher numbers of experienced PTEs were found to be related to higher incidence rates of both PTSD and C-PTSD. Incidence of childhood PTEs were found to be 74% higher in those who reported PTSD symptoms and 233% higher in those who reported C-PTSD symptoms. These results aligned with current research in that the childhood PTE measure evaluated abuse experiences and childhood abuse is known to result in trauma symptomology. Further, childhood abuse is identified as one of the prolonged, chronic, and interpersonal experiences that are commonly believed to contribute specifically to C-PTSD (Cloitre et al., 2013; Maercker et al., 2013; WHO, 2019).

The number of experienced PTEs in an individual's lifetime was not found to be significantly related to PTSD symptomology; however, it was found to be significant in relation to C-PTSD. There was a 46% greater incidence of lifetime PTEs for those with C-PTSD symptomology. Though the lifetime measure of PTEs used in this study did not contribute as significantly as the childhood measure, the cross-sectional nature of this study and the wide age range of undergraduates (18-66) in the sample may have contributed to mixed results. Further,

classification based on PTE type-clusters has recently been found to strengthen correlational results with trauma symptoms from this measure (Contractor, Weiss, Natesan Batley, & Elhai, 2020).

Family Environment

The second hypothesis predicted that a more positive family environment would be related to less trauma symptoms. As hypothesized, when family environment was analyzed, positive features were associated with less trauma symptomology. Results indicated that lower scores on family *cohesion*, defined as the extent to which family members are concerned and committed to the family and the degree to which family members are helpful and supportive of each other, and *expressiveness*, the extent to which family members are allowed and encouraged to act openly and express their feelings directly, were both associated with C-PTSD. Cohesive and expressive families may have developed better communication styles, both within and outside of familial relationships, that contribute to developing healthier coping skills and healing following traumatic events. Families with these features may also offer more social closeness and support that would further contribute to healing. Additionally, difficulties in emotional regulation, self-identity, and interpersonal relatedness are indicative of having experienced complex trauma and in fact, differentiate C-PTSD from PTSD. That less family support and more complex trauma symptoms are significantly associated, is perhaps not surprising and supports previous findings in this area of study.

Higher scores on family *control*, which measures rigidity of familial rules and relationships, were associated with PTSD. Moreover, higher scores on family *conflict* were associated with C-PTSD. This variable measured how commonly anger, aggression, and a confrontational style is exhibited among family members. Controlling one's emotions and using

more confrontational communication styles may not be as adaptive as expressive communication and further, may not contribute to cohesion. These results support numerous current studies that offer a positive family environment as protective of mental health and well-being. In a study that evaluated effects of family environment on psychosis, results indicated that a more negative family environment increased risk and a more positive environment was protective in the development of psychosis (Gonzalez-Pinto, de Azua, Ibanez, Otero-Cuesta, & Castro-Fornieles, 2011). A more negative family environment was associated with youth diagnoses of conduct disorder and oppositional defiant disorder, as well as predicted worse health outcomes (e.g., psychiatric hospitalization, substance misuse; Rey, Walter, Plapp, & Denshire, 2000). Additionally, family conflict in youth has been linked to insomnia in adulthood (Gregory, Avshalom, Moffitt, & Poulton, 2006). Having specific knowledge of familial protective factors is beneficial to building both theory and therapeutic treatment models, as well as strengthening the foundation for individual resilience that is formed during childhood development.

No matter the shared event, parents and the familial environment play an essential role in youth response and healthy adjustment to traumatic events. Eisenberg and Silver (2011) reviewed the literature regarding children's coping and emotional regulation, and their parents' roles in shaping their responses, in relation to the September 11th, 2001 terrorist attacks (9/11). Findings indicated that parents played significant roles in determining their children's well-being. When parents encouraged emotional expression, positive reframing, and acceptance of emotional reactions, their children experienced lower levels of distress (Gil-Rivas, Silver, Holman, McIntosh, & Poulin, 2007). Further, parental rejection, avoidance of information-sharing about the trauma, or distancing from their children's emotional responses has been

shown to increase children's negative responses to traumatic events (Charuvastra & Cloitre, 2008).

Knowledge of individual and familial strengths and weaknesses is beneficial in addressing these. Both individual and family therapy is of higher quality and more useful when knowledge of these factors is incorporated into the work being addressed. Individuals may gain confidence when they are knowledgeable regarding their abilities and competence. In the same regard, when awareness increases in reference to particularly beneficial areas that need improvement, individuals and families are able to build upon these.

Attachment

The third hypothesis predicted that an individual's attachment style would be related to trauma symptomology. When focusing on attachment and its relationship with trauma, it is worth noting that more than 90% of the current study sample reported having an adult attachment figure who loved and supported them, and with whom they felt close. The majority of respondents identified their mother or step-mother as that person (37%). Participants also identified their father or step-father (30%) or both parents (12%) as primary attachment figures. While the current study did not determine these individuals' attachment styles, consideration should be given to secure attachment styles, as they are related to more positive functioning within romantic and familial relationships (Paley et al., 1999). In a study evaluating attachment in marital relationships, Paley et al. found that securely attached wives were effective problem-solvers, and that they expressed more positive affect and less withdrawal than insecure wives. In other research, securely attached men have been found to provide greater support to their partners during a stressful situation than insecure men (Simpson, Rholes, & Nelligan, 1992). Secure individuals are generally more able to regulate emotions effectively and thus, are more

likely to develop closeness and intimacy (Ben-Naim et al., 2013). They are also more likely to report experiencing overall satisfaction in their relationships.

Each of three measurements of attachment were evaluated separately in relation to trauma symptomology. First, it was predicted that PTSD symptomology would be related to higher scores on the anxiety dimension of attachment. Contrary to this prediction, these scores were not found to be significantly related to PTSD. As previously mentioned, this study was underpowered, and specifically, the ITQ-identified PTSD group contained only 23 participants. Results may have been different if a larger sample had been obtained. Attachment anxiety scores did, however, indicate a significant relationship with C-PTSD symptomology. The chronic, prolonged, or repeated nature of traumatic events related to C-PTSD may interrupt healthy developmental pathways or positive schemas needed to support secure attachment.

Anxiously attached individuals have more difficulty maneuvering in close and romantic relationships than those who are securely attached. In a study of the role of attachment in emotion regulation during relationship conflict, Ben-Naim et al. (2013) found that these individuals struggle to hold their negative thoughts and feelings in check. They appear to be less able to discriminate when sharing their emotions with their partners. During stressful interactions, their disclosure of negative emotions (e.g., contempt, sadness) increased and that of positive emotions decreased. The authors indicated that this behavior was even more evident in those individuals who were rated as high in anxious attachment. Anxious partners tend to regard threatening situations in an exaggerated way and react prematurely to perceived danger (Ben-Naim et al.).

Next, it was predicted that C-PTSD symptomology would be related to higher scores on the avoidance dimension of attachment. As hypothesized, this relationship was found to be

significant. Disorganized or mixed styles of attachment have been more frequently linked to complex trauma (Ford & Courtois, 2009; Jacobs, Boyce, Ilan-Clarke, & Bifulco, 2019). Current research supported this finding, with both anxious and avoidant attachment styles associated with C-PTSD. Individuals with avoidant attachment styles tend to exhibit an inflated sense of self-sufficiency and independence, less often seeking support from others (Ein-Dor, Mikulincer, & Shaver, 2011). They may use suppression or distancing from negative emotions and experiences as emotional coping methods (Ben-Naim et al., 2013). While suppression can result in negative physical and psychological consequences for some, it appears to be less harmful for avoidant individuals. Avoidance, detachment, and suppression appear to meet these individuals' attachment needs. These strategies may serve the function of shutting down both the attachment system of the avoidant caregiver and the support seeking partner, forcing that individual to find other ways to deal with their needs (Feeney & Collins, 2001).

Finally, it was predicted that the overall attachment classification would be related to distinct categorization of trauma symptomology. Significantly, almost half of the study sample (46%) reported secure attachment and also belonged to the non-clinical trauma symptom category. As hypothesized, there were far fewer individuals with C-PTSD symptomology within the group who identified as more securely attached. Further, more individuals who met criteria for C-PTSD had less secure attachment, belonging to either the pre-occupied or fearfully avoidant attachment categories. Contrary to predicted outcomes, there was no significant relationship found between any of the elements of attachment and a PTSD categorization.

Human attachment is currently believed to be a biological, emotionally bonding, reciprocally related behavioral system that increases our chance of survival early in life and guides our feelings of security throughout adulthood (Hazan & Shaver, 1994). Insecure

attachment in adulthood is likely to contribute to relational issues that are most evident in close relationships. According to Bowlby (1988), methods that may improve insecure attachment include gaining an understanding of internal working models and having *corrective* emotional experience within a close relationship. Attachment-based models of therapy, including Circle of Security and Dyadic Developmental Psychotherapy, address youth attachment relationships within the family system in order to build psychological health and resilience. Emotionally focused therapy (EFT) for couples offers an attachment-based treatment approach providing psychoeducation about attachment histories and an opportunity to facilitate restorative experiences for couples. Each of these methods addresses bidirectional attachment and builds emotional wellness.

Possible Protective Factors in Relation to Trauma Symptomology

The fourth and final hypothesis predicted that the factors of a more positive family environment and a more secure attachment style would account for significant variability in the relationship between experiencing trauma and the development of symptoms. While numerous other factors not addressed in this study may account for trauma symptomology, the logistic regression model explained 23% of the variance in trauma symptomology and correctly classified more than 84% of cases. Cloitre et al. (2009) found that trauma experiences during childhood developmental stages are stronger contributors to symptomology. Consistent with previous research, and in support of previous results from the current study, childhood abuse and trauma exposure resulted in a 73% higher probability of endorsing trauma symptoms. Further, less secure attachment, as measured by higher scores on attachment anxiety, resulted in a 65% higher probability of meeting criteria for trauma symptomology.

While lifetime PTE exposure and attachment avoidance did not explain significant variance related to trauma categorization in this model, the family environment variables of cohesion and conflict had significant relationships with trauma symptomology. Additionally, family expressiveness was significantly associated with decreased odds of trauma symptomology. Even though the effect size was small for these family variables, results support previously reported research that family unity and cohesion strongly contribute to resiliency.

Implications and Future Research

The trauma experiences of the Native American population in this sample supports previous research and strongly suggests further attention and investigation into the health disparities of these individuals. While making up a small percentage (3.9%) of the total sample size, Native Americans represented almost half (47%) of those who experienced complex trauma symptomology. The vast health inequities of this population deserve considerable attention. Given specific cultural differences and experiences, it is important to evaluate specific treatment developments with this population. Further investigation and understanding of contributing factors related to historical trauma, racism, and oppression, as well as building upon specific factors related to increasing resiliency in this high-risk group is of utmost importance and long over-due.

In addition to adding to the current research around complex trauma, these results have important clinical implications. Frequently, primary focus is given to how to treat maladaptive symptomology once it is established. While it is necessary to develop and implement effective treatment models, attention should also be focused on variables that may provide protection and contribute to healthy developmental pathways. For instance, interventions directed at improving family environment have been shown to reduce conduct problems in youth (Rey, Walter, Plapp,

& Denshire, 2000). The current study provided preliminary support for the potentially protective elements of family environment (cohesion, expressiveness, conflict, and control) and attachment (anxiety and avoidance) that were significantly related to reduced trauma symptomology and could be specifically targeted in treatment.

Special consideration should be given in treatment to the significant role family plays in building both risk and resiliency. While this variable is included by necessity when working with youth who are still living within their family system, focus on family factors in work with adult individuals should also be considered. Family considerations and inclusion in treatment modalities is essential in the treatment of trauma. When addressing persistent and complex trauma symptomology, understanding the negative contribution of weaknesses within the family system and the importance of strengthening these relations may significantly increase positive outcomes.

The current study also contributes to the vast literature suggesting that specific consideration be given to complex trauma and C-PTSD. The pronounced differences in both the experience of trauma and resulting symptomology between PTSD and C-PTSD clearly justify further investigation. Hermann proposed more comprehensive evaluation in these areas more than two decades ago. Despite increased research and findings, as well as the inclusion of C-PTSD in the most recent ICD, C-PTSD is still not given sufficient consideration in the DSM. It is time for this omission to be rectified.

More research is needed to understand significant relationships between trauma type, number of experiences, and development of symptoms in order to refine trauma-informed and trauma-focused therapeutic methods that focus on complex trauma. Cloitre (2015) suggests that consideration must be given to the heterogeneity of the trauma population. Profiles of complex

trauma throughout the lifespan will contribute to the understanding of proposed core symptoms and to the development of interventions that match individual client needs (Cloitre, 2015). In order to identify the optimal identification and treatment for a traumatized individual, reliable symptom profiles that align with distinct outcomes must be identified.

Limitations

The present study has a number of methodological limitations. As with any cross-sectional survey, causation cannot be implied. In addition, the measures used were self-report questionnaires. While this method has valid strengths specific to trauma research as previously described, it most certainly has well-known weaknesses as well (e.g., being subject to the biases and limitations of retrospective reports). It has been suggested that symptomatology would be more accurately determined if multiple informants (Lanktree et al., 2008) and multi-method assessments, including interviews and/or observations were used (Courtois, 2004; Hoyle, Harris, & Judd, 2002). As such, future studies may expand on current research by conducting clinician-conducted interviews or obtaining collateral reports to more confidently determine symptoms and categorization.

This research was limited by the relatively homogenous nature of the participants, particularly in regard to race/ethnicity and educational status. The majority of participants (84%) were White/non-Hispanic. Future research would expand on the current study by investigating a more diverse sample, to include populations who experience higher levels of trauma (e.g., sexually- and gender-diverse individuals). Further, conducting research with a college population sample may be seen as a disadvantage when consideration is given to generalizability. However, the International Trauma Questionnaire (ITQ) for the ICD-11 has not yet been evaluated in

relation to a non-clinical population or a college sample. These results will contribute to growing literature regarding this measure.

Additionally, when childhood abuse or neglect is the traumatic experience resulting in trauma symptomatology, it may be impossible to completely disentangle familial factors and their contributions to risk and resiliency. An individual may have experienced caregivers, family members, or a home environment that contributed both protective and injurious elements. While these variables certainly overlap, each individual included in the current study reported on the entirety of their traumatic experiences and on the same components of the specific factors evaluated. An additional limitation is the relatively small n for some subgroups (e.g., 23 participants met criteria for PTSD, 59 met criteria for C-PTSD), offering less power than anticipated.

Although, 84% of cases were correctly classified in the logistic regression, the effect sizes were small. These results suggest that, as would be expected, numerous other factors not accounted for in the present study may account for trauma symptomatology. These limitations notwithstanding, the present study has a number of strengths. These include well-validated instruments that yielded good internal consistency in the present sample and results that support previous research and theory.

Summary

In conclusion, the primary objective of the current study was to contribute knowledge to the growing literature on complex trauma and possible protective factors that may contribute to less trauma symptomatology. Results indicate the high frequency of trauma exposure among college undergraduates. That is, more than 93 percent of the respondents had experienced one or more potentially traumatic events in their lifetime. Trauma is known to contribute to serious

psychological and physiological health concerns and the incredibly high incidence rate in a college population underscores the seriousness of the problem. Identification of factors that contribute to both risk and to resilience is critical in order to improve services and resources for individuals, families, and their communities.

Results from the current study were consistent with previous research regarding the relationship between potentially traumatic events (PTEs) and trauma symptomology and categorization. Traumatic events that occur over extended periods of time during childhood and hinder meeting developmental milestones (e.g., childhood abuse) are believed to significantly contribute to complex trauma; this relationship was supported. The current study also found evidence for associations between the number of PTEs experienced and trauma symptoms of both PTSD and C-PTSD.

Further, the current research contributed preliminary information on relationships between experiencing PTEs, developing trauma symptomology, and the potentially protective factors of positive family environment and secure attachment. Of the seven elements evaluated in this study, the family environment subscales (1) cohesion, (2) expressiveness, (3) conflict, and (4) control, as well as the attachment variables (1) anxiety and (2) avoidance, were all found to be associated with trauma symptomology. Only family organization had no supporting evidence of a significant relationship.

The findings of this study support further exploration of factors that promote resilience in relation to both PTSD and C-PTSD. By developing knowledge around those factors that build resilience and contribute to mental health and wellness in the face of adversity and trauma, both childhood and lifetime developmental pathways may be strengthened. Understanding risk and

protective variables is essential in being better equipped to promote healthy development in the face of complex trauma.

Appendix A

Informed Consent

Thank you for agreeing to participate in this survey. The purpose of this study is to learn about ways in which our past experiences are related to how we currently think, feel, and relate to others. Most of these questions will ask you to choose from a set selection of options.

Sometimes, this will feel really easy to do and one of the options will feel like it accurately fits what you think or feel. Other times, you may be torn between one or two options, and that is okay! Just choose the option that best describes your experiences. There are no right or wrong answers to these questions.

Who should complete this survey?

Undergraduate college students who are 18 years or older are eligible to participate in this survey.

How do I complete this survey?

The survey contains two types of questions: Questions that require you to check a box associated with the response that best describes your experiences, and questions where you are asked to type your answers in a text box presented beneath the question. Most questions will ask you to simply check a box.

How long does it take to complete the survey?

Answering the survey should take approximately 45 minutes to one hour to complete.

Are there any risks associated with taking this survey?

We believe that the likely risks of completing this survey are minimal. However, some of the questions are about experiences you may have had – or are currently having – in regard to being hurt physically, sexually, or emotionally. Because of this, some of the questions may make you

uncomfortable or be distressing to you. If you become distressed or desire assistance during or after taking the survey, you should contact either or both of the following numbers:

Counseling Services.....243-4711

Student Advocacy Resource Center.....243-6559

Suicide Prevention Lifeline.....1-800-273-TALK (8255)

Please also note that you may exit out of the survey at any time. There will be an option at the end of every page that allows you to discontinue the survey.

Are there any benefits for me in completing this survey?

There are no direct benefits anticipated for you from answering questions on this survey.

However, this survey will provide valuable information about how past experiences influence current experiences. This information may help with the development of effective treatments for those with negative past experiences.

You may also be compensated for your time by receiving research credit in your psychology course. If you are interested in receiving research credit, please follow the link at the end of this survey. This link will take you to a separate page where you can enter your contact information.

Your contact information will in no way be connected to your responses.

To request more information about this survey or the study, please email Susan Ocean, M.A. at Susan.Ocean@umontana.edu. If you have any questions regarding your rights as a research participant, contact the UM Institutional Review Board (IRB) at (406) 243-6672.

Please print or save a copy of this page for your records.

Clicking below and continuing this survey indicates that I am female, I am 18 years or older, I have read the description of the study, and I agree to participate in this study.

-I agree

-I disagree

Appendix B

Demographic Information

1. How old are you? (please answer in years, and in number format only. e.g.: 21 years, 7 months = “21”)
2. What is your current class standing?
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Graduate (Master Degree)
 - f. Graduate (Ph.D.)
 - g. Graduate (Ed.D.)
 - h. UM Law Student
 - i. Unsure
3. What is your racial/ethnic background?
 - a. White/non-Hispanic
 - b. Black
 - c. Hispanic
 - d. Asian or Pacific Islander
 - e. American Indian/Alaska Native
 - f. Two or more races
 - g. Other _____
4. What is your current relationship status?
 - a. Single, not dating
 - b. In a relationship, not engaged or married
 - c. In a relationship, engaged
 - d. Married
 - e. Divorced or separated
 - f. Widowed
5. How long have you been in this relationship? (Please answer in months, and in number format only. E.g.: 5 years = “60”)
6. When you were growing up, did you have an adult who loved and supported you and that you felt close with?
7. Who was this person?
8. In general, would you say your health is...
 - a. Excellent
 - b. Very Good

- c. Good
- d. Fair
- e. Poor

Appendix C

Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1997)

Instructions: These questions ask about some of your experiences growing up as a child and as a teenager. Although these questions are of a personal nature, please try to answer as honestly as you can. For each question, select the response that best describes how you feel.

When I was growing up...

1 = Never True 2 = Rarely True 3 = Sometimes True

4 = Often True 5 = Very Often True

1. I didn't have enough to eat.
2. I knew that there was someone to take care of me and protect me.
3. People in my family called me things like "stupid," "lazy," or "ugly."
4. My parents were too drunk or high to take care of the family.
5. There was someone in my family who helped me feel that I was important or special.
6. I had to wear dirty clothes.
7. I felt loved.
8. I thought that my parents wished I had never been born.
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.
10. There was nothing I wanted to change about my family.
11. People in my family hit me so hard that it left me with bruises or marks.
12. I was punished with a belt, a board, a cord, or some other hard object.
13. People in my family looked out for each other.
14. People in my family said hurtful or insulting things to me.
15. I believe that I was physically abused.

16. I had the perfect childhood.
17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor.
18. I felt that someone in my family hated me.
19. People in my family felt close to each other.
20. Someone tried to touch me in a sexual way, or tried to make me touch them.
21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.
22. I had the best family in the world.
23. Someone tried to make me do sexual things or watch sexual things.
24. Someone molested me.
25. I believe that I was emotionally abused.
26. There was someone to take me to the doctor if I needed it.
27. I believe that I was sexually abused.
28. My family was a source of strength and support.

Appendix D

Life Event Checklist, 5th Edition (LEC-5; Weathers et al., 2013)

Instructions: Below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that (a) it happened to you personally, (b) you witnessed it happen to someone else, (c) you learned about it, (d) you don't know if it applies to you, or (e) does not apply to you.

1. Natural disaster (for example, flood, hurricane, tornado, earthquake)
2. Fire or explosion
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)
4. Serious accident at work, home, or during recreational activity
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force of threat of harm)
9. Other unwanted or uncomfortable sexual experience
10. Combat or exposure to a war-zone (in the military or as a civilian)
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)
12. Life-threatening illness or injury
13. Severe human suffering
14. Sudden, violent death (for example, homicide, suicide)
15. Sudden, unexpected death of someone close to you

16. Serious injury, harm, or death you caused to someone else

17. Any other very stressful event or experience

18. What was that event or experience? _____

Appendix E

Experiences in Close Relationships – Revised Questionnaire (ECR-R; Fraley et al., 2000)

Instructions: The statements below concern how you feel in emotionally intimate relationships.

We are interested in how you *generally* experience relationships, not just in what is happening in a current relationship. Respond to each statement by clicking a circle to indicate how much you agree or disagree with the statement.

1 = strongly disagree 2 = disagree 3 = somewhat disagree 4 = neither agree nor disagree 5 = somewhat agree 6 = agree 7 = strongly agree

1. I'm afraid that I will lose my partner's love.
2. I often worry that my partner will not want to stay with me.
3. I often worry that my partner doesn't really love me.
4. I worry that romantic partners won't care about me as much as I care about them.
5. I often wish that my partner's feelings for me were as strong as my feelings for him or her.
6. I worry a lot about my relationships.
7. When my partner is out of sight, I worry that he or she might become interested in someone else.
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.
9. I rarely worry about my partner leaving me.
10. My romantic partner makes me doubt myself.
11. I do not often worry about being abandoned.
12. I find that my partner(s) don't want to get as close as I would like.
13. Sometimes romantic partners change their feelings about me for no apparent reason.

14. My desire to be very close sometimes scares people away.
15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.
16. It makes me mad that I don't get the affection and support I need from my partner.
17. I worry that I won't measure up to other people.
18. My partner only seems to notice me when I'm angry.
19. I prefer not to show a partner how I feel deep down.
20. I feel comfortable sharing my private thoughts and feelings with my partner.
21. I find it difficult to allow myself to depend on romantic partners.
22. I am very comfortable being close to romantic partners.
23. I don't feel comfortable opening up to romantic partners.
24. I prefer not to be too close to romantic partners.
25. I get uncomfortable when a romantic partner wants to be very close.
26. I find it relatively easy to get close to my partner.
27. It's not difficult for me to get close to my partner.
28. I usually discuss my problems and concerns with my partner.
29. It helps to turn to my romantic partner in times of need.
30. I tell my partner just about everything.
31. I talk things over with my partner.
32. I am nervous when partners get too close to me.
33. I feel comfortable depending on romantic partners.
34. I find it easy to depend on romantic partners.
35. It's easy for me to be affectionate with my partner.
36. My partner really understands me and my needs.

Appendix F

Family Environment Scale (FES; Moos & Moos, 1981)

There are 90 statements in this booklet. They are statements about families. You are to decide which of these statements are true of your family of origin and which are false. If you think the statement is “true” or mostly “true” of the family you were raised in, make a “T” next to the statement. If you think the statement is “false” or mostly “false” of your family, make an “F” next to the statement.

You may feel that some of the statements are true for some family members and false for others. Mark “T” if the statement is true for most members. Mark “F” if the statement is false for most members. If the members are evenly divided, decide which the overall stronger impression is and answer accordingly.

Remember, we would like to know what your family seems like to you. So do not try to figure out how other members see your family, but do give us your general impression of your family for each statement.

1. Family members really help and support one another.
2. Family members often keep their feelings to themselves.
3. We fight a lot in our family.
4. We don't do things on our own very often in our family.
5. We feel it is important to be the best at whatever you do.
6. We often talk about political and social problems.
7. We spend most weekends and evenings at home.
8. Family members attend church, synagogue, Sunday school (or similar) fairly often.
9. Activities in our family are pretty carefully planned.

10. Family members are rarely ordered around.
11. We often seem to be killing time at home.
12. We say anything we want to around home.
13. Family members rarely become openly angry.
14. In our family, we are strongly encouraged to be independent.
15. Getting ahead in life is very important in our family.
16. We rarely go to lectures, plays, or concerts.
17. Friends often come over for dinner or to visit.
18. We don't say prayers in our family.
19. We are generally very neat and orderly.
20. There are very few rules to follow in our family.
21. We put a lot of energy into what we do at home.
22. It's hard to "blow off steam" at home without upsetting somebody.
23. Family members sometimes get so angry they throw things.
24. We think things out for ourselves in our family.
25. How much money a person makes is not very important to us.
26. Learning about new and different things is very important in our family.
27. Nobody in our family is active in sports, little league, bowling, etc.
28. We often talk about the religious meaning of Christmas, Passover, or other holidays.
29. It's often hard to find things when you need them in our household.
30. There is one family member who makes most of the decisions.
31. There is a feeling of togetherness in our family.
32. We tell each other about our personal problems.

33. Family members hardly ever lose their tempers.
34. We come and go as want in our family.
35. We believe in competition and “may the best person win.”
36. We are not that interested in cultural activities.
37. We often go to the movies, sports events, camping, etc.
38. We don’t believe in heaven or hell.
39. Being on time is very important in our family.
40. There are set ways of doing things at home.
41. We rarely volunteer when something has to be done at home.
42. If we feel like doing something on the spur of the moment, we often just pick up and go.
43. Family members often criticize each other.
44. There is very little privacy in our family.
45. We always strive to do things just a little better the next time.
46. We rarely have intellectual discussions.
47. Everyone in our family has a hobby or two.
48. Family members have strict ideas about what is right and wrong.
49. People change their minds often in our family.
50. There is a strong emphasis on following rules in our family.
51. Family members rarely back each other up.
52. Someone usually gets upset if you complain in our family.
53. Family members sometimes hit each other.
54. Family members almost always rely on themselves when a problem comes up.
55. Family members rarely worry about job promotions, school grades, etc.

56. Someone in our family plays a musical instrument.
57. Family members are not very involved in recreational activities outside work or school.
58. We believe there are some things you just have to take on faith.
59. Family members make sure their rooms are neat.
60. Everyone has an equal say in family decisions.
61. There is very little group spirit in our family.
62. Money and paying bills is openly talked about in our family.
63. If there's a disagreement in our family, we try hard to smooth things over and keep the peace.
64. Family members strongly encourage each other to stand up for their rights.
65. In our family, we don't try that hard to succeed.
66. Family members often go to the library.
67. Family members sometimes attend courses or take lessons for some hobby or interest (outside of school).
68. In our family each person has different ideas about what is right and wrong.
69. Each person's duties are clearly defined in our family.
70. We can do whatever we want to in our family.
71. We really get along well with each other.
72. We are usually careful about what we say to each other.
73. Family members often try to one-up or out-do each other.
74. It's hard to be by yourself without hurting someone's feelings in our household.
75. "Work before play" is the rule in our family.
76. Watching TV is more important than reading in our family.

77. Family members go out a lot.
78. The Bible, the Quran, or another religious doctrine, is a very important book/concept in our home.
79. Money is not handled very carefully in our family.
80. Rules are pretty inflexible in our household.
81. There is plenty of time and attention for everyone in our family.
82. There are a lot of spontaneous discussions in our family.
83. In our family, we believe you don't ever get anywhere by raising your voice.
84. We are not really encouraged to speak up for ourselves in our family.
85. Family members are often compared with others as to how well they are doing at work or school.
86. Family members really like music, art, and literature.
87. Our main form of entertainment is watching TV or listening to the radio.
88. Family members believe that if you sin you will be punished.
89. Dishes are usually done immediately after eating.
90. You can't get away with much in our family.

Appendix G

The International Trauma Questionnaire (ITQ; Cloitre, Roberts, Bisson, & Brewin, 2018)

International Trauma Questionnaire

Instructions: Please identify the experience that troubles you most and answer the questions in relation to this experience.

Brief description of the experience _____

When did the experience occur? (circle one)

- a. less than 6 months ago
- b. 6 to 12 months ago
- c. 1 to 5 years ago
- d. 5 to 10 years ago
- e. 10 to 20 years ago
- f. more than 20 years ago

Below are a number of problems that people sometimes report in response to traumatic or stressful life events. Please read each item carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

	<i>Not at all</i>	<i>A little bit</i>	<i>Moderately</i>	<i>Quite a bit</i>	<i>Extremely</i>
1. Having upsetting dreams that replay part of the experience or are clearly related to the experience?	0	1	2	3	4
2. Having powerful images or memories that sometimes come into your mind in which you feel the experience is happening again in the here and now?	0	1	2	3	4
3. Avoiding internal reminders of the experience (for example, thoughts, feelings, or physical sensations)?	0	1	2	3	4
4. Avoiding external reminders of the experience (for example, people, places, conversations, objects, activities, or situations)?	0	1	2	3	4
5. Being “super-alert”, watchful, or on guard?	0	1	2	3	4
6. Feeling jumpy or easily startled?	0	1	2	3	4

In the past month have the above problems:

7. Affected your relationships or social life?	0	1	2	3	4
8. Affected your work or ability to work?	0	1	2	3	4

9. Affected any other important part of your life such as parenting, or school or college work, or other important activities?	0	1	2	3	4
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Below are problems that people who have had stressful or traumatic events sometimes experience. The questions refer to ways you typically feel, ways you typically think about yourself and ways you typically relate to others. Answer the following thinking about how true each statement is of you.

<i>How true is this of you?</i>	<i>Not at all</i>	<i>A little bit</i>	<i>Moderately</i>	<i>Quit a bit</i>	<i>Extremely</i>
1. When I am upset, it takes me a long time to calm down.	0	1	2	3	4
2. I feel numb or emotionally shut down.	0	1	2	3	4
3. I feel like a failure.	0	1	2	3	4
4. I feel worthless.	0	1	2	3	4
5. I feel distant or cut off from people.	0	1	2	3	4
6. I find it hard to stay emotionally close to people.	0	1	2	3	4

In the past month, have the above problems in emotions, in beliefs about yourself and in relationships:

7. Created concern or distress about your relationships or social life?	0	1	2	3	4
8. Affected your work or ability to work?	0	1	2	3	4
9. Affected any other important parts of your life such as parenting, or school or college work, or other important activities?	0	1	2	3	4

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