8-2006

Effects of Anxiety Induction on Facial Recognition Skills within a Sample of Adult Victims of Childhood Abuse

Kathryn M. Bell
Western Michigan University

EFFECTS OF ANXIETY INDUCTION ON FACIAL RECOGNITION SKILLS WITHIN A SAMPLE OF ADULT VICTIMS OF CHILDHOOD ABUSE

by

Kathryn M. Bell

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology
Advisor: Amy E. Naugle, Ph.D.

Western Michigan University
Kalamazoo, Michigan
August 2006

EFFECTS OF ANXIETY INDUCTION ON FACIAL RECOGNITION SKILLS WITHIN A SAMPLE OF ADULT VICTIMS OF CHILDHOOD ABUSE

Kathryn M. Bell, Ph.D.

Western Michigan University, 2006

Although it is well established that interpersonal victimization can lead to affect regulation problems, less is known about the extent to which childhood victimization impairs facial recognition skills. Most studies exploring this relationship have focused on emotion recognition (ER) in physically abused and neglected children. The degree to which these ER problems apply to sexual victimization and extend into adulthood is yet unknown. The current study examined the impact of physical and sexual childhood abuse on adult ER skills under a heightened arousal condition in 104 women with varying childhood victimization experiences. The relationship between childhood victimization and ER skills was explored by examining participant responses to 32 slides depicting emotional expressions. Multiple regression analyses indicate that childhood victimization was a significant predictor of reaction time to neutral and negative emotional expressions. ER reaction time to sad expressions was a significant predictor of adult sexual victimization experiences whereas ER hit proportion significantly predicted adult physical victimization. Analyses suggest that the relationship between ER reaction time and adult sexual victimization may be associated with behavioral avoidance, but

behavioral avoidance does not appear to be implicated in the relationship between ER hit proportion and adult physical victimization. Results suggest that both presence and severity of childhood trauma, regardless of type, may delay responding to certain emotional expressions, which may increase risk for adult sexual victimization. Risk for adult physical victimization, however, appears to be related to misinterpretation of facial cues and lends support to theories emphasizing the role of miscommunication in partner abuse cases.

ACKNOWLEDGMENTS

I want to thank all those who supported and assisted me throughout this project. To my dissertation advisor and mentor, Dr. Amy Naugle, for all your guidance, patience, and encouragement—I could not have done it without you. Thank you, too, to my dissertation committee members—Drs. Melissa Polusny, Scott Gaynor, and C. Richard Spates—for all your advice and for your willingness to be involved in seeing this project through from start to finish. I am also grateful to all those who assisted me in executing this project—the undergraduate students of the Computer Science department who played an essential role in developing the computer program for this project; the members of the Trauma Research Laboratory who helped in the design and execution of this project; those Psychology undergraduate and graduate students who were invaluable to me in assisting to run the everyday operations of the project; to Kevin Vichcales and the WMU Graduate College staff for helping to finance my graduate training and project expenses throughout my dissertation fellowship year; to the faculty and staff of the Boston Consortium for their support and guidance in preparing me for my dissertation defense; to Hope Smith for all your assistance in formatting this manuscript; and to all those not already mentioned who were monumental in helping to make this project a success. Lastly, I want to express my sincere gratitude to all of my friends and family for their patience and support throughout my graduate training. I especially

want to thank my loving and supportive husband, Troy Bell, for standing by me and supporting me over the past several years. I am so fortunate and honored to have you in my life.

With unending gratitude and appreciation.

Kathryn M. Bell

TABLE OF CONTENTS

Table of Contents—Continued

Table of Contents—Continued

INTRODUCTION

Sexual Victimization

Childhood Sexual Assault (CSA)

Although multiple definitions of CSA exist throughout the trauma literature, most researchers define CSA as an incident involving some form of sexual contact (often either forced or coerced) between a child and a person at least five years older than the child (Browne & Finkelhor, 1986; Cloitre, Scarvalone, & Difede, 1997; Roodman & Clum, 2001; Scher & Twaite, 1999; Wyatt, Guthrie, & Notgrass, 1992). Children may be at particularly high risk for sexual victimization due to their increased vulnerability and often reluctance to disclose abuse, along with their inability to prosecute such incidents (Acierno, Resnick, Kilpatrick, Saunders, & Best, 1999). In fact, retrospective studies suggest that between 32 and 49% of women report experiencing some form of sexual victimization before the age of 18 (Follette, Polusny, Bechtle, & Naugle, 1996; Murphy, Kilpatrick, Amick-McMullan, Veronen, et al., 1988). Studies investigating childhood trauma have found relatively high rates of reported CSA histories in both clinical and non-clinical samples, with approximately 65% and 40% of females in each group reporting a history of CSA, respectively (Follette et al., 1996). However, it appears that these incidents often go unreported to the police, and those cases that are reported rarely include details

regarding each of the separate sexual victimization episodes (Murphy et al., 1988; Wyatt & Newcomb, 1990).

CSA can produce a number of devastating effects that can result in psychological and interpersonal problems that may continue well into adulthood (Browne & Finkelhor, 1986; Murphy et al., 1988). Studies investigating the effects of CSA have found that women reporting a CSA history often report an increase in depression, anxiety, dissociation, somatization, and posttraumatic stress disorder (PTSD) following the abusive incident (Browne & Finkelhor, 1986; Cloitre et al., 1997; Messman & Long, 1996; Murphy et al., 1988; Zlotnick, Zakriski, Shea, & Costello, 1996). Additional problems associated with a reported history of CSA include family dysfunction, emotional avoidance, substance abuse, poor self-concept, low self-esteem, self-destructive behaviors, suicide attempts, and anger management problems (Browne & Finkelhor, 1986; Gold, Sinclair, & Balge, 1999; Messman & Long, 1996; Mezzich et al., 1997; Murphy et al., 1988; Zlotnick et al., 1996). Problems in interpersonal relationships, specifically sexual dysfunction and difficulties trusting others are also associated with a history CSA cases (Browne & Finkelhor, 1986; Gold et al., 1999; Murphy et al., 1988; Zlotnick et al., 1996). Individuals with a CSA history also may be more likely to engage in high-risk sexual behavior, and studies indicate that women with a CSA history often begin engaging in consensual sexual activity at an earlier age and are more sexually promiscuous than non-victims (Browne & Finkelhor, 1986; Gold et al., 1999; Messman-Moore & Long, 2003; Wyatt, 1985). Most alarming, however, is the growing body of evidence indicating

that individuals who report a CSA history are at a much greater risk of being revictimized during adulthood (Browne & Finkelhor, 1986; Cloitre, Tardiff, Marzuk, Leon, & et al., 1996; Gidycz, Coble, Latham, & Layman, 1993; Gold et al., 1999; Messman-Moore & Long, 2003; Zlotnick et al., 1996).

Certain characteristics of abusive incidents have been identified as potentially moderating the impact of CSA on individuals' lives. In particular, CSA appears to have a greater, more long-lasting negative impact in cases where the individual experienced severe acts of sexual abuse perpetrated by a father figure over a longer period of time (Browne & Finkelhor, 1986; Wyatt & Newcomb, 1990). The finding that CSA perpetrated by a father figure may have a greater negative effect on the individual is especially troublesome given the results from a recent study, which found that CSA was most commonly perpetrated by a father figure (Scher & Twaite, 1999).

Childhood Physical Assault (CPA)

Epidemiological studies suggest that thousands of children are physically assaulted each year within the United States (Kolko, 2002). Results from studies investigating college samples have found that approximately 15–20% of college-aged women report having experienced at least one episode of CPA by the time they enter college (Haugaard, 1999; Schaaf & McCanne, 1998). Similar to variations in CSA definitions across studies, CPA definitions tend to vary within the literature (Kolko, 2002). The definition of CPA often encompasses a wide variety of nonaccidental aggressive acts perpetrated against a child by a parental figure or other primary

caregiver (Burgess & Conger, 1978; Haugaard, 1999; Zuravin, 1991). CPA can include purposeful beating, cutting, suffocating, binding, poisoning, or burning a child (Hansen, Sedlar, & Warner-Rogers, 1999). Mothers have been found to be the most common perpetrators of CPA, and it is believed that CPA episodes may begin as a form of corporal punishment used to control and correct a child's behavior (Schaaf & McCanne, 1998; Straus, 2001). More than half of all CPA cases retrospectively reported by women have been found to have lasted several years throughout childhood (Schaaf & McCanne, 1998). Injuries resulting from CPA are extensive and can range from minor injuries such as bruises, welts, and abrasions to more major injuries such as internal bleeding, fractured and broken bones, organ damage, and traumatic brain injury (Dubowitz, 1991; Kolko, 2002; Schaaf & McCanne, 1998). In extreme cases, these injuries can lead to long-term physical disabilities and, in some instances, death (Dubowitz, 1991; Kolko, 2002). However, the most common CPA injuries include both scratches and bruises (Schaaf & McCanne, 1998).

A number of both short-term and long-term psychological impairments can also develop as a result of CPA, and this psychological impact appears to be most salient for female victims (Kolko, 2002; MacMillan et al., 2001). Individuals reporting a history of CPA have been found to be at greater risk for experiencing symptoms of depression, anxiety, PTSD, somatization, dissociation, eating disorders, mania, sexual dysfunction, substance abuse, borderline personality disorder, and dysthymia (Briere, 1992; Brown, Cohen, & Johnson, 1999; Carlson, McNutt, & Choi, 2003; Levitan et al., 1998; Lizardi et al., 1995; MacMillan et al., 2001; Maker, Kemmelmeier, &

Peterson, 1998; Malinosky-Rummell & Hansen, 1993; Mulder, Beautrais, Joyce, & Fergusson, 1998; Reilly, Baker, Rhodes, & Salmon, 1999; Schaaf & McCanne, 1998). Suicidal and other self-injurious behaviors are also frequently associated with individuals reporting a CPA history, along with additional antisocial behaviors, anger management problems, and intellectual/learning deficits (Briere, 1992; Kolko, 1992; MacMillan et al., 2001; Maker et al., 1998; Malinosky-Rummell & Hansen, 1993; Reilly et al., 1999; Salzinger, Feldman, Hammer, & Rosario, 1991, 1993; Schaaf & McCanne, 1998). Difficulties with interpersonal relationships are often mentioned by individuals reporting a history of CPA, and these individuals are often described in the literature as uncooperative, avoidant, withdrawn, fearful of others, and distrustful (Briere, 1992; Litty, Kowalski, & Minor, 1996; Salzinger et al., 1993). Individuals reporting a CPA history often admit experiencing greater interpersonal conflict and some studies suggest an intergenerational pattern of violence, in which reported victims of CPA are more likely to either engage in or experience physical assault episodes within their adult relationships (Kalmuss, 1984; Lewis & Fremouw, 2001; Litty et al., 1996; Malinosky-Rummell & Hansen, 1993; Mihalic & Elliott, 1997; Straus, 2001). Indeed, a number of studies have documented an increased risk for adult revictimization in individuals reporting a CPA history (Carlson et al., 2003; Irwin, 1999; Schaaf & McCanne, 1998). Malinosky-Rummell and Hanson (1993) found that CPA predicted physical assault in adulthood in a sample of college-aged students, and other researchers have discovered that domestic assault victims often

report a history of CPA (Carlson et al., 2003; Mihalic & Elliott, 1997; Riggs & O'Leary, 1996).

Those reporting a CPA history also are likely to report a history of sexual and psychological abuse (Briere, 1992; MacMillan et al., 2001; Reilly et al., 1999). However, CPA appears to have a unique impact on overall psychological functioning, and some have shown that CPA may have as great or even a greater influence on long-term psychopathology as CSA (MacMillan et al., 2001; Mulder et al., 1998; Reilly et al., 1999; Schaaf & McCanne, 1998). Some research indicates that CPA may be more directly related to problems with dissociation, somatization, and revictimization than CSA (Mulder et al., 1998; Reilly et al., 1999). Taken together, this research points to the need for future researchers to investigate the unique impact of CPA on childhood development and long-term psychological and interpersonal functioning.

Revictimization

Over the past several years, trauma researchers have begun to explore the unique factors that may place a person with a childhood victimization history at risk for becoming either physically or sexually revictimized in adulthood (Messman & Long, 1996). Studies show that approximately 44–72% of women reporting a CSA history will be revictimized during the course of their adult lives (Messman & Long, 1996; Wyatt et al., 1992). Most studies investigating revictimization have relied on college samples, who appear to be at a relatively high risk for being revictimized

(Roodman & Clum, 2001). In fact, one study assessing revictimization rates in college females found that 27% of those with a history of sexual assault were revictimized within a two-month follow-up period (Marx, Calhoun, Wilson, & Meyerson, 2001). Revictimization is most likely to occur in cases where an individual has reportedly either experienced an episode of CSA perpetrated by a father figure or a maternally-perpetrated CPA incident (Cloitre et al., 1997). Revictimization incidents often involve reported episodes of acquaintance rape that involve either being pressured into engaging in sexual contact or being coerced through the use of alcohol and drugs (Cloitre et al., 1997; Marx et al., 2001). Moreover, substance abuse has been theorized to potentially mediate the relationship between CSA and revictimization (Cloitre, 1998; Messman-Moore & Long, 2003). Interestingly, those who acknowledge being revictimized often report experiencing multiple revictimization episodes during adulthood, and prior sexual victimization has been found to be the greatest predictor of future physically and sexually abusive incidents (Acierno et al., 1999; Cloitre et al., 1997; Messman-Moore & Long, 2003).

Several revictimization studies have found evidence to suggest a cumulative impact of trauma, with multiple assaults resulting in higher levels of post-trauma symptomatology (Follette et al., 1996; Wyatt et al., 1992). This cumulative effect may result in treatment setbacks and create additional strain on medical and psychological services for revictimized individuals (Follette et al., 1996; Gold et al., 1999). Revictimization rates have been associated with higher rates of PTSD (including complex PTSD), generalized anxiety disorder, dysthymia, social phobia, depression,

simple phobia, and dissociative disorder (Acierno et al., 1999; Cloitre et al., 1997; Follette et al., 1996; Messman & Long, 1996; A. E. Wilson, Calhoun, & Bernat, 1999). In addition, revictimized individuals often report a history of suicide attempts, with most attempts occurring shortly after the CSA episode (Cloitre et al., 1997). A number of interpersonal problems have also been linked with revictimization, which may place a strain on both occupational and marital relations (Cloitre et al., 1997; Gold et al., 1999). Problems with intimacy, submissiveness, hostility, assertiveness, and control are often reported by revictimized women, and these problems are often reflected in the victims' interpersonal expectations (Cloitre, Cohen, & Scarvalone, 2002; Cloitre et al., 1997; Messman & Long, 1996). For example, one study by Cloitre, Cohen, and Scarvalone (2002) found that revictimized women expect others to be more hostile, controlling, and mistrustful in interpersonal relationships. Additional problems associated with sexuality and revictimization have also been noted in the literature. Those who have been revictimized often report engaging in brief sexual relations with multiple partners, and a number of revictimized women admit to having unexpected pregnancies and abortions (Wyatt et al., 1992).

Various attempts have been made to identify factors that increase an individual's risk for revictimization. As noted above, one of the greatest risks for being revictimized appears to be a prior history of victimization (Cloitre et al., 1996; Gidycz et al., 1993; Gold et al., 1999). Women reporting a history of CSA are twice as likely as non-victims to report at least one adult incident of sexual victimization (Gold et al., 1999). However, CPA may place women at an even greater risk for

revictimization. Cloitre and colleagues (1996) found higher rates of ASA being reported by women who admitted to experiencing either physical abuse only or a combination of physical and sexual abuse during childhood. Interestingly, having a history of CSA alone did not significantly increase the risk for sexual victimization in adulthood. Future studies may want to further investigate the unique aspects of childhood physical abuse that may contribute to future revictimization.

Skills deficits have also been hypothesized to interfere with a person's ability to successfully avoid or escape high risk situations, which may increase the threat for revictimization (Messman-Moore & Long, 2003). Among the skills deficits identified, several researchers have investigated whether or not revictimized individuals are less skilled at being able to recognize and effectively respond to danger cues (Marx et al., 2001; Messman-Moore & Long, 2003; M. Wilson & Daly, 1993). Researchers assessing risk recognition have found some evidence indicating that revictimized individuals take significantly longer to identify risk than single-victimized and non-victimized samples (Marx et al., 2001; A. E. Wilson et al., 1999). In addition, one study assessing response latency to a simulated date rape scenario discovered that revictimized individuals waited until the riskiest situation occurred before responding that the interaction had went to far (A. E. Wilson et al., 1999)

Some researchers have proposed that the psychological effects associated with a single episode of childhood victimization may predispose an individual for revictimization and impair an individual's ability to effectively react in high risk sexual assault situations (Acierno et al., 1999; Gold et al., 1999). Feelings of powerlessness

and low self-esteem associated with the victimization experience, along with increases in overall distress, may make an individual more vulnerable and increase the risk for future victimization (Gidycz et al., 1993; Marx et al., 2001). PTSD symptomatology, in particular, has been thought to increase risk for revictimization by impairing risk recognition skills that are necessary to identify sexual assault threats (Acierno et al., 1999; Messman-Moore & Long, 2003; Polusny & Follette, 1995). This negative impact of PTSD symptoms on risk recognition skills is thought to be particularly evident in situations that mirror aspects of the initial CSA event (Messman-Moore & Long, 2003).

Numerous studies have found greater PTSD symptomatology among women reporting a history of sexual revictimization (Arata, 1999, 2000, 2002; Koverola, Proulx, Battle, & Hanna, 1996; Nishith, Mechanic, & Resick, 2000; Sandberg, Matorin, & Lynn, 1999). Certain PTSD symptom clusters are thought to be implicated in determining risk for sexual revictimization. More specifically, reexperiencing and hyperarousal PTSD symptoms are thought to reduce risk by heightening awareness to potential threat cues. Alternatively, PTSD avoidant symptoms are believed to increase risk for sexual revictimization by reducing attentiveness to threat cues and increasing engagement in "passive avoidant" behaviors rather than more active, efficacious behavioral repertoires (Chu, 1992; Marx, Heidt, & Gold, 2005). Studies assessing PTSD symptomatology associated with risk recognition skills have indeed found greater risk recognition skills deficits in sexually victimized and revictimized individuals reporting fewer PTSD symptoms,

suggesting the possibility that PTSD symptoms may serve as signals to alert the individual of potentially dangerous cues (Marx & Soler-Baillo, 2005; Soler-Baillo, Marx, & Sloan, 2005; A. E. Wilson et al., 1999). Additionally, previous research indicates that reduced heart rate during a risk recognition task is associated with greater response latencies in identifying risky sexual scenarios among women reporting a history of sexual assault, suggesting that reduced hyperarousal may impair an individual's ability to recognize and efficiently respond to risky sexual situations (Marx & Soler-Baillo, 2005; Soler-Baillo et al., 2005). However, the relationship between PTSD and sexual revictimization has not been consistently identified across the revictimization literature (Classen et al., 2002; Cloitre et al., 1997). Furthermore, little is yet known about how certain PTSD symptoms or symptom clusters might be implicated in increasing risk for sexual victimization (Marx et al., 2005). Future research is still warranted to determine the exact nature of the relationship between PTSD symptomatology and sexual revictimization.

Although none have been empirically validated, a number of models have been developed to explain revictimization (Messman & Long, 1996; Messman-Moore & Long, 2003). One model, referred to as the Social-Developmental Perspective, suggests that childhood victimization interferes with a child's normal development, resulting in a number of skill deficits that increase risk for future victimization (Cloitre, 1998; Cloitre et al., 1997). Cloitre (1998) argued that these skill deficits generally arise in two primary areas: affect regulation and interpersonal relatedness. The family environment and the family's response to the traumatic event appear to

either strengthen or dampen any potential post-trauma developmental impairment. Some have argued, for instance, that rates of revictimization may be lower in supportive, low conflict families (Gold et al., 1999).

Messman-Moore and Long (2003) developed an ecological model of revictimization designed to address the multiple variables possibly implicated in revictimization rates. The model identifies four distinct levels that consider the various historical, contextual, cultural, and resource factors that may impact risk for revictimization. The historical level examines familial background and personality characteristics that may predispose an individual for revictimization. At a contextual level the model explores how certain psychological and social vulnerabilities (e.g., risk recognition deficits, PTSD symptomatology) may increase risk for victimization. The last two levels address how societal beliefs/values as well as access to resources and alternative options may affect revictimization rates.

Affect Regulation

The term *affect regulation* generally refers to the various mechanisms, processes, and coping strategies used to manage affective arousal in an effort to successfully engage in positive social interactions (Calkins, 1994; Gross, 1999; Kopp, 1989). The ability to effectively regulate emotions is partially dictated by the extent to which one can successfully control the types of emotions expressed and settings in which those emotions occur (Gross, 1999). Effective self-regulation requires one to be able to modify how both pleasant and unpleasant emotions are expressed and

experienced within specific social contexts (Gross, 1999; Kopp, 1989). Emotional expressions of others may serve as nonverbal signals that can cue a person to react to a particular social situation and modify his/her own emotional expressions. Thus, the ability to effectively recognize and identify emotional expressions in others seems to be an important and crucial component for developing effective affect regulation skills and successful interpersonal relationships. The critical period for the development of affect regulation skills seems to occur during the first four years of a child's life, with emotional language developing between the ages of 2 and 3 years old (Cicchetti & Beeghly, 1987; Trickett, 1998). However, affect regulation skills will often continue to develop throughout childhood (Trickett, 1998).

Gross (1999) identified a number of processes that are essential for successful affect regulation. First, in order to effectively self-regulate one's emotions, an individual must be able to identify and select situations based on potential degree of emotional impact. For instance, an individual who is successful at affect regulation may be more likely to associate with individuals who make them feel happy and avoid those whom make the person feel unpleasant. If the individual is unable to avoid a particular emotionally unpleasant event, then successful affect regulation may require the individual to alter their environment or alter their attention to modify their emotional reactions. For example, the individual may use distraction techniques to successfully reduce anxiety. In addition, the individual may be able to cognitively self-regulate their emotions by modifying how they evaluate the emotional significance of a particular event. Lastly, self-regulation may require the person to modulate their

actual physical responses as specific emotions arise (e.g., holding back tears; stifling a laugh).

Affect regulation plays an essential role in both personal and social aspects of people's lives. The ability to accurately identify, monitor, describe, and modify internal states can generate an understanding of emotional experiences that may aid in the identification of cognitive factors that trigger certain affective states and reduce affective arousal (Paivio & Laurent, 2001). By having a fuller understanding of emotional experiences, individuals may also gain a greater awareness of how emotions impact social settings, which may then allow individuals to more readily adapt and modify their emotional experiences to appropriately fit specific social circumstances (Paivio & Laurent, 2001). In addition, having the language to adequately describe emotional states can facilitate social interactions, resolve miscommunications that may potentially damage interpersonal relationships, and ensure that personal needs are adequately addressed and met by others (Cicchetti & Beeghly, 1987; Kopp, 1989; Paivio & Laurent, 2001).

Both experiential and biological factors appear to contribute to the development of affect regulation, and the influences of peers and caregivers, in particular, seem to greatly impact the degree to which children successfully master self-regulation skills (Calkins, 1994; Trickett, 1998). Caregivers are often responsible for regulating their children's emotions during infancy, especially between the ages of 3–8 months when children lack the skills to regulate their own emotions (Calkins, 1994; Kopp, 1989). This caregiver regulation of infant emotions often involves

general caring acts such as feeding and comforting the child (Calkins, 1994). As children age and their development progresses, caregivers become more involved with teaching children methods for controlling impulses and regulating their own emotions (Calkins, 1994; Cloitre, 1998; Kopp, 1989; Paivio & Laurent, 2001; van der Kolk & Fisler, 1994). Caregivers may be especially important in teaching children how to tolerate and manage negative affect (Calkins, 1994; Kopp, 1989; Paivio & Laurent, 2001). Through a combination of verbal exchanges, modeling, reinforcement, and punishment techniques, caregivers can teach children how to successfully identify, label, describe, monitor, and manage various emotional states (Calkins, 1994; Kopp, 1989; Paivio & Laurent, 2001). Individual differences in caregivers' responsiveness to their children's emotional regulation needs, as well individual variation in caregivers' use of techniques designed to teach affect regulation, have a significant effect on the ability to which children can successfully regulate emotions during social interactions (Kopp, 1989). Research investigating the caregiver's role in teaching affect regulation skills has shown that children exhibit better emotional understanding when mothers coach and model emotions to their children and display more positive responsiveness to their children's emotions (Denham, Zoller, & Couchoud, 1994). The degree to which children develop emotional understanding within the home environment may also have an impact on children's future peer relationships. Some have suggested that how successful children are at regulating affect during early peer interactions may predict the extent to which those same children will be able to regulate emotions in future social gatherings (Calkins, 1994).

Affect Dysregulation

Affect dysregulation often refers to "the tendency to have low-threshold, high intensity emotional reactions followed by a slow return to baseline" (Cloitre et al., 2002, p. 1067). Affect dysregulation can disrupt the development of crucial skills needed for emotion regulation and may direct individuals toward acquiring unhealthy coping strategies for regulating emotions (Paivio & Laurent, 2001). For instance, along with potentially creating a host of interpersonal difficulties, the inability to effectively recognize and identify emotions expressed by others may also prevent an individual from obtaining necessary information provided by external sources that may aid in the monitoring, understanding, and modification of one's own emotions. Affect dysregulation can result in a number of long-term problems such as depression, anger management difficulties, poor impulse control, self-destructive and self-injurious behaviors, sexually promiscuous behaviors, and interpersonal difficulties (Paivio & Laurent, 2001; van der Kolk & Fisler, 1994; van der Kolk et al., 1996).

Some have noted that affect dysregulation may involve both the underregulation and overcontrol of emotional reactions (Paivio & Laurent, 2001). Individuals with underregulation problems will report frequent episodes of intense negative emotions, such as anxiety, that prevent the individual from effectively responding in social situations (Cloitre et al., 2002; Paivio & Laurent, 2001; van der Kolk & Fisler, 1994). As a result, many individuals with underregulation problems report having poor impulse control and interpersonal difficulties. These interpersonal difficulties are often exacerbated during instances of heightened emotional reactions

that require both conflict resolution and negotiation strategies (Cloitre et al., 2002). Alternatively, overregulation is characterized by emotional avoidance, which can impair individuals' ability to accurately identify and describe emotional states (Paivio & Laurent, 2001). Along with creating impairments in interpersonal functioning, overregulation often results in the development of certain psychological problems such as depression and anxiety (Paivio & Laurent, 2001).

A number of studies exploring the effects of trauma on affect regulation skills have found higher incidents of affect dysregulation within abused and neglected populations, particularly in cases involving prolonged and severe forms of trauma (Trickett, 1998; van der Kolk et al., 1996). Child maltreatment in general has been found to have an adverse effect on self-regulation skills, and these deficits appear to be amplified in situations involving earlier onsets of maltreatment (Calkins, 1994; Trickett, 1998; van der Kolk & Fisler, 1994; van der Kolk et al., 1996). Various psychological problems related to affect dysregulation have been identified in abused populations including dissociation, eating disorders, self-injurious behavior, emotional flooding/numbing, anger management problems, substance abuse, somatization, PTSD, and borderline personality disorder (Cloitre, 1998; van der Kolk & Fisler, 1994; van der Kolk et al., 1996; Wagner & Linehan, 1999; Zlotnick, Mattia, & Zimmerman, 2001; Zlotnick et al., 1996). Some believe that it is these problems, and not the trauma itself, that may eventually motivate victimized individuals to seek psychological treatment (van der Kolk et al., 1996).

Some researchers have attempted to explain the unique variables associated with both the underregulation and overregulation of affective states in abusive populations. For instance, Paivio and Laurent (2001) proposed that stimuli that resemble aspects of the original traumatic event may trigger certain negative emotions, such as fear, guilt, or shamefulness, which in turn leads to overall heightened levels of arousal. Based on research showing chronically high arousal levels in sexually victimized individuals, others have suggested that underregulation may reflect a hypersensitivity to low level threats in victimized populations (Cloitre, 1998). In cases of overregulation, individuals may have learned to cope with aspects of the traumatic event by engaging in certain emotional avoidance techniques such as dissociation and emotional numbing (Cloitre, 1998; van der Kolk & Fisler, 1994). However, these skills that may have once been constructive during the traumatic episode may now appear to interfere with the individual's ability to function in life (Cloitre, 1998; van der Kolk & Fisler, 1994). For example, Cloitre (1998) argued that sexually victimized women who continue to experience emotional numbing during adulthood may be less responsive in high risk situations, resulting in an increased risk for revictimization.

The environment within abusive/neglectful families is thought to play a significant role in the development of affective dysregulation in victims. These caustic environments often produce an increase in negative affect within children, which is then often ignored, punished, or mislabeled by caretakers in an effort to deny, justify, minimize, or normalize the abuse (Cloitre, 1998; Paivio & Laurent, 2001; van der

Kolk & Fisler, 1994). This lack of responsiveness from caretakers may prevent children from acquiring the language needed to accurately identify, label, and describe emotional states (Cicchetti & Beeghly, 1987). Abusive and neglectful environments may provide few opportunities for children to learn and practice effective communication and self-regulatory behaviors (Paivio & Laurent, 2001). In addition, abused children rarely have contact with individuals outside of the family network, preventing opportunities to learn and practice alternative social interaction models (Salzinger et al., 1993). Taken together, the evidence suggests that children within these environments must often be reliant on themselves for affect regulation, even though they have learned few healthy skills needed to successfully manage and understand various emotional states (Cloitre, 1998; Paivio & Laurent, 2001; van der Kolk & Fisler, 1994).

The impact of abusive families' emotional expressivity on the childhood development of self-regulatory skills has been well documented within the literature. Studies reveal that physically assaultive mothers are less likely to verbally and physically interact with their children than non-abusive mothers, often resulting in an increase in children's avoidant behaviors (Burgess & Conger, 1978; Lyons-Ruth, Connell, Zoll, & Stahl, 1987). Researchers investigating physically abusive environments have noted that these families are often characterized by increased hostility, frequent anger outbursts, multiple episodes of physical aggression, and elevated levels of interpersonal threats (Pollak & Sinha, 2002). Children in these households often receive unclear, inconsistent, and negatively valenced emotional

signals that make it difficult for them to learn effective strategies for processing emotional information (Pollak & Sinha, 2002). Maltreating mothers have been found to display more negative, hostile emotional reactions than non-maltreating mothers, which has been shown to impair emotional understanding in children (Denham et al., 1994). However, in addition to the more frequent displays of negative affect, abusive mothers have also been shown to display more flat affect than non-abusive mothers (Lyons-Ruth et al., 1987). Furthermore, both abusive mothers and their children appear to be worse at expressing emotions (Camras, Ribordy, Hill, Martino, & et al., 1988). Overall, findings from the research cited above seem to suggest that abusive caregivers may serve as poor models for emotional expressivity, and the impoverished conditions of abusive households may provide children with little guidance in acquiring effective affect regulation skills (Camras et al., 1988).

Alexithymia

One primary problem related to affect dysregulation is alexithymia. The term *alexithymia* commonly refers to the inability to accurately identify and describe affective states (Cloitre, 1998; Elzinga, Bermond, & van Dyck, 2002; Lesser, 1985; Yelsma, 1996). This inability to identify, monitor, and verbally describe internal states often prevents alexithymic individuals from being aware of internal distress signals, which can be especially problematic given that this inability to identify emotions tends to worsen under stressful conditions (Elzinga et al., 2002; Lesser, 1985). Alexithymic individuals often report that they rarely think about emotions and have difficulties

being able to fantasize and daydream (Elzinga et al., 2002; Lesser, 1985). Instead, alexithymics generally attend to external states such as physical symptoms, which often results in the frequent reporting of somatic complaints to medical professionals (Lesser, 1985). Alexithymia has often been identified in trauma victims and some have theorized that alexithymia may serve as an avoidant coping strategy developed to deal with the negative emotions associated with the traumatic event (Elzinga et al., 2002; Paivio & Laurent, 2001; Salminen, Saarijaervi, & Aeaerelae, 1995; Zeitlin, McNally, & Cassiday, 1993). Along with these findings, a number of studies have found higher rates of PTSD in alexithymic individuals (Elzinga et al., 2002; Lesser, 1985; Zlotnick et al., 2001). Alexithymia has been associated with the development of a number of other psychological disorders as well including depression, eating disorders, panic disorder, hypochondriasis, dissociation, substance abuse, and borderline personality disorder (Salminen et al., 1995; Wagner & Linehan, 1999; Zlotnick et al., 2001). As a result, alexithymics have been found to have higher psychiatric hospitalization rates that involve a significantly greater number of hospitalization days per visit than non-alexithymic individuals (Lesser, 1985).

Given that alexithymia has been found to commonly occur in individuals with trauma histories, a number of studies have been conducted to examine the degree to which survivors of interpersonal victimization experience alexithymic symptoms. For instance, researchers exploring the relationship between child maltreatment and alexithymia have found that maltreated children often have more difficulty being able to adequately describe and express their own affective and physiological states (e.g.,

hunger, thirst), score lower on measures assessing expressive vocabulary, and show less understanding of other individuals' emotional states (Cicchetti & Beeghly, 1987; van der Kolk & Fisler, 1994). Additional research conducted at Western Michigan University has shown that adult victims of intimate partner violence score higher than non-victims on measures of alexithymia and show less expressivity of both positive and negative emotions (Yelsma, 1996). Results from this study also indicate that victims of intimate partner violence are frequently unaware of their current emotional states and are often unable to respond to emotional cues presented within the context of social interactions (Yelsma, 1996).

The largest body of research on interpersonal victimization and alexithymia has generally focused on sexually victimized and revictimized populations. Several studies have identified higher rates of alexithymia in CSA samples, and these alexithymic symptoms appear to worsen in cases involving either longer periods of abuse, episodes of abuse occurring after age 12, or abusive acts that include penetration (Scher & Twaite, 1999; Zlotnick et al., 1996). In addition, higher alexithymia scores have been found in CSA cases where a father figure perpetrated the abusive act (Scher & Twaite, 1999). Revictimization also appears to further exacerbate alexithymic symptoms. Findings from a number of studies indicate that revictimized women score significantly higher on alexithymia measures than both single victimized and non-victimized groups (Cloitre et al., 1997; Zeitlin et al., 1993). It is believed that these alexithymic symptoms may contribute to the occurrence of revictimization by impairing victims' abilities to fully recognize and experience

internal danger cues and effectively respond to external threats (Cloitre et al., 1997). For example, in high risk dating situations, alexithymic individuals may report greater difficulty being able to recognize others' emotional cues and differentiate between their own affective states, which may both otherwise provide indications of potential danger (Cloitre, 1998; Cloitre et al., 1997). In addition, deficits in emotional expressivity may impair victims' ability to give clear "no" messages in situations where sexual activity is not wanted (Cloitre, 1998; Cloitre et al., 1997).

Emotion Recognition

Cross-cultural studies have identified seven primary emotions thought to be understood universally by human beings: disgust, surprise, happiness, fear, anger, sadness, and contempt (Russell, 1994). These emotions are believed to aid in facilitating social interactions and guide individuals' behaviors toward either approaching or avoiding certain situations (Lang, Bradley, & Cuthbert, 1990). Particularly important appears to be the role of facial expressions in social settings. Human beings can produce an array of facial expressions that serve as social signals and aid in social communication (Borke, 1971; Gross, 1999; Nelson, 2001; Paivio & Laurent, 2001; Pollak, Cicchetti, Hornung, & Reed, 2000; Pollak & Sinha, 2002). For example, facial expressions are often important in alerting others of distress and providing signs of sexual interest (Bradley, Codispoti, Cuthbert, & Lang, 2001). How one responds in a particular social setting often depends on the individual's ability to accurately recognize facial expressions (Pollak et al., 2000). Deficits in the ability to

accurately recognize and effectively respond to certain facial expressions can often lead to misunderstandings and miscommunications that may result in negative social interactions that may ultimately impair interpersonal relationships (Kornreich et al., 2001; Persad & Polivy, 1993).

Humans appear to perceive faces differently than other objects and some have argued that faces may serve as a "special class" of stimuli (Nelson, 2001). Support for this theory comes at least partially from findings gathered on prosopragnosia patients, which reveal significant impairments in facial identification skills while object identification skills remain virtually intact (Nelson, 2001). Pollak and Sinha (2002) suggested that the identification of facial expressions is a unique skill requiring individuals to "use early partial information from a dynamic modulation of muscle movements to generate hypotheses about what emotion is being displayed and then map those changing physical features onto categories to label, categorize, and predict the behavior of others" (p. 784). If true, this theory suggests that accuracy in recognizing facial expressions is at least partially dependent on both the skill level of the observer and the number of noticeable emotional features displayed by the model. In fact, some have suggested that certain facial expressions may include more subtle features that could make facial expression recognition more difficult. For example, the subtle facial muscle distinctions between anger and fear may make it more challenging for observers to accurately discriminate between the two emotions than more noticeably different emotions such as happiness and sadness (Calder et al., 1996). Research investigating children's emotion recognition skills has found that children

have more difficulty accurately identifying expressions of fear, surprise, and disgust than happy, angry, and sad emotional expressions (Camras, Grow, & Ribordy, 1983). Developmental literature indicates that children are typically able to differentiate between most pleasant and unpleasant emotions by the ages of 3–3½ (Borke, 1971). However, the ability to accurately identify fear may take slightly longer to develop in children, and appears to be more dependent on the extent to which children are exposed to early models of fearful expressions (Borke, 1971).

A nature versus nurture argument continues to exist within the emotion recognition literature. Those taking a more biological approach argue that humans are programmed with a basic set of underlying emotions that allow for the universal recognition of emotion (Izard & Malatesta, 1987). Some evidence to support this model comes from neurological studies investigating the role of particular brain structures on facial recognition skills. For instance, various studies have identified the amygdala as playing an essential role in the recognition of fear, sadness, anger, and disgust (Blair & Coles, 2001; Calder et al., 1996; Nelson, 2001). Damage to the amygdala has been shown to create facial recognition impairments that are distinctly separate from facial identity skills (Calder et al., 1996). In other words, individuals with amygdala damage may be able to look at a face and identify who the person is and yet be unable to identify and describe the emotion being expressed on that person's face. Supporters of the nature perspective also point to evidence indicating that newborns display some early signs of facial expression recognition (Nelson, 2001). However, the extent to which newborns can recognize facial expressions

remains unclear. It does appear evident, though, that the crucial period for the development of facial recognition skills appears to fall within the first three to seven months of life (Nelson, 2001).

Proponents from the nurture perspective, on the other hand, argue that the emotion recognition literature provides abundantly clear evidence demonstrating the vital role that experience plays in the acquisition of facial recognition skills (Nelson, 2001; Pollak & Kistler, 2002). For example, facial recognition studies using both animal and human subjects have shown a species-specific effect associated with facial recognition skills that result in a particular species being better able to identify faces of their own species than faces of a similar, but distinct species (Nelson, 2001). Developmental researchers have also noted that facial recognition skills appear to improve with age to a point and then slightly worsen for a subset of emotions in later years (Calder et al., 2003; Denham et al., 1994; During & McMahon, 1991). Although information is still needed to identify the type and amount of experience needed to develop adequate facial recognition skills, initial findings suggest that early childhood experience allows for the specialization of these skills (Nelson, 2001). Camras et al. (1988) argued that it is children's observations of both voluntary and spontaneous emotional expressions within their environment that may ultimately impact children's acquisition of facial expression recognition skills.

Numerous studies have been conducted to explore potential facial recognition deficits in abusive mothers and their children. Many of these studies have focused primarily on either physically assaultive or neglectful families. Facial recognition skills

are often assessed by presenting children with a selection of photographs depicting various emotional expressions. Children are then asked to identify a particular emotion—often using a forced choice response format.

Findings from many of the studies described above indicate that both abused and maltreated children exhibit facial expression recognition deficits, and these impairments do not appear to be solely a function of intellectual and demographic characteristics (Camras et al., 1983; Camras et al., 1988; During & McMahon, 1991; Pollak et al., 2000). Abused children have demonstrated difficulties in decoding both child and adult faces and are often rated by teachers as less socially competent than their non-victimized classmates (Camras et al., 1983; During & McMahon, 1991). Overall, results from these studies suggest that abused children may be ill-equipped to effectively recognize both pleasant and distressing emotional cues (Camras et al., 1988).

Comparisons between physically abused and neglected children reveal distinct differences between the two groups in their ability to recognize facial expressions. General findings from these comparisons show a greater deficit in emotion recognition skills for neglected children than physically abused children (Pollak et al., 2000). Further findings also indicate that neglected children are generally worse at recognizing anger than physically abused children who appear to demonstrate a response bias towards anger (Pollak et al., 2000). However, physically abused children seem to do worse at recognizing sad facial expressions, which appears to reflect a response bias towards sadness (Pollak et al., 2000; Pollak & Sinha, 2002).

Two additional studies also found that abused children were faster at recognizing angry expressions and were more likely to over-identify anger while viewing images of facial expressions (Pollak & Kistler, 2002; Pollak & Sinha, 2002). Taken together, the results from the studies cited above suggest that maltreated children may be more likely to misinterpret neutral faces as sad and angry facial expressions. These misinterpretations of certain facial expressions are thought to occur as a result of children's frequent early encounters with primarily negative emotions (Pollak & Kistler, 2002; Pollak & Sinha, 2002). Furthermore, the authors of the studies cited above theorized that the hostile environments that physically abused children grow up in might make those children hypersensitive to anger cues. This hypersensitivity may actually benefit children living in abusive households by providing them with early anger detection skills that can aid the children in preparing for potentially aggressive acts (Pollak & Kistler, 2002; Pollak & Sinha, 2002). However, this over attentiveness to angry facial expressions may also impair recognition and responsiveness to other emotional expressions. Indeed, recent research suggests that physically abused children may have greater difficulty attentively disengaging from threat cues, particularly angry faces, which may make it more difficult for these children to accurately perceive and respond to certain emotional expressions (Pollak & Tolley-Schell, 2003).

Only one known study has investigated facial recognition skills within a sexually victimized adult population. Developed to explore emotion recognition deficits in women diagnosed with borderline personality disorder, Wagner and

Linehan (1994) instructed 20 women from each group to identify the emotional expressions portrayed by models using photographs included in the Japanese and Caucasian Facial Expressions of Emotion and Neutral Faces stimulus package (Matsumoto & Ekman, 1988). Responses were collected using an open response format. Participants were separated into three categories: a borderline personality disorder group (BPD), a childhood sexual assault only group (CSA), and a non-victimized control group. The authors theorized that BPD women may experience significant affect regulation problems as a result of inadequate caregiving provided within an invalidating home environment. Therefore, it was expected that women from the BPD group would exhibit significantly more emotion recognition deficits than the other two groups. Instead, Wagner and Linehan found that the BPD group was actually better at recognizing fear than both the CSA and control groups. This finding, however, appeared to detect BPD women's tendencies to over-report fear in their responses. The study also found that both BPD and CSA participants did significantly worse than the control group at recognizing neutral slides Interestingly, the CSA group did significantly better than the other two groups at accurately identifying happy slides, and this finding did not appear to be associated with any response bias towards happiness.

Limitations/Purpose of Current Study

As is evident from the information presented above, a great deal of research still needs to be performed to explore the relationship between interpersonal

victimization and emotion recognition. Few studies have been conducted in this area over the past 10 to15 years, and those that have been performed have primarily focused on children's facial recognition skills. It is still unclear the extent to which the facial recognition deficits identified in abused children carry over into adulthood. Furthermore, the majority of studies conducted have provided relatively loose criteria for separating participants into abused/neglected and control categories, which may have blurring effects on potentially significant findings. Aside from Wagner and Linehan's study (1999), no studies examining the effects of interpersonal victimization on emotion recognition have explored the unique impact of childhood and adult sexual victimization on facial expression recognition skills. Given that women reporting a CSA history have been found to experience a number of other affect dysregulation problems, including alexithymia, it is surprising that this population has been overlooked in the literature. Research examining the relationship between CSA and emotion recognition may be especially fruitful, as it might provide some evidence of further skills deficits in CSA populations that could potentially increase the risk for revictimization in adulthood. Finally, it may also be important to examine the impact of sexual victimization on facial recognition skills under emotionally provocative settings. Sexual revictimization frequently occurs in dating situations often characterized by heightened levels of either positive or negative arousal. In view of the fact that alexithymic symptoms have been known to worsen during stressful conditions, it seems important to study other affect regulation problems (including emotion recognition impairments) under heightened arousal conditions.

The purpose of the current study was to explore the relationship between interpersonal victimization and facial recognition skills under a heightened arousal experimental procedure. Differences in facial expression recognition skills were investigated across five separate groups consisting of individuals reporting no childhood victimization, CSA only, CPA only, both CSA and CPA, or other dysfunctional family environment (DFE) factors (e.g., severe emotional abuse, domestic assault, physical neglect, etc.). Intensive screening procedures were taken to help ensure that each group was distinctly different in regards to interpersonal victimization history. Assessment of adult interpersonal victimization was also conducted, and analyses were performed to determine the degree to which adult victimization further contributes to emotion recognition impairments across all five groups.

Hypotheses

Three primary hypotheses were identified for the purposes of this study.

1. It was anticipated that individuals within each of the four victimized groups would have greater facial expression recognition deficits than individuals in the non-victimized group.

2. Since some research suggests that revictimization rates may be higher in cases involving either CPA only or a combination of CPA and CSA and given that revictimization is associated with higher alexithymia scores, it was hypothesized that the CPA only and combination CPA/CSA groups would be worse at recognizing

facial expressions than the CSA only and non-victimized groups (i.e., CPA only and combined CPA/CSA groups > CSA only group > NV group). It was expected that these deficits would be the greatest for negatively valenced emotions such as disgust, fear, and sadness.

3. Given that certain trauma-related variables (perpetrator relationship, duration of abuse) have been known to impact the severity of certain affect dysregulation problems, it was also anticipated that these same variables would have an effect on facial expression recognition skills. For example, it was hypothesized that recognition skills would be worse for sexually victimized individuals reporting longer episodes of severe interpersonal violence perpetrated primarily by a father figure.

METHODS

Participants

Potential participants were recruited from undergraduate and graduate courses as well as through various student organizations on the Western Michigan University campus. In addition, recruitment flyers briefly describing the study were posted throughout campus. Those interested in participating in the study were encouraged to contact the researcher via telephone or e-mail. Depending on the instructor, some students were able to receive some extra credit points for participating in the current study. However, alternative extra credit opportunities were made available to those students who did not wish to participate in the study. All students who participated in the first session also received a sexual assault prevention booklet. No other incentives were provided for student participation.

A total of 190 female college students over the age of 18 were recruited from Western Michigan University's campus were screened for participation in the current study. Of those who participated in the screening session (Session One), 109 qualified and attended the experimental session (Session Two). Data collected from three of these participants were not included in subsequent analyses due to database errors (1 participant) and group classification difficulties (2 participants). In addition, 2 participants dropped out before completing the experimental trial, thus preventing the

inclusion of their data in the current analyses.[1] The remaining 104 participants who completed the second session and were included in the analyses were separated into one of five groups based on their responses to both the Childhood Trauma Questionnaire (CTQ) and the Childhood Maltreatment Interview Schedule (CMIS; for description of these instruments, see "Measures" section below): childhood sexual abuse only (CSA), childhood physical abuse only (CPA), childhood sexual and physical abuse (CSPA), dysfunctional family environment (DFE), and no childhood abuse or neglect (NA). Participants in the CSA group (n = 19) included individuals reporting a history of childhood sexual abuse perpetrated by someone at least 5 years older than the victim and occurring at or before the age of 14. In order to meet inclusion into the CSA group, participants must have also denied experiencing any form of childhood physical abuse at or before the age of 14, unless the physical assault occurred within the context of the sexual abuse incident. Alternatively, the CPA group (n = 22) included those individuals reporting a history of childhood physical abuse at or before the age of 14 with no reported history of childhood sexual abuse. The CSPA group (n = 14) consisted of participants who reportedly experienced both childhood sexual and physical abuse at or before the age of 14. Individuals included within the DFE group (n = 22) reported experiencing some form of family dysfunction (aside from childhood physical and sexual abuse) at or before

---

[1] Of the two individuals who ended the experimental trial prematurely, one reported a history of childhood sexual abuse while the other denied any childhood abuse/neglect history.

the age of 14 that resulted in maltreatment (e.g., physical/emotional neglect, parental substance abuse, witnessing domestic assault, etc.). Lastly, the NA group (n = 27) included those individuals who denied experiencing any form of childhood abuse or neglect at or before the age of 14. See Table 1 (Appendix E) for a detailed description of grouping criteria.

Stimuli

Japanese and Caucasian Facial Expressions of Emotion and Neutral Faces (JACFEE/JACNeuF)

JACFEE (Matsumoto & Ekman, 1988) includes colored photographs of 56 different individuals depicting seven different emotions: surprise, disgust, anger, happiness, sadness, fear, and contempt. Eight different photographs are included for each emotion, and each emotion is displayed by an equal number of male and female models. In addition, half of the JACFEE photographs include Caucasian models and half consist of Japanese models. For the purposes of the current study, however, only photographs depicting Caucasian models were selected. The same models are used again for the JACNeuF set (Matsumoto & Ekman, 1988), which includes an additional 56 photographs depicting neutral facial expressions. The JACFEE and JACNeuF sets can be presented in either slide or CD-ROM format. Photographs included on the CD-ROM version are available in either JPEG or High Resolution TIF format. Photographs included in the current study were presented using JPEG format.

The JACFEE and JACNeuF slides were designed for use in studies assessing facial expression recognition skills. Each slide was coded using the Facial Action Coding System to verify that the intended emotion was being expressed in each photograph (Ekman & Friesen, 1978). Internal consistency of the JACFEE slides was strong (alpha = .94), and concurrent validity was demonstrated by significant correlations between the JACFEE slides and the Diagnostic Analysis of Nonverbal Accuracy (DANVA; McIntire, Danforth, & Schneider, 1999; Nowicki & Duke, 1994).

International Affective Picture System (IAPS)

The International Affective Picture System (IAPS; Center for the Study of Emotion and Attention [CSEA-NIMH], 1999) is a visual stimulus package designed to elicit affective responses of varying intensities and valences. The stimulus package can be presented in either slide or CD-ROM format. The standardized IAPS set includes over 700 colored photographs that have been found to reliably produce pleasant, neutral, and unpleasant emotional states at differing degrees of arousal. Pleasant IAPS stimuli include photographs of nude individuals, birds, flowers, and sailboats. Alternatively, pictures of mutilated bodies, weapons, burn victims, and attacking dogs have been found to reliably elicit unpleasant reactions. Neutral IAPS stimuli include pictures of certain household objects such as light bulbs, umbrellas, and rolling pins. IAPS stimuli that were rated as most arousing included photographs depicting erotic, frightening, or disgusting scenes (Lang, Greenwald, Bradley, &

Hamm, 1993). The strongest fear evoking stimuli include photographs portraying aimed pistols and snakes, while mutilated faces tend to elicit greater disgust reactions (Lang et al., 1993). Generally, women tended to have a greater emotional reaction to IAPS stimuli, especially when viewing negatively valenced photographs (Lang et al., 1993; Sutton, Davidson, Donzella, Irwin, et al., 1997).

Each photograph is generally presented to participants for 6 s. However, studies have found that both brief (e.g., 500 ms) and sustained presentations of the IAPS stimuli are effective at eliciting affective reactions (Bradley, Cuthbert, & Lang, 1996; Codispoti, Bradley, & Lang, 2001; Sutton et al., 1997). In fact, research indicates that IAPS elicited affective states, particularly negative emotional reactions, can be maintained over sustained periods lasting at least 20 minutes while the IAPS stimuli continue to be presented at 12-second intervals (Sutton et al., 1997).

Multiple studies using various psychophysiological measures (e.g., EMG, EKG, skin conductance, startle reflex) in conjunction with the IAPS stimuli have found relatively consistent physiological reactions to the photographs (Bradley et al., 1996; Codispoti et al., 2001; Lang et al., 1993; Sutton et al., 1997). Self-report ratings of valence also appear to coincide with these physiological responses to the IAPS stimuli and reflect the valence depicted within the photographs (Davis, Rahman, Smith, Burns, et al., 1995; Lang et al., 1993; Sutton et al., 1997). Overall, findings from studies exploring psychophysiological and self-report responses to the IAPS stimuli suggest that the photographs provide a valid means for eliciting pleasant and unpleasant affective states. Seven negative and four positively valenced high arousal

(i.e., arousal ratings ≥ 7) IAPS stimuli were presented throughout the current study's experimental trial.

International Affective Digitized Sounds System (IADS)

The International Affective Digitized Sounds System (IADS; Bradley & Lang, 2000) is an auditory stimulus package, which includes over 100 different naturally occurring sounds that vary in their degree of rated pleasure and arousal. Peak intensity of sound ranges from 64 to 81 dB and each sound presentation lasts 6 s. Highly arousing, unpleasant stimuli include sounds of weapons, attacks, and dog growls. Highly arousing, pleasant stimuli include sounds of lovemaking and rollercoaster rides. Similar valence and arousal ratings have been found for both the IADS and the IAPS. Furthermore, physiological reactions to the IADS stimuli exhibited a similar pattern to that which was identified for participants viewing the IAPS stimuli (Bradley & Lang, 2000). A total of three IADS sounds were selected for inclusion in the experimental portion of the current study.

Measures

Personal Data Survey (PDS)

The Personal Data Survey (PDS) is a self-report inventory designed to gather standard demographic information such as age, ethnicity, relationship status, and current dating and sexual practices (see Appendix A for copy of instrument).

Revised Conflict Tactics Scale (CTS2)

The Revised Conflict Tactics Scale (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) is a revised version of the widely used original Conflict Tactics Scale (Straus, 1979) and measures different strategies used by couples to deal with conflicts. The revised version, consisting of 78 total items, is divided into five main subscales: Negotiation, Psychological Aggression, Physical Assault, Sexual Coercion, and Injury. Participants are instructed to respond to items assessing both their own behaviors and their partner's behaviors. The authors reported adequate preliminary construct validity as indicated by relatively strong correlations between the CTS2 scales that were thought to be theoretically related. Relatively low correlations between CTS2 scales that were thought to be unrelated to each other also provide some preliminary support for the scale's adequate discriminant validity. Alphas for each scale were .79 or above, indicating relatively strong internal consistency.

Sexual Experiences Survey (SES)

The Sexual Experiences Survey (SES; Koss & Gidycz, 1985; Koss & Oros, 1982) is used to assess participants' experiences regarding various forms of both sexual aggression and victimization. Participants are asked to respond to 10 yes–no questions addressing varying degrees of sexually coercive and forceful acts. This scale was originally normed on 3,862 college males and females and has a test–retest value of .93 after 1 week (Koss & Gidycz, 1985; Koss & Oros, 1982). Internal consistency,

as measured by Cronbach's alpha, was .74 for women and .89 for men (Koss & Gidycz, 1985).

Modified PTSD Symptom Scale (MPSS-SR)

This 17-item scale is an extension of Foa, Riggs, Dancu, and Rothbaum's PTSD Symptom Scale (PSS; 1993) that includes frequency and severity assessments of posttraumatic stress disorder (PTSD) symptoms (MPSS-SR; Falsetti, Resnick, Resnick, & Kilpatrick, 1993). Frequency items range from "not at all" to "5 or more times per week/very much/almost always" on a 4-point scale. Severity items are assessed using a 5-point scale ranging from "not at all distressing" to "extremely distressing." The measure is designed to assess whether or not participants meet *DSM-III-R*'s diagnostic criteria B through D for PTSD based on reported symptoms that occurred over the course of 2 weeks prior to assessment. The MPSS-SR also allows for a more continuous measurement of PTSD symptoms by providing cutoff points that can be used to indicate whether or not a participant is PTSD positive. The instrument has been normed using both clinical and community samples, and differing cutoff points are provided for both clinical and non-clinical groups. The scale demonstrated strong internal consistency for both samples, with alphas of .97 being reported for the community sample and .96 for the clinical sample. The instrument's authors further note that comparisons of the MPSS-SR with the SCID PTSD Module suggest that the MPSS-SR also has good concurrent validity.

Toronto Alexithymia Scale (TAS)

The Toronto Alexithymia Scale (TAS; Taylor, Ryan, & Bagby, 1985) is a 26-item self-report instrument designed to assess the overall construct of alexithymia. Scores of 74 or higher on the TAS are generally believed to indicate the presence of alexithymia (Cloitre et al., 1997). Factor analyses on the scale items indicated a four-factor solution that corresponded with the following primary features of alexithymia: daydreaming, externally-oriented thinking, difficulty identifying and distinguishing between feelings and other bodily sensations, and impairments associated with describing feelings. The scale was originally normed on 542 male and female college students. An obtained alpha coefficient of .77 suggests that the scale has relatively strong internal consistency. The scale also demonstrated adequate test–retest reliability over a 1-week and 5-week period, with obtained *r* values of .82 and .75, respectively.

Quantity-Frequency Index of Drug and Alcohol Consumption (Q-F)

Q-F Indices assess the quantity and frequency of drug and alcohol consumption over a particular time frame. Q-F of alcohol use over the past month was assessed, as well as frequency of five different categories of illicit drug use over the 6 months. It is recognized that calculating quantity of illicit drug use is difficult to specify in standard units. Therefore, only frequency scores were assessed.

Daily Alcohol, Nicotine, and Caffeine Use

This instrument was designed for the purposes of this study to assess participants' use of alcohol, nicotine, and caffeinated products within the 2 hours prior to participants' Session Two appointment. The research assistant inquired and recorded participants' responses to items inquiring about their recent use of alcohol, nicotine, and caffeine, as well as the type and amount of each of the products used (see Appendix A for copy of instrument).

Facial Expression Recognition Questionnaire (FERQ)

This measure was developed for the purposes of this study to assess participants' reactions to different facial expressions. Participants were asked to select from a list of seven possible emotions (including indifference) the emotional label that best captured the emotion being expressed in each JACFEE/JACNeuF photograph. Participants were then instructed to rate their overall level of confidence in their answer to the first question. Along with including the two items assessing participants' accuracy in identifying the facial expressions, the instrument also includes seven questions taken from Persad and Polivy's study (1993) that measures participants' behavioral responses to the facial expressions. Three of these items assessed the likelihood that participants might avoid, approach, or try to change the JACFEE/JACNeuF model's facial expression. Additional items requested that participants report the degree to which each facial expression makes them feel uncomfortable, tense up, and freeze. The final two items on the measure assessed

participants' level of comfort and desire to change their own emotional reactions to each of the photographs (see Appendix A for copy of instrument).

Childhood Trauma Questionnaire (CTQ)

The Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994) is a brief 28-item screening tool designed to assess adults' histories of childhood abuse and neglect. Initially normed on a sample of 286 substance abuse patients, the CTQ includes four identified factors assessing physical and emotional abuse, sexual abuse, physical neglect, and emotional neglect. Each CTQ item requires the participant to report on the frequency of certain childhood events using a 5-point Likert scale ranging from "never true" to "very often true." Cronbach's alphas range from .79 to .94 for each of the four factors, which suggests that the instrument has relatively strong internal consistency. The CTQ also demonstrates good test–retest reliability across 2- and 6-month periods for each of the four factors as well as for the total CTQ score, with correlations ranging from .80 to .88. Strong correlations between the CTQ and the Childhood Trauma Interview suggest that the CTQ has good convergent validity. The instrument's authors also report that the CTQ demonstrates good discriminant validity based on comparisons made between the CTQ, verbal intelligence, and social desirability scores.

The Childhood Maltreatment Interview Schedule (CMIS)

The Childhood Maltreatment Interview Schedule (CMIS; Briere, 1992) is a brief, semi-structured interview designed to assess various components of childhood maltreatment in both clinical and research settings. The original interview was divided into nine separate sections assessing parental physical availability, parental disorders, parental psychological availability, psychological abuse, physical abuse, emotional abuse, sexual abuse, ritualistic abuse, and perceptions of abuse status. However, due to time constraints and given the lack of empirical evidence supporting the existence of ritualistic abuse (Ellis, 2000; McGrath, 2002; Sherman, 1997), the current study omitted the ritualistic abuse section from the interview. Items on the CMIS permit researchers to obtain more detailed information regarding the type(s) of abuse experienced, perpetrator(s) involved, age(s) at which participants experienced abuse, and injuries obtained as a result of abuse. The CMIS study has been included in previous studies assessing women's retrospective reports of childhood abuse and was the primary instrument used in Wagner and Linehan's study (1999) assessing facial recognition skills in a sample of women diagnosed with borderline personality disorder.

Self-Assessment Manikin (SAM)

The Self-Assessment Manikin (SAM; Bradley & Lang, 1994) is a nonverbal, self-report instrument designed to assess participants' emotional reactions to various stimuli, and has been used in previous studies to assess participants' affective

responses to both IAPS and IADS stimuli (Bradley & Lang, 1994, 2000; Davis et al., 1995; Lang et al., 1993). The tool includes pictorial descriptions of three separate scales assessing participants' level of pleasure, dominance, and arousal toward particular stimuli. The pleasure scale depicts a figure expressing varying degrees of smiles and frowns across five separate frames. In the arousal scale, the five frames range from a closed-eye, relaxed figure to a wide-eye, excited figure. The dominance scale is illustrated by presenting five different sizes of the figure. Strong correlations have been found between Mehrabian and Russell's Semantic Differential Scale (1974) and the SAM arousal and pleasure dimensions (Bradley & Lang, 1994). Findings from previous studies also indicate a correlation between SAM valence scores and psychophysiological measures (e.g., EMG recordings, skin conductance) in response to both pleasant and unpleasant IAPS and IADS stimuli, suggesting that the SAM may be a valid measure of participants' emotional reactions to visual and auditory stimuli (Bradley & Lang, 2000; Lang et al., 1993). The instrument can be administered using either a paper-based or computer-version of the scales. Scores for each of the three dimensions using the computer-version of the SAM range from 0 to 20 points. Research comparing the computerized and paper-based versions of the SAM has shown adequate test–retest reliability for both the pleasure and arousal dimensions, with *r* values of .99 and .93, respectively (Lang et al., 1993).

Follow-Up Questionnaire

In order to gather information on participants' reactions to participating in this study, a follow-up questionnaire was developed that participants were asked to complete on three separate occasions. Participants were encouraged to respond to nine Likert-scale items and two open-ended questions that inquired about participants' emotional reactions to the study's components, benefits and difficulties associated with participation, and willingness to participate in similar research studies in the future (see Appendix A for copy of instrument).

Physiological Measures

Polar S-710 Heart Rate Monitor

This equipment is designed to continuously monitor and record heart rate using a chest belt and water resistant wrist receiver. The chest belt is composed of a transmitter attached to an elastic strap, which is worn around the participant's bare chest. The transmitter includes a built-in lithium battery with a lifetime expectancy of approximately 2,500 hours. The wrist receiver includes a CR 2354 battery with an average lifetime of 2 years. Heart rate is detected through the transmitter and then the heart rate information is sent via the transmitter to the wrist receiver. In order to ensure accurate heart rate recordings, the wrist receiver should be worn within 3 feet of the chest belt transmitter. Heart rate recordings can be activated and terminated by pressing a button on the wrist receiver. The heart rate monitor can be programmed to

detect heart rate every 5 s, 15 s, or 60 s, and recordings can provide information regarding current, average, and maximum heart rate. The wrist receiver also keeps track of the date and time that the recordings started and ended as well as logs the total recording time. Polar software and an interface device are included to allow for the data to be uploaded and analyzed using an IBM computer. As many as 99 separate recordings can be stored on the wrist receiver at one time.

Procedure

Session One

Students interested in participating in the study were scheduled to attend a brief, 1-hour screening session with the researcher. During the initial appointment, the participant was informed about the details of the study and was asked to provide written consent to participate in the remainder of the study. After obtaining informed consent, the participant was first asked to respond to the CTQ. Following completion of the CTQ, the participant was then asked to respond to the PDS items. While the participant was completing the PDS, the researcher scored the participant's responses to the CTQ and determined if the participant met the initial screening criteria to be included in one of the five experimental groups. If the CTQ responses suggested that the participant might be eligible to be included in one of the five groups, then the student was asked to respond to the various questions included in the Childhood Maltreatment Interview Schedule (CMIS). In order to investigate the reliability in assigning participants to the appropriate group using CTQ and CMIS responses along

with specified coding criteria, all interviews were audiotaped[2] and a subset of these interviews was randomly selected and rated by one of five clinical psychology graduate students not directly affiliated with the current study. Interrater reliability, as measured by percent agreement between coder and researcher, was 90%.

Given that some of the questions on the CTQ and CMIS may be distressing for some participants, each student was informed that the researchers were available to provide crisis counseling if necessary. Each participant also received a referral list containing information regarding local psychological services as well as a booklet providing safety tips to prevent sexual assault.

Before leaving the session, the researcher asked the participant to respond to the follow-up questionnaire and then scheduled a tentative time for the participant to return for the second session. In addition to completing the interview and various measures described above, the participant was asked to provide her current telephone contact information. The participant was informed that she would be contacted by phone within 1–2 weeks of the first session to confirm her appointment and further involvement in the study. All participant information provided on the self-report measures and interview is confidential and was coded and kept separate from any participant information containing personal identifiers (e.g., name, telephone number, address, etc.).

---

[2] Permission to audiotape the CMIS was requested from each participant as part of the informed consent process described above.

Following the first session, the researcher reviewed the participant's responses to both the CTQ and the CMIS in order to determine whether or not the participant met full criteria to be included in one of the five experimental groups. Those who qualified for participation in the second session were contacted by telephone and reminded of their upcoming appointment. During the phone call, the participant was also asked to avoid using alcohol, nicotine, and caffeinated products at least 2 hours prior to her appointment. Those who were not eligible to participate in the second session were also contacted, informed about the researcher's decision, and thanked again for their participation.

Session Two

Baseline period. When the participant arrived for her second session, she was greeted by a research assistant and led into the experimental room where the research assistant reviewed relevant components of the informed consent document. In addition, the research assistant inquired about and documented the participant's use of alcohol, nicotine, and caffeinated products during the past 2 hours. Then, in order to get an estimate of the participant's baseline heart rate, the participant was instructed by the research assistant on how to put on the heart rate monitor chest belt. The research assistant then temporarily left the room while the participant applied the chest belt. When the research assistant returned to the room, the wrist receiver was placed on the participant's wrist. A watch cover was placed over the face of the watch to prevent the participant from getting distracted by the monitor during the

session. The research assistant then requested that the participant relax and sit quietly in the experimental room for 5 minutes while her baseline heart rate was recorded. Magazines were made available for the participant to peruse during this baseline condition. At the start of the baseline condition, the research assistant started the heart rate monitor by pushing the button twice on the wrist receiver and then exited the experimental room.

Practice trial. When the 5-minute baseline period ended, the research assistant entered the experimental room, stopped the heart monitor recording, and asked the participant to respond to the remaining questionnaires. After completing the various measures, the participant was seated in front of a computer screen where she began the practice version of the facial expression recognition task. The research assistant activated the heart rate recording again and initiated the practice version of the experimental task. The first trial of the practice session began with the SAM. The research assistant explained the SAM procedure and instructed the participant to rate her current valence and arousal levels according to the SAM figure. Afterwards, one of the JACNeuF Caucasian slides appeared for 6 s, during which time the research assistant instructed the participant to view the photograph as if the model was someone significant in the participant's life (e.g., partner, close friend, parent, sibling, etc.). The JACNeuF slide was followed by the Facial Expression Recognition Questionnaire. The research assistant provided the participant with directions on how to complete the measure, reminded the participant to answer the questions as if the photograph portrayed someone significant in the participant's life, and then

encouraged the participant to practice responding to the measure. After the participant completed her ratings, a neutral IAPS slide was presented for 6 s followed by the SAM figures, during which time the participant was encouraged to rate her current level of arousal and valence again. The participant then went through an entire practice session again that included a new Caucasian JACNeuF photograph and neutral IAPS slide.

At the end of the second practice trial, the research assistant warned the participant that some of the IAPS slides may produce anxiety, presented the participant with an example of an arousal-inducing IAPS slide, and then asked the participant to rate her current valence and arousal levels according to the SAM criteria. The research assistant inquired about and answered any additional questions that the participant might have had about the experimental procedure. The participant was given the opportunity to continue running through the practice trials until she reported feeling comfortable with the procedure.

Experimental trial. After completing the practice session, the research assistant temporarily stopped the heart monitor recording and explained to the participant the format for the remainder of the experimental session. During the experimental procedure, the research assistant left the room and monitored the participant through a camera that was mounted in the experimental room and connected to a television in an adjoining room. If the participant had questions during the experimental session, she was instructed to call out to the research assistant. In the event that the participant became distressed during the experiment and wanted to

end the session, the participant was instructed to either leave the room or close her eyes and call out for assistance. Before leaving the room, the research assistant started the heart monitor recording once again and began the facial expression recognition computer program.

During the experimental session, the participant was exposed to a total of 32 intermixed JACFEE and JACNeuF slides, which included eight Caucasian neutral expressions and four Caucasian slides for each of the emotions (excluding contempt). Following each JACFEE/JACNeuF slide, the participant was prompted to respond to the questions from the Facial Expression Recognition Questionnaire, and the response time it took for the participant to label the model's facial expression was automatically recorded into the computer. Additional information was collected regarding the number of times participants' changed their responses to the first item on the Facial Expression Recognition Questionnaire assessing facial expression recognition ability. Unpleasant, arousal-inducing IAPS slides were also interspersed on a 1–4 JACFEE/JACNeuF slide schedule throughout the experimental procedure. Participants were prompted to respond to the SAM figures every 3–4 JACFEE/ JACNeuF slides following either the presentation of an IAPS slide or the Facial Expression Recognition Questionnaire.

Relaxation/Follow-up period. After completing the experimental procedure, the research assistant entered the room and temporarily stopped the heart rate monitor. The participant was asked to stay in the laboratory for at least 10 minutes longer to relax. However, those who reported higher levels of anxiety were

encouraged to stay as long as needed to reduce their arousal. Various relaxation options were provided including listening to soothing music, viewing pleasant IAPS pictures, and listening to a guided imagery relaxation tape. Heart rate was monitored throughout the 10-minute relaxation period. Those who reported experiencing significant distress following the experimental procedure were also encouraged to talk with the researcher about their experiences. When the participant was ready to leave the laboratory, the research assistant informally inquired about the participant's current emotional state. Additional copies of the referral lists and sexual assault booklets were provided to participants at their request. Before leaving the lab, the participant was asked to respond to the follow-up questionnaire and the research assistant scheduled a 1-week follow-up appointment with the participant.

Follow-Up Session

When the participant arrived for her follow-up appointment, she was taken to a private experimental room where the research assistant informally inquired about her emotional state following the previously attended session. If necessary, the research assistant provided further crisis counseling and offered the participant additional copies of the referral list and sexual assault booklet. The participant was then asked to respond to the follow-up questionnaire once again before completing this final session.

RESULTS

Before conducting any analyses, data for each of the ER and self-report variables were plotted to test for potential skewness and outliers. In cases where data appeared moderately to severely skewed, variables were transformed using either square root or log transformations. The transformed data were then plotted again and reanalyzed to determine if the transformations resulted in a more normal distribution of the data. Transformed variables were included in the final data analyses if the transformations provided more normally distributed data. Otherwise, non-transformed data were retained for the final analyses. Indication of transformed variables is provided within the various tables included in Appendix E.

Descriptive analyses, including tests for group differences, were conducted on the various demographic data collected from the PDS. Separate analyses were then conducted to examine group differences across the five childhood trauma groups. Sample statistics on sexual and physical victimization history during both childhood and adulthood were presented for each group based on information provided on the SES, CTQ, CMIS, and CTS2. ANOVAs were conducted to determine potential group differences in sexual and physical assault victimization rates. Descriptive statistics and ANOVA group comparisons for alexithymia and PTSD scores obtained from the TAS and MPSS-SR were provided, respectively. In cases where the overall ANOVA main effects test was significant, Tukey HSD post-hoc analyses were conducted to identify specific differences between groups.

In order to explore potential group differences in ER skills, ANOVAs were conducted to examine group differences in ER hit proportion, average reaction time, and behavioral responding. Additionally, sequential multiple regressions were performed to investigate the extent to which childhood trauma, along with other variables including alexithymia and PTSD symptomatology, significantly predicted ER hit proportion and average reaction time.

Following the childhood trauma group analyses, similar analyses were conducted to examine potential ER differences related to adult sexual victimization/ revictimization and physical victimization/revictimization. For each of these categories, *t* tests and ANOVAs were conducted to determine if significant differences in ER skills, alexithymia, childhood trauma, and PTSD existed depending on an individual's adult sexual and physical victimization history. Correlational analyses were also run to examine the relationship between adult sexual and physical victimization and various ER skills. Additional sequential multiple regressions were performed to explore the extent to which certain ER variables significantly predicted adult sexual and physical victimization above and beyond that which was explained by childhood trauma, alexithymia, and PTSD symptomatology. Further details about these analyses (including group assignment) are provided below.

Demographics

Descriptive analyses were conducted on several PDS items to describe the demographic characteristics of the total sample and determine if significant

demographic differences existed across the five childhood trauma groups. The mean age for the entire sample was approximately 21 (M = 20.60; SD = 4.04). The overall ANOVA comparing mean age across the five groups was statistically significant, $F(4, 98) = 4.14, p = .004$, and Tukey HSD post-hoc analyses indicated that the CSPA group was significantly older at the .05 significance level than the DFE, CPA, and NA groups. Chi-square analyses revealed no other significant differences across the five groups for the remaining demographic variables. The majority of the sample was Caucasian (86.5%), heterosexual (95.1%), and had an annual income of $15,000 or less (94.2%). Most of the sample reported currently either being single and in a dating relationship (50.5%) or being single and not dating (34%). Of the entire sample, 35.6% were freshmen, 25.0% were sophomores, 19.2% were juniors, 18.3% were seniors, and 1.9% were in graduate school.

Childhood Trauma

Descriptive Characteristics

One-way ANOVAs were performed to examine potential childhood trauma group differences for several of the self-report measures included in the study. Table 2 of Appendix E provides a summary of these findings. Significant group differences were identified in alexithymia scores as measured by the TAS, $F(4, 96) = 2.615, p = .040$, with individuals within the CSA group reporting significantly greater alexithymia than those included in the NA group according to Tukey HSD post-hoc analyses. Not surprisingly, ANOVA results indicated that individuals reporting a

history of CSA, CPA, or CSPA endorsed significantly greater PTSD symptoms than the NA group, $F(4, 98) = 8.262$, $p = .000$. Although no significant group differences were found in reports of any unwanted adult sexual experiences, $F(4, 96) = 2.441$, $p = .052$, analyses did reveal significant differences in reports of attempted/completed adult sexual assault, $F(4, 98) = 2.522$, $p = .046$. Tukey HSD post-hoc analyses, however, failed to identify where these differences existed. No significant differences in adult physical victimization reports were identified across the five groups, $F(4, 94) = .943$, $p = .443$.

Emotion Recognition ANOVAs

One-way ANOVAs were conducted to determine if significant differences in ER accuracy, ER latency, and behavioral responding emerged across the five childhood trauma groups. As indicated in Table 3 of Appendix E, no significant group differences were found in ER accuracy for any of the four clusters of emotion (i.e., positive, negative, neutral, and total emotions, respectively). ANOVAs investigating differences in ER latency revealed significant group differences in positive emotion reaction time, $F(4, 99) = 2.729$, $p = .033$, with individuals included in the CSPA taking significantly longer to respond positive emotions than individuals reporting a history of CSA only. This finding should be interpreted with caution, however, given the increased experimentwise error rate due to the number of ANOVAs included in this analysis.

One-way ANOVAs were also performed on the various FERQ items for each of the four clusters of emotion. Tables 4 and 5 provide a summary of these findings. Results indicate that the five groups did not differ in their overall confidence ratings of ER accuracy across the four emotional clusters. Additionally, no statistically significant group differences were identified for each of the seven FERQ items assessing behavioral responding to positive, negative, and neutral emotional expressions.

Emotion Recognition Regression and Correlational Analyses

Regression analyses. Six separate sequential regression analyses were performed to determine the extent to which childhood trauma, alexithymia, and PTSD symptoms significantly predicted ER accuracy and latency for each of the three emotional clusters (i.e., positive, negative, and neutral emotions, respectively). For each of the six regression analyses, CTQ scores were entered in the first step and TAS and MPSS-SR scores were added to the second step. Detailed summaries of these regression analyses can be found in Tables 6–11 of Appendix E. Results indicate that childhood trauma, alexithymia, and PTSD symptoms were not significant predictors of ER accuracy for any of the three emotional clusters. Childhood trauma was found to be a significant predictor of ER negative emotion reaction time in step 1 with higher CTQ scores being predictive of greater reaction time in response to negatively valenced facial expressions, $R^2 = .054$ (Adj. $R^2 = .044$), $F(1, 94) = 5.371$, $p = .023$. Addition of alexithymia and PTSD scores was not found to significantly

improve prediction of negative emotion reaction time, $R^2 = .062$ (Adj. $R^2 = .031$), $F(3, 92) = 2.026$, $p = .116$. Childhood trauma was also identified as a significant predictor of ER neutral emotion reaction time after step 1 with higher CTQ scores being predictive of greater reaction time in response to neutral facial expressions, $R^2 = .063$ (Adj. $R^2 = .053$), $F(1, 94) = 6.280$, $p = .014$. This regression model remained significant when alexithymia and PTSD scores were added in the second step of the model, $R^2 = .090$ (Adj. $R^2 = .060$), $F(3, 92) = 3.021$, $p = .034$. Childhood trauma, however, continued to be the only unique predictor of ER neutral emotion reaction time. Childhood trauma, alexithymia, and PTSD scores were not identified as significant predictors of ER positive emotion reaction time.

Correlational analyses. Correlational analyses were also conducted to examine the relationship between CTQ scores and ER confidence ratings and behavioral responding items for each emotional cluster (i.e., positive, negative, and neutral emotions). CTQ scores were not significantly correlated with confidence ratings across the three emotional clusters. A statistically significant negative correlation between CTQ scores and Ability to Respond to negative emotions was identified; however, this finding should be interpreted with caution due to the number of correlational analyses conducted. No other significant correlations were found between CTQ scores and behavioral responding items. See Table 12 for a summary of these findings.

Descriptive Characteristics

T tests. One-tailed *t* tests were performed to determine if individuals reporting a history of ASA had higher rates of childhood trauma, adult physical victimization (APA), alexithymia, and PTSD symptoms than individuals without an ASA history. Participants were assigned into one of two groups depending on their responses to the SES. Those who endorsed at least one item on the SES indicating attempted or completed sexual assault after the age of 14 were included in the ASA Present group. Individuals who did not report any incidences of attempted or completed sexual assault after the age of 14 were included in the No ASA Present group. As anticipated, those reporting an ASA history had significantly greater CTQ, TAS, and MPSS-SR scores than those without an ASA history (see Table 13 for a summary of the findings). No statistically significant group differences were found in CTS2 physical victimization scores, $t(97) = -1.456, p = .075$ (one-tailed).

ANOVAs. One-way ANOVAs were conducted to examine the extent to which childhood trauma, alexithymia, APA, and PTSD scores differed depending on sexual victimization/revictimization history (see Table 14 for a results summary). Using their SES responses and the CSA/ASA definitions provided above, participants were assigned to one of four categories: No abuse (NA), CSA only (CSA), ASA only (ASA), and Revictimized. Consistent with previous definitions of sexual revictimization (Messman & Long, 1996; Wyatt et al., 1992), participants were

included in the Revictimized category if they reported at least one incident of CSA along with at least one incident of ASA. The overall main effects test on CTQ scores was statistically significant, $F(3, 96) = 12.906$, $p = .000$, with individuals in each of the three abuse categories reporting significantly greater childhood trauma than those included in the NA group. ANOVA results investigating group differences in TAS scores was also significant, $F(3, 97) = 5.484$, $p = .002$. Tukey HSD post-hoc analyses revealed that individuals reporting sexual revictimization had significantly higher TAS scores than those included in both the NA and CSA only groups. Lastly, ANOVA findings indicated significant group differences in MPSS-SR scores, $F(3, 99) = 6.376$, $p = .001$, with individuals included in the Revictimized category reporting significantly greater PTSD symptomatology than those in the NA group. No group differences in CTS2 physical victimization scores were identified, $F(3, 95) = 1.120$, $p = .345$.

Emotion Recognition T Tests and ANOVAs

T-tests. One-tailed *t* tests were conducted to determine if individuals reporting a history of ASA exhibited greater ER deficits than those denying an ASA history. As noted in Tables 15 and 16, no statistically significant group differences on ER hit proportion, average reaction time, and confidence ratings were found between the ASA Present and No ASA Present groups for each of the four emotional clusters. Additional one-tailed *t* tests were also performed to explore potential differences in ER behavioral responding between the two ASA groups (see Table 17). Analysis

results indicated that those reporting an ASA history were more likely to report avoidance of people expressing positive emotions ($M = 1.35$, $SD = .30$) than those included in the No ASA Present group ($M = 1.23$, $SD = .29$), $t(97) = -1.990$, $p = .025$ (one-tailed). Given the number of t tests included in the current analysis, this finding should be interpreted with caution due to the increased Type I error rate. In comparison to individuals without an ASA history, those reporting an ASA history were found to be less likely to approach individuals expressing various emotions and were less comfortable with these emotional expressions, regardless of the type of emotion being expressed. Individuals included within the ASA Present group reported being significantly less able to respond and were less comfortable with their own emotional reaction to positive emotional expressions than those included within the No ASA Present group. These results should also be interpreted with caution, however, given the increased experimentwise error rate.

ANOVAs. Similar analyses were conducted using one-way ANOVAs to determine if differences in ER skills existed among the various sexual victimization/revictimization groups. Tables 18 and 19 provide a summary of these ANOVA results. Overall, no significant group differences were found in ER hit proportion, average reaction time, and confidence ratings. Few group differences were also identified among the behavioral responding items (see Table 20). Sexually revictimized women were found to be less likely to report approach toward individuals expressing positive emotions than those without a childhood and adult sexual assault history, $F(3, 97) = 3.906$, $p = .011$. The overall main effects test on

comfort with positive emotional expressions was also statistically significant, $F(3, 97) = 3.734, p = .014$, but Tukey HSD post-hoc analyses failed to reveal where specific differences within the four groups existed. Both of these isolated findings should be interpreted cautiously due to the increased experimentwise error rate associated with the number of tests included in this analysis.

Emotion Recognition Correlations and Regressions

Correlational analyses. Correlational analyses were conducted to examine the relationship between SES scores and ER hit proportion and average reaction time for individual emotions and emotional clusters. Table 21 provides results from these analyses. SES scores were not significantly correlated with ER hit proportion regardless of type of emotion. A significant positive correlation was identified between SES scores and average reaction time for sadness ($r = .258, p = .009$), suggesting that those reporting greater adult sexual victimization experiences took longer to respond to photographs of sad facial expressions. No other significant correlations were found between SES scores and ER average reaction time for various emotions/emotional clusters.

A behavioral avoidance composite score was developed for each emotional cluster and individual emotion by summing FERQ items #3 (avoid person), #5 (approach person), #6 (comfort with emotion), #7 (ability to respond), and #8 (comfort with own emotional reaction). Correlational analyses were performed to explore the relationship between SES scores and behavioral avoidance scores for each

emotion/emotional cluster (see Table 22 for summary). SES scores were most strongly correlated with behavioral avoidance scores for sadness and anger (r = .307, p = .002 and r = .301, p = .003, respectively). SES scores were also found to be positively correlated with behavioral avoidance scores associated with negative emotions, surprise, and disgust.

Regression analyses. Based on the results from the initial correlational analyses, a sequential regression model was developed to examine the extent to which average reaction time for sadness was a significant predictor of ASA after controlling for the impact of childhood trauma. As indicated in Table 23, CTQ scores were included in the first step, average reaction time for sadness was added into the second step of the model, alexithymia scores were integrated into the third step, and MPSS-SR scores were included in the final step of the analysis. The first step of the analysis was statistically significant with childhood trauma accounting for approximately 5% of total SES variance, R^2 = .052 (Adj. R^2 = .042), $F(1, 91) = 5.027$, p = .027. The model remained statistically significant when average reaction time for sadness was added to the model, R^2 = .101 (Adj. R^2 = .081), $F(2, 90) = 5.034$, p = .008 with greater average reaction time for sad facial expressions being predictive of higher SES scores. Average reaction time for sadness accounted for an additional 5% of total SES variance above and beyond that accounted for by childhood trauma (sr^2 = .048) and was the only unique predictor of SES in step 2. Step 3 of the regression model was also statistically significant, R^2 = .167 (Adj. R^2 = .139), $F(3, 89) = 5.941$, p = .001, with the TAS being the only unique predictor of SES and accounting for an

additional 7% of total SES variance. The final step of the model remained statistically significant, $R^2 = .187$ (Adj. $R^2 = .150$), $F(4, 88) = 5.066$, $p = .001$. After PTSD symptomatology was included in the model, both sadness average reaction time and alexithymia were significant unique predictors of total SES variance.

A sequential regression model was developed to determine the extent to which behavioral avoidance scores for sadness and anger significantly predicted SES scores above and beyond that which was predicted by both childhood trauma and sadness average reaction time (see Table 24). The first step of the model was statistically significant, $R^2 = .049$ (Adj. $R^2 = .037$), $F(1, 84) = 4.309$, $p = .041$, with childhood trauma accounting for approximately 5% of the total SES variance. Interestingly, adding sadness average reaction time to the model did not significantly improve the overall predictive power of the model, $R^2 = .054$ (Adj. $R^2 = .031$), $F(2, 83) = 2.349$, $p = .102$. When behavioral avoidance scores for anger and sadness were included in step 3, however, the model was again statistically significant and accounted for approximately 13% of total SES variance, $R^2 = .128$ (Adj. $R^2 = .085$), $F(4, 81) = 2.975$, $p = .024$. Behavioral avoidance scores for anger and sadness explained an additional 8% of total SES variance ($sr^2 = .075$) above and beyond that explained by childhood trauma and sadness average reaction time. The regression model remained statistically significant when alexithymia scores were included in step 4, $R^2 = .159$ (Adj. $R^2 = .107$), $F(5, 80) = 3.031$, $p = .015$. Although the final step of the model was also statistically significant, $R^2 = .172$ (Adj. $R^2 = .109$), $F(6, 79) = 2.729$, $p = .018$,

PTSD symptomatology only accounted for an additional 1% of total SES variance above that explained by the other variables included in the model ($sr^2 = .012$).

Adult Physical Victimization

Descriptive Characteristics

T tests. Analyses were also performed to examine the role of adult physical victimization experiences on self-reported rates of childhood trauma, ASA, alexithymia, and PTSD symptomatology. Participants were included into one of two categories depending on their CTS2 responses: APA History and No APA History. Using the scoring criteria and subscale definitions provided by Straus et al. (1996), participants were assigned to the APA Present group if they reported at least one incident of severe physical victimization within the past year. Alternatively, those who did not report a history of severe physical victimization within the past year were included in the No APA Present group. One-tailed *t* tests were conducted to determine if significant differences existed between the two groups for CTQ, SES, TAS, and MPSS-SR scores. As indicated in Table 25, individuals reporting an APA history ($M = 19.00$, $SD = 22.79$) were more likely to also report a history of any adult sexual victimization (i.e., minor and severe ASA experiences) than individuals included in the No APA Present group ($M = 3.27$, $SD = 7.91$). This finding remained consistent when group differences on reports of only severe ASA (i.e., attempted/ completed ASA) were examined, $t(98) = -2.155$, $p = .030$ (one-tailed). No group

differences were identified in self-reported rates of childhood trauma, alexithymia, and PTSD symptomatology (see Table 25 for a summary of the findings).

ANOVAs. As with the ASA analyses described in the previous section, participants were regrouped to examine differences in self-report scores across adult physical revictimization categories. For the purposes of the current study, individuals were considered to have been physically revictimized if they reported experiencing at least one incident of CPA before the age of 14 and at least one severe APA episode within the past year. Depending on participants' responses to the CTQ, CMIS, and CTS2, individuals were categorized into one of four groups: No Abuse (NA), CPA only (CPA), APA only (APA), and Physically Revictimized (Revictimized). One-way ANOVAs were then performed to examine potential group differences in CTQ, SES, TAS, and MPSS-SR scores. Table 26 provides a summary of these findings. Not surprisingly, the overall main effects test on CTQ scores was statistically significant, $F(3, 92) = 14.233, p = .000$, with the CPA group reporting significantly greater childhood trauma than the NA group.[3] Group differences were also identified for total (i.e., any unwanted ASA experiences) and attempted/completed SES scores, $F(3, 94) = 8.602, p = .000$ and $F(3, 96) = 11.966, p = .000$, respectively. Tukey HSD post-hoc analyses revealed that physically revictimized individuals had significantly higher total SES scores than both the CPA and NA groups and reported significantly greater rates of attempted/completed ASA than each of the three other groups (i.e., NA,

---

[3] In the post-hoc analyses, the comparison between the NA and physically revictimized group was also approaching significance, $p = .057$.

CPA, and APA). Lastly, the main effects test on MPSS-SR scores was statistically significant, $F(3, 95) = 4.002$, $p = .010$, with individuals within the CPA group reporting significantly greater PTSD symptomatology than those in the NA, APA, and Physically Revictimized groups. No group differences were found in alexithymia scores, $F(3, 93) = .360$, $p = .782$.

Emotion Recognition T Tests and ANOVAs

T tests. One-tailed *t* tests were performed to examine if significant differences between the APA Present and No APA Present groups existed for ER hit proportion, average reaction time, and confidence ratings (see Tables 27 & 28). Results indicate that individuals reporting an APA history ($M = .94$, $SD = .05$) were significantly better at recognizing negative emotions than those without an APA history ($M = .88$, $SD = .10$), $t(98) = 1.737$, $p = .043$ (one-tailed); however, this finding should be interpreted with caution given the high number of *t* tests included in the analysis. No additional group differences in ER hit proportion and average reaction time were found. Although no differences between the APA Present and No APA Present groups were generally found in the current study, one-tailed *t* tests indicate that individuals reporting an APA history were more confident that their ER labels were accurate than those included in the No APA Present group (see Table 28 for summary of findings). Caution again should be taken in interpreting these results due to the increased experimentwise error rate associated with the number of *t* tests included in the analysis. Lastly, one-tailed *t* tests were conducted to examine if those reporting an

APA history differed from the No APA Present group on the various behavioral responding items for each of the emotional clusters. Those included in the APA Present group ($M = 2.06$, $SD = .36$) were significantly more likely to report avoidance of persons expressing negative emotions than those included in the No APA Present group ($M = 1.78$, $SD = .38$), $t(91) = -2.005$, $p = .024$ (one-tailed). Individuals reporting an APA history were also less likely than the No APA Present group to report feeling comfortable in the presence of positive and negative emotional expressions along with total emotions (see Table 29 for a summary of these results). Additionally, those included in the APA Present group were significantly less likely than the No APA Present group to report being able to freely respond to persons expressing both positive and negative emotions (see Table 29). Once more, the significant findings from these behavioral responding *t* tests should be interpreted cautiously due to the increased Type I error rate.

ANOVAs. In order to determine if significant ER differences between the physically victimized/revictimized groups existed, one-way ANOVAs were conducted for ER hit proportion, average reaction time, and confidence ratings. Tables 30 and 31 provide summaries of these findings. As is noted in each of the tables, no significant group differences were found for ER hit proportion, average reaction time, and confidence ratings across the four emotional clusters. Additional one-way ANOVAs revealed no significant group differences for each of the behavioral responding items, regardless of type of emotional cluster (i.e., positive, negative, neutral, and total emotions). See Table 32 for a listing of these findings.

Emotion Recognition Correlations and Regressions

Correlational analyses. In order to examine the relationship between adult physical victimization and ER skills, correlational analyses were performed between CTS2 Physical Victimization scores and ER hit proportion and average reaction time for six individual emotions and three emotional clusters. No significant correlations were found between CTS2 Physical Victimization scores and ER hit proportion and average reaction time, regardless of emotion type (see Table 33). The relationship between CTS2 Physical Victimization scores and hit proportion for both negative and neutral emotions, however, was approaching significance (r = -.187, p = .064 and r = –.177, p = .080, respectively). Given the number of correlations included in this analysis, though, these near-significant findings should be cautiously interpreted.

Similar to the ASA analyses described earlier and using the behavioral avoidance composite scores (referred to earlier in the manuscript), correlational analyses were conducted to examine the relationship between CTS2 Physical Victimization scores and behavioral avoidance composite scores for each emotional cluster and individual emotions. Table 34 provides a summary of these correlational results. As noted in the table, none of the correlations between CTS2 Physical Victimization scores and behavioral avoidance composite scores were statistically significant. Given that none of the correlations between adult physical victimization and behavioral avoidance composite scores were significant, no regression analyses were performed using behavioral avoidance composite scores as predictor variables.

Regression analyses. Two sequential regression models were tested to determine the extent to which ER hit proportion and average reaction time uniquely predicted adult physical victimization after accounting for childhood trauma, alexithymia, and PTSD symptomatology. Since results from the correlational analyses did not reveal any significant correlations between specific emotions and CTS2 Physical Victimization scores, the three emotional clusters for both hit proportion and average reaction time were selected for inclusion in the regression models. Results from the first regression model examining prediction of adult physical victimization using CTQ scores, ER hit proportion, TAS scores, and MPSS-SR scores are presented in Table 35. The first step of the model was not statistically significant, R^2 = .008 (Adj. R^2 = -.004), $F(1, 89) = .676$, $p = .413$, indicating that childhood trauma was not a significant predictor of adult physical victimization. When hit proportion for negative, positive, and neutral emotions was added in step 2, however, the model was statistically significant, $R^2 = .140$ (Adj. $R^2 = .100$), $F(4, 86) = 3.502$, $p = .011$, with the three new independent variables accounting for an additional 13% of total APA variance ($sr^2 = .133$). Furthermore, negative emotion hit proportion (HP), positive emotion HP, and neutral emotion HP were all found to be significant independent predictors of APA. Step 3 of the model was also statistically significant, $R^2 = .144$ (Adj. $R^2 = .094$), $F(5, 85) = 2.861$, $p = .019$. The inclusion of TAS scores in the model, however, accounted for very little additional total APA variance ($sr^2 = .004$). Similarly, the inclusion of MPSS-SR scores in the fourth step of the model accounted

for very little additional APA variance ($sr^2 = .003$) even though the overall model remained significant, $R^2 = .147$ (Adj. $R^2 = .086$), $F(6, 84) = 2.409$, $p = .034$. Interestingly, each of the four steps in the sequential regression model examining the extent to which childhood trauma, ER average reaction time, alexithymia, and PTSD scores predicted CTS2 Physical Victimization scores was nonsignificant, with the overall model accounting for only 4% of total APA variance (see Table 36).

DISCUSSION

Childhood Trauma

Group analyses on ER skills failed to support our hypotheses that individuals included in each of the childhood trauma groups, particularly the CPA and CSPA groups, would be significantly worse at recognizing facial expressions than those without a childhood trauma history. Additionally, little difference was found between the five groups on reaction time and behavioral responding to the various emotional expressions. When the relationship between childhood trauma and ER skills was examined using a continuous measure of childhood trauma, however, significant results emerged, which indicated that while childhood trauma was not a significant predictor of ER accuracy, it was a significant unique predictor of ER reaction time to both negative and neutral emotional expressions. Interestingly, childhood trauma scores were not significantly correlated with accuracy confidence ratings and behavioral responding items. As anticipated, alexithymia was associated with the relationship between childhood trauma and ER reaction time for neutral emotions, yet childhood trauma continued to remain a unique predictor of neutral emotion reaction time even after the influence of alexithymia was considered.

Given the discrepancies between the ANOVA and regression analyses, these results suggest that it may be the presence and severity of childhood trauma, rather than type of trauma, that appears to have the greatest impact on ER skills (particularly

reaction time to emotional expressions). Previous researchers have identified a variety of psychological and interpersonal problems, including problems related to affect regulation, in children raised in various forms of dysfunctional family environments including ones characterized by abuse and neglect (Briere, 1992; Brown & Finkelhor, 1986; Lizardi et al., 1995; MacMillan et al., 2001; Murphy et al., 1988; Schaaf & McCanne, 1998; Trickett, 1998; van der Kolk et al., 1996). It may be that growing up in these impoverished environments may limit opportunities for children to learn key skills that are crucial in their emotional and interpersonal development. This factor may explain why no differences were found across the current study's five categories while childhood trauma was found to significantly predict ER reaction time for neutral and negative emotional expressions. Within each of the abuse categories, participants varied in the degree to which they experienced different forms and severity of abuse and family dysfunction. In some cases, participants reported experiencing single episodes of childhood sexual or physical abuse with no additional reports of significant family dysfunction. In other cases, however, participants reported ongoing childhood sexual or physical abuse within a family that was characterized by additional dysfunctional factors (e.g., significant emotional abuse, neglect, etc.). Although each of these participants would have been included within one of the abusive categories, the degree of family dysfunction that can lead to possible skills deficits may have significantly differed across participants within each category, creating relatively heterogeneous categories that could lead to nonsignificant ANOVA findings. Using a more continuous measure of childhood trauma (such as the CTQ)

may have corrected for this problem by incorporating multiple forms and severity levels of childhood abuse/neglect into a single comprehensive score.

Although individuals reporting greater childhood trauma were eventually able to correctly identify negative and neutral facial expressions, they appeared to take significantly longer to respond to these slides. This finding may be reflective of a variety of different problems related to emotion recognition and affect regulation. First, it may be that this delay in reaction time is indicative of difficulties processing certain emotional expressions, suggesting deficits in the identification of negative and neutral emotions. Results on the moderating effect of alexithymia appear to at least partially support this conclusion. Recall that the term *alexithymia* refers to deficits in one's ability to accurately identify and describe emotional states (Cloitre, 1998; Elzinga et al., 2002; Lesser, 1985; Yelsma, 1996). In the case of reaction time for neutral emotions, the inclusion of alexithymia in the regression model increased the overall predictive power of the model. Yet, even with alexithymia included in the model, the overall model only accounted for approximately 9% of total neutral emotion reaction time variance and childhood trauma remained a unique predictor, suggesting that reaction time may be partially but not solely related to affect identification skills.

Alternatively, the delay in neutral and negative emotion reaction time related to childhood trauma may be indicative of avoidant and/or dissociative reactions to negative and neutral emotional expressions. As noted earlier in this paper, individuals reporting a history of childhood trauma are more likely to exhibit dissociative

symptoms and avoidant behaviors, which may result in a number of psychological and interpersonal difficulties (Browne & Finkelhor, 1986; Paivio & Laurent, 2001; van der Kolk & Fisler, 1994). It may be that these avoidant and/or dissociative problems are interfering with the participants' ability to react and respond to the photographs depicting negative and neutral facial expressions. Nevertheless, the correlations between reaction time and behavioral avoidance self-items were nonsignificant. If the relationship between childhood trauma and reaction time is indicative of avoidant and/or dissociative problems, then it appears that participants may not be fully aware of their behavioral reaction to negative and neutral emotional stimuli.

Adult Sexual Victimization

Similar to the findings reported above for childhood trauma, discrepancies between *t* test, ANOVA, and regression analyses also existed when examining the relationship between ASA and ER skills. When group ER accuracy and reaction time means were compared for the No ASA Present/ASA Present groups and for the four revictimized categories, no significant differences were found. Analyses using a more continuous measure of ASA, however, revealed significant correlations between reaction time to sad expressions and ASA and suggested that sadness reaction time was a significant, unique predictor of ASA. In fact, the inclusion of sadness reaction time into the regression model accounted for an additional 5% of the total ASA variance above that which was explained solely by childhood trauma. Furthermore, the overall model that included childhood trauma, sadness reaction, alexithymia, and

PTSD symptomatology accounted for approximately 19% of total ASA variance as measured by the SES. Interesting, though, were the findings exploring the impact of behavioral avoidance on the relationship between ASA and sadness reaction time. ANOVA results indicated that individuals reporting a history of ASA acknowledged greater behavioral avoidance to emotional expressions, particularly positive emotions, than those without an ASA history. When a behavioral avoidance composite score was computed and included into the original SES regression model, sadness reaction time was no longer a significant predictor of ASA.

Taken together, these findings suggest that the relationship between sadness reaction time and ASA may be a function of behavioral avoidance towards different emotional expressions. Those with an ASA history may be more likely than those without an ASA history to avoid, tense up, freeze, and feel less comfortable in the presence of others' emotional reactions. This reaction may be most salient for sad emotional expressions, which may account for the significant correlation between reaction time to sad facial expressions and ASA.

Behavioral avoidance towards certain emotional expressions may be reflective of victims' greater propensity to behaviorally avoid across a variety of settings and circumstances and may provide some additional understanding into risk for sexual revictimization. A number of psychological problems characterized by behavioral avoidance are often reported by women reporting an ASA history, including social phobias, PTSD, and depression (Boudreaux, Kilpatrick, Resnick, Best, & Saunders, 1998; Meadows & Foa, 1998). Additionally, sexually victimized women often report

experiencing greater interpersonal difficulties, which may be indicative of behavioral avoidance to emotionally-charged interpersonal situations (Meadows & Foa, 1998; Thelen, Sherman, & Borst, 1998). Given that dating situations are often characterized by heightened emotional states, behavioral avoidance of certain emotional states may also account for why sexually revictimized women are significantly slower at identifying and responding to risky situations (Marx et al., 2001; A. E. Wilson et al., 1999). It may be that those with an ASA history may be more likely to tense up and freeze in reaction to emotionally intense interpersonal situations (including high-risk dating scenarios), resulting in delayed responding to those risky interactions and increasing the risk for revictimization.

Adult Physical Victimization

Whereas ER reaction time appeared to be a stronger predictor of adult sexual victimization, regression analyses revealed that ER accuracy significantly predicted APA scores, accounting for as much as 13% of total CTS2 variance. Surprisingly, ER accuracy for negative and positive emotions remained unique predictors of APA even after controlling for the effects of childhood trauma, alexithymia, and PTSD symptoms. Unlike the ASA findings, however, behavioral avoidance did not appear to have a moderating effect on the relationship between ER accuracy and APA. Also interesting are results showing that individuals reporting a history of APA may be more confident in the accuracy of their responses than those without an APA history,

suggesting that individuals with an APA history may be unaware of their potential ER deficits.

Overall, the findings from these analyses suggest that misinterpretation of emotional expressions may increase risk for APA and lend support to previous partner abuse models emphasizing the role of miscommunication in violent relationships (Riggs & O'Leary, 1996; Straus, 1977; Witt, 1987). Theorists for family systems and social learning models of partner abuse argue that relationship conflict and communication styles may be associated with risk for partner abuse and, indeed, researchers have found a relationship between relationship conflict, communication problems, and intimate partner violence (Babcock, Waltz, Jacobson, & Gottman, 1993; Feldman & Ridley, 2000; Lawrence & Bradbury, 2001; Riggs & O'Leary, 1996). As noted previously, ER skills are essential in facilitating communication within interpersonal situations (Gross, 1999; Paivio & Laurent, 2001; Pollak et al., 2000). Previous research indicates that ER deficits are likely to impair communication, resulting in greater risk for conflict and other negative social consequences (Kornreich et al., 2001; Persad & Polivy, 1993). Findings from the current study suggest that increased risk for physical victimization may be one such negative social consequence that may occur as a result of ER deficits.

Limitations and Future Directions

Several limitations of the current study should be noted. First, although a total of 104 participants were included in the overall study, a relatively small number of

participants were included in each of the five childhood victimization categories, particularly within the CSPA and CSA groups. This may have reduced power for the ANOVA analyses, preventing the detection of true, but unknown differences across the five groups. Similar problems may have existed in analyses investigating ASA and APA revictimization rates given the relatively low rates of revictimization being reported. Future research using larger sample sizes to investigate the impact of childhood trauma types on ER skills and the degree to which these skills affect revictimization rates is suggested to correct for potential power-related problems.

An additional factor that may have impacted the ANOVA analyses exploring differences across the five childhood trauma groups was within-group variability. As noted previously, individuals within each of the five groups frequently differed in the extent to which they experienced certain forms of abuse. Individuals were classified into one of the five categories according to whether or not a specified abusive event had occurred, regardless of the severity or duration of the abuse. This within-group heterogeneity may have also weakened the study's power, reducing the likelihood of detecting true but unknown differences across the five groups. Although an investigation on the impact of certain trauma-related variables (e.g., perpetrator type, duration, severity) on ER skills was initially proposed for the current study, the childhood trauma interview that was eventually included in the study limited our ability to examine and control for the impact of these variables on ER deficits. Future studies examining the role of these trauma-related variables on ER skills are encouraged. Furthermore, given that several participants in the study reporting a

history of childhood trauma did not show these deficits, it is also important for future researchers to investigate resiliency/preventative factors that buffer the impact of childhood trauma on the development of ER skills.

Another limitation of the current study may have been the overall difficulty level of the study's ER task. Across the five groups, ceiling effects are evident, with each group averaging above 80% correct for both positive and negative emotions. Even with neutral expressions, which appeared to be most challenging to identify, participants' average hit proportion scores ranged between 63–75% correct. Thus, it is possible that the study's ER task was not sensitive enough to detect certain true but unknown ER deficits within the sample. Results from the current study seem to suggest that when adult women, including those with a trauma history, have clear and complete visual information on a particular facial expression (e.g., photograph of a person smiling broadly to express happiness) they are generally able to successfully identify those facial expressions. When emotional expressions are more ambiguous, however, differences in ER skills may be more evident. Given that the visual affective stimuli provided in many social interactions are often more ambiguous and continuously changing, it seems imperative to explore the extent to which ER deficits may be more apparent under less-than-ideal emotion recognition conditions. Recent innovations in computer software have provided researchers with more sophisticated technology to investigate subtle differences in ER skills (Blair & Coles, 2001; Blair & Curran, 1999; Calder et al., 1996; Kornreich et al., 2001; Pollak & Kistler, 2002). Using this morphing software, two emotional expressions can be overlapped and then

gradually revealed to a participant individually. Researchers can then measure participants' ability to identify and discriminate between different emotional expressions of varying degrees of emotional intensity (Blair & Coles, 2001; Blair & Curran, 1999; Calder et al., 1996; Kornreich et al., 2001; Pollak & Kistler, 2002). Future studies incorporating this technology may be helpful in reducing potential ceiling effects and increasing the likelihood of detecting more subtle ER deficits related to childhood and adult victimization should these deficits exist.

Although results from the current study indicate the presence of ceiling effects, ER accuracy was still identified as a unique predictor of APA. This suggests that these deficits may become even more apparent if the level of difficulty in identifying emotional expressions is increased. Future research should be conducted to examine the extent to which partner abuse victims display ER deficits, particularly when more ambiguous emotional expressions are presented. Additionally, it would be interesting to investigate factors that may further exacerbate these ER deficits and increase risk for physical victimization. For instance, given that substance use is often present in partner abuse incidents, it may be useful to examine the impact of alcohol and/or drugs on ER skills. Lastly, future researchers are encouraged to explore the role of ER deficits in perpetration of partner abuse. If ER deficits increase APA risk by impairing communication and increasing the risk for conflict that may lead to physical victimization, then it stands to reason that these same deficits may also increase risk for perpetrating partner abuse.

Current findings indicate that childhood trauma is a significant predictor of ER reaction time, which is also a unique predictor of ASA. The nature of these relationships is still unknown, however, and additional research is needed to understand both the impact of childhood trauma on ER reaction time and the role of ER reaction time in determining ASA risk. Along with identifying childhood-trauma related factors that lead to ER responding delays, further research is necessary to determine the mechanism of action underlying these delays. For example, are these delays associated with difficulties processing visual affective stimuli or are they reflective of dissociative or other behavioral avoidance strategies? Additionally, it is still unclear as to how delays in ER reaction time lead to an increased risk for ASA. Future research incorporating various behavioral analogue assessment strategies should be conducted to investigate how victims reporting an ASA history behaviorally respond to specific emotional expressions within various social settings, particularly high-risk dating situations, and how these responses may increase risk for revictimization.

The current project produced a rich data set and only a subset of these data has been examined to date. A number of additional analyses still need to be conducted to better clarify the relationship between ER skills, childhood trauma, and adult victimization. For example, using the Q-F self-report data, analyses should be performed to examine the extent to which substance use might mediate or moderate the relationship between interpersonal victimization and ER skills. Furthermore, although the current study's results indicate that ER accuracy skills significantly

predict adult physical victimization, little is still known about the extent which these same skills may predict the perpetration of physical abuse in adulthood. Along with using CTS2 data to explore the relationship between ER skills and partner abuse perpetration, CTS2 data gathered during the current study can also be reanalyzed to examine the extent to which certain ER skills are related to specific forms and severity levels of partner abuse (e.g., emotional vs. physical abuse). Lastly, a plethora of physiological and self-report arousal data was gathered throughout the study that still needs to be examined. Although it is well-established in the literature that the IAPS and IADS slides included in the current study can increase arousal levels (Bradley & Lang, 2000; Lang et al., 1993; Sutton et al., 1997), less is known about the extent to which arousal levels may vary depending on an individual's trauma history. Using both the SAM ratings and the heart rate data, future analyses need to be conducted to examine the relationship between arousal and trauma history and how this relationship might impact ER skills.

REFERENCES

Acierno, R., Resnick, H., Kilpatrick, D. G., Saunders, B., & Best, C. L. (1999). Risk factors for rape, physical assault, and posttraumatic stress disorder in women: Examination of differential multivariate relationships. *Journal of Anxiety Disorders, 13*(6), 541-563.

Arata, C. M. (1999). Sexual revictimization and PTSD: An exploratory study. *Journal of Child Sexual Abuse, 8*(1), 49-65.

Arata, C. M. (2000). From child victim to adult victim: A model for predicting sexual revictimization. *Child Maltreatment, 5*(1), 28-38.

Arata, C. M. (2002). Child sexual abuse and sexual revictimization. *Clinical Psychology: Science & Practice, 9*(2), 135-164.

Bernstein, D., Fink, L. A., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., et al. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *American Journal of Psychiatry, 151*, 1132-1136.

Blair, R. J. R., & Coles, M. (2001). Expression recognition and behavioural problems in early adolescence. *Cognitive Development, 15*(4), 421-434.

Blair, R. J. R., & Curran, H. V. (1999). Selective impairment in the recognition of anger induced by diazepam. *Psychopharmacology, 147*(3), 335-338.

Borke, H. (1971). Interpersonal perception of young children: Egocentrism or Empathy? *Developmental Psychology, 5*(2), 263-269.

Boudreaux, E., Kilpatrick, D. G., Resnick, H. S., Best, C. L., & Saunders, B. E. (1998). Criminal victimization, posttraumatic stress disorder and comorbid psychopathology among a community sample of women. *Journal of Traumatic Stress, 11*(4), 665-678.

Bradley, M. M., Codispoti, M., Cuthbert, B. N., & Lang, P. J. (2001). Emotion and motivation I: Defensive and appetitive reactions in picture processing. *Emotion, 1*(3), 276-298.

Bradley, M. M., Cuthbert, B. N., & Lang, P. J. (1996). Picture media and emotion: Effects of a sustained affective content. *Psychophysiology, 33*(6), 662-670.

Bradley, M. M., & Lang, P. J. (1994). Measuring emotion: The Self-Assessment Manikin and the semantic differential. *Journal of Behavior Therapy & Experimental Psychiatry, 25*(1), 49-59.

Bradley, M. M., & Lang, P. J. (2000). Affective reactions to acoustic stimuli. *Psychophysiology, 37*(2), 204-215.

Briere, J. N. (1992). *Child abuse trauma: Theory and treatment of the lasting effects.* Thousand Oaks, CA: Sage Publications.

Brown, J., Cohen, P., & Johnson, J. G. (1999). Childhood abuse and neglect: Specificity and effects on adolescent and young adult depression and suicidality. *Journal of the American Academy of Child & Adolescent Psychiatry, 38*(12), 1490-1496.

Browne, A., & Finkelhor, D. (1986). Impact of child sexual abuse: A review of the research. *Psychological Bulletin, 99*(1), 66-77.

Burgess, R. L., & Conger, R. D. (1978). Family interaction in abusive, neglectful, and normal families. *Child Development, 49*(4), 1163-1173.

Calder, A. J., Keane, J., Manly, T., Sprengelmeyer, R., Scott, S., Nimmo-Smith, I., et al. (2003). Facial expression recognition across the adult life span. *Neuropsychologia, 41*, 195-202.

Calder, A. J., Young, A. W., Rowland, D., Perrett, D. I., Hodges, J. R., & Etcoff, N. L. (1996). Facial emotion recognition after bilateral amygdala damage: Differentially severe impairment of fear. *Cognitive Neuropsychology, 13*(5), 699-745.

Calkins, S. D. (1994). Origins and outcomes of individual differences in emotion regulation. *Monographs of the Society for Research in Child Development, 59*(2-3), 250-283.

Camras, L. A., Grow, J. G., & Ribordy, S. C. (1983). Recognition of emotional expression by abused children. *Journal of Clinical Child Psychology, 12*(3), 325-328.

Camras, L. A., Ribordy, S., Hill, J., Martino, S., et al. (1988). Recognition and posing of emotional expressions by abused children and their mothers. *Developmental Psychology, 24*(6), 776-781.

Carlson, B. E., McNutt, L.-A., & Choi, D. Y. (2003). Childhood and adult abuse among women in primary health care: Effects on mental health. *Journal of Interpersonal Violence, 18*(8), 924-941.

Center for the Study of Emotion and Attention [CSEA-NIMH]. (1999). *The International Affective Picture System* [CD-ROM]. Gainesville, FL: The Center for Research in Psychophysiology, University of Florida.

Chu, J. A. (1992). The revictimization of adult women with histories of childhood abuse. *Journal of Psychotherapy Practice & Research, 1*(3), 259-269.

Cicchetti, D., & Beeghly, M. (1987). Symbolic development in maltreated youngsters: An organizational perspective. *New Directions for Child Development, 36*, 47-68.

Classen, C., Nevo, R., Koopman, C., Nevill-Manning, K., Gore-Felton, C., Rose, D. S., et al. (2002). Recent stressful life events, sexual revictimization, and their relationship with traumatic stress symptoms among women sexually abused in childhood. *Journal of Interpersonal Violence, 17*(12), 1274-1290.

Cloitre, M. (1998). Sexual revictimization: Risk factors and prevention. In V. M. Follette, J. I. Ruzek, & F. R. Abueg (Eds.), *Cognitive-behavioral therapies for trauma* (pp. 278-304). New York: The Guilford Press.

Cloitre, M., Cohen, L. R., & Scarvalone, P. (2002). Understanding revictimization among childhood sexual abuse survivors: An interpersonal schema approach. *Journal of Cognitive Psychotherapy, 16*(1), 91-112.

Cloitre, M., Scarvalone, P., & Difede, J. (1997). Posttraumatic stress disorder, self- and interpersonal dysfunction among sexually retraumatized women. *Journal of Traumatic Stress, 10*(3), 437-452.

Cloitre, M., Tardiff, K., Marzuk, P. M., Leon, A. C., et al. (1996). Childhood abuse and subsequent sexual assault among female inpatients. *Journal of Traumatic Stress, 9*(3), 473-482.

Codispoti, M., Bradley, M. M., & Lang, P. J. (2001). Affective reactions to briefly presented pictures. *Psychophysiology, 38*(3), 474-478.

Davis, W. J., Rahman, M. A., Smith, L. J., Burns, A., et al. (1995). Properties of human affect induced by static color slides (IAPS): Dimensional, categorical and electromyographic analysis. *Biological Psychology, 41*(3), 229-253.

Denham, S. A., Zoller, D., & Couchoud, E. A. (1994). Socialization of preschoolers emotion understanding. *Developmental Psychology, 30*(6), 928-936.

Dubowitz, H. (1991). The impact of child maltreatment on health. In R. H. Starr, Jr. & D. A. Wolfe (Eds.), *The effects of child abuse and neglect: Issues and research* (pp. 278-294). New York: The Guilford Press.

During, S. M., & McMahon, R. J. (1991). Recognition of emotional facial expressions by abusive mothers and their children. *Journal of Clinical Child Psychology, 20*(2), 132-139.

Ekman, P., & Friesen, W. V. (1978). *Facial action coding system*. Palo Alto, CA: Consulting Psychologists Press.

Ellis, B. (2000). *Raising the devil*. Lexington, KY: University Press of Kentucky.

Elzinga, B. M., Bermond, B., & van Dyck, R. (2002). The relationship between dissociative proneness and alexithymia. *Psychotherapy & Psychosomatics, 71*(2), 104-111.

Falsetti, S. A., Resnick, H. S., Resnick, P. A., & Kilpatrick, D. G. (1993). The Modified PTSD Symptom Scale: A brief self-report measure of Posttraumatic Stress Disorder. *The Behavior Therapist, 16*, 161-162.

Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing posttraumatic stress disorder. *Journal of Traumatic Stress, 6*, 459-473.

Follette, V. M., Polusny, M. A., Bechtle, A. E., & Naugle, A. E. (1996). Cumulative trauma: The impact of child sexual abuse, adult sexual assault, and spouse abuse. *Journal of Traumatic Stress, 9*(1), 25-35.

Gidycz, C. A., Coble, C. N., Latham, L., & Layman, M. J. (1993). Sexual assault experience in adulthood and prior victimization experiences: A prospective analysis. *Psychology of Women Quarterly, 17*(2), 151-168.

Gold, S. R., Sinclair, B. B., & Balge, K. A. (1999). Risk of sexual revictimization: A theoretical model. *Aggression & Violent Behavior, 4*(4), 457-470.

Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition & Emotion, 13*(5), 551-573.

Hansen, D. J., Sedlar, G., & Warner-Rogers, J. E. (1999). Child physical abuse. In R. T. Ammerman & M. Hersen (Eds.), *Assessment of family violence: A clinical and legal sourcebook* (2nd ed., pp. 127-156). New York: John Wiley & Sons.

Haugaard, J. J. (1999). Epidemiology of family violence involving children. In R. T. Ammerman & M. Hersen (Eds.), *Assessment of family violence: A clinical and legal sourcebook* (2nd ed., pp. 91-106). New York: John Wiley & Sons.

Irwin, H. J. (1999). Violent and nonviolent revictimization of women abused in childhood. *Journal of Interpersonal Violence, 14*(10), 1095-1110.

Izard, C., & Malatesta, C. (1987). Perspectives on emotional development. I: Differential emotions theory of early emotional development. In J. D. Osofsky (Ed.), *Handbook of infant development* (pp. 494-554). New York: Wiley.

Kalmuss, D. (1984). The intergenerational transmission of marital aggression. *Journal of Marriage & the Family, 46*(1), 11-19.

Kolko, D. J. (1992). Characteristics of child victims of physical violence: Research findings and clinical implications. *Journal of Interpersonal Violence, 7*(2), 244-276.

Kolko, D. J. (2002). Child physical abuse. In J. E. B. Myers, L. Berliner, J. Briere, C. T. Hendrix, C. Jenny & T. A. Reid (Eds.), *The APSAC handbook on child maltreatment* (2nd ed., pp. 21-54). Thousand Oaks, CA: Sage Publications.

Kopp, C. B. (1989). Regulation of distress and negative emotions: A developmental view. *Developmental Psychology, 25*(3), 343-354.

Kornreich, C., Blairy, S., Philippot, P., Hess, U., Noel, X., Streel, E., et al. (2001). Deficits in recognition of emotional facial expression are still present in alcoholics after mid- to long-term abstinence. *Journal of Studies on Alcohol, 62*(4), 533-542.

Koss, M. P., & Gidycz, C. A. (1985). Sexual experiences survey: Reliability and validity. *Journal of Consulting & Clinical Psychology, 53*, 422-423.

Koss, M. P., & Oros, C. J. (1982). Sexual Experiences Survey: A research instrument investigating sexual aggression and victimization. *Journal of Consulting & Clinical Psychology, 50*(3), 455-457.

Koverola, C., Proulx, J., Battle, P., & Hanna, C. (1996). Family functioning as predictors of distress in revictimized sexual abuse survivors. *Journal of Interpersonal Violence, 11*(2), 263-280.

Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1990). Emotion, attention, and the startle reflex. *Psychological Review, 97*(3), 377-395.

Lang, P. J., Greenwald, M. K., Bradley, M. M., & Hamm, A. O. (1993). Looking at pictures: Affective, facial, visceral, and behavioral reactions. *Psychophysiology, 30*(3), 261-273.

Lesser, I. M. (1985). Current concepts in psychiatry: Alexithymia. *New England Journal of Medicine, 312*(11), 690-692.

Levitan, R. D., Parikh, S. V., Lesage, A. D., Hegadoren, K. M., Adams, M., Kennedy, S. H., et al. (1998). Major depression in individuals with a history of childhood physical or sexual abuse: Relationship to neurovegetative features, mania, and gender. *American Journal of Psychiatry, 155*(12), 1746-1752.

Lewis, S. F., & Fremouw, W. (2001). Dating violence: A critical review of the literature. *Clinical Psychology Review, 21*(1), 105-127.

Litty, C. G., Kowalski, R., & Minor, S. (1996). Moderating effects of physical abuse and perceived social support on the potential to abuse. *Child Abuse and Neglect, 20*(4), 305-314.

Lizardi, H., Klein, D. N., Ouimette, P. C., Riso, L. P., Anderson, R. L., & Donaldson, S. K. (1995). Reports of the childhood home environment in early-onset dysthymia and episodic major depression. *Journal of Abnormal Psychology, 104*(1), 132-139.

Lyons-Ruth, K., Connell, D. B., Zoll, D., & Stahl, J. (1987). Infants at social risk: Relations among infant maltreatment, maternal behavior, and infant attachment behavior. *Developmental Psychology, 23*(2), 223-232.

MacMillan, H. L., Fleming, J. E., Streiner, D. L., Lin, E., Boyle, M. H., Jamieson, E., et al. (2001). Childhood abuse and lifetime psychopathology in a community sample. *American Journal of Psychiatry, 158*(11), 1878-1883.

Maker, A. H., Kemmelmeier, M., & Peterson, C. (1998). Long-term psychological consequences in women of witnessing parental physical conflict and experiencing abuse in childhood. *Journal of Interpersonal Violence, 13*(5), 574-589.

Malinosky-Rummell, R., & Hansen, D. J. (1993). Long-term consequences of childhood physical abuse. *Psychological Bulletin, 114*(1), 68-79.

Marx, B. P., Calhoun, K. S., Wilson, A. E., & Meyerson, L. A. (2001). Sexual revictimization prevention: An outcome evaluation. *Journal of Consulting & Clinical Psychology, 69*(1), 25-32.

Marx, B. P., Heidt, J. M., & Gold, S. D. (2005). Perceived uncontrollability and unpredictability, self-regulation, and sexual revictimization. *Review of General Psychology, 9*(1), 67-90.

Marx, B. P., & Soler-Baillo, J. M. (2005). The relationships among risk recognition, autonomic and self-reported arousal, and posttraumatic stress symptomatology in acknowledged and unacknowledged victims of sexual assault. *Psychosomatic Medicine, 67*, 618-624.

Matsumoto, D., & Ekman, P. (1988). *Japanese and Caucasian Facial Expressions of Emotion (JACFEE) AND Neutral Faces (JACNeuF)* [CD-ROM]. San Francisco, CA: Department of Psychology, San Francisco University.

McGrath, M. (2002). *Demons of the modern world.* Amherst, NY: Prometheus Books.

McIntire, K. A., Danforth, M. M., & Schneider, H. G. (1999). Measuring cue perception: Assessment of reliability and validity. *North American Journal of Psychology, 1*(2), 261-266.

Meadows, E. A., & Foa, E. B. (1998). Intrusion, arousal, and avoidance: Sexual trauma survivors. In V. M. Follette, J. I. Ruzek & F. R. Abueg (Eds.), *Cognitive-Behavioral Therapies for Trauma* (pp. 100-123). New York: The Guilford Press.

Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology.* Cambridge, MA: MIT.

Messman, T. L., & Long, P. J. (1996). Child sexual abuse and its relationship to revictimization in adult women: A review. *Clinical Psychology Review, 16*(5), 397-420.

Messman-Moore, T. L., & Long, P. J. (2003). The role of childhood sexual abuse sequelae in the sexual revictimization of women: An empirical review and theoretical reformulation. *Clinical Psychology Review, 23*, 537-571.

Mezzich, A. C., Tarter, R. E., Giancola, P. R., Lu, S., Kirisci, L., & Parks, S. (1997). Substance use and risky sexual behavior in female adolescents. *Drug & Alcohol Dependence, 44*(2-3), 157-166.

Mihalic, S. W., & Elliott, D. (1997). A social learning theory model of marital violence. *Journal of Family Violence, 12*(1), 21-47.

Mulder, R. T., Beautrais, A. L., Joyce, P. R., & Fergusson, D. M. (1998). Relationship between dissociation, childhood sexual abuse, childhood physical abuse, and mental illness in a general population sample. *American Journal of Psychiatry, 155*(6), 806-811.

Murphy, S. M., Kilpatrick, D. G., Amick-McMullan, A., Veronen, L. J., et al. (1988). Current psychological functioning of child sexual assault survivors: A community study. *Journal of Interpersonal Violence, 3*(1), 55-79.

Nelson, C. A. (2001). The development and neural bases of face recognition. *Infant & Child Development, 10*(1-2), 3-18.

Nishith, P., Mechanic, M. B., & Resick, P. A. (2000). Prior interpersonal trauma: The contribution to current PTSD symptoms in female rape victims. *Journal of Abnormal Psychology, 109*(1), 20-25.

Nowicki, S. J., & Duke, M. P. (1994). Individual differences in the nonverbal communication of affect: The Diagnostic Analysis of Nonverbal Accuracy Scale. *Journal of Nonverbal Behavior, 18*, 9-35.

Paivio, S. C., & Laurent, C. (2001). Empathy and emotion regulation: Reprocessing memories of childhood abuse. *Journal of Clinical Psychology Special Issue: Treating emotion regulation problems in psychotherapy, 57*(2), 213-226.

Persad, S. M., & Polivy, J. (1993). Differences between depressed and nondepressed individuals in the recognition of and response to facial emotional cues. *Journal of Abnormal Psychology, 102*(3), 358-368.

Pollak, S. D., Cicchetti, D., Hornung, K., & Reed, A. (2000). Recognizing emotion in faces: Developmental effects of child abuse and neglect. *Developmental Psychology, 36*(5), 679-688.

Pollak, S. D., & Kistler, D. J. (2002). Early experience is associated with the development of categorical representations for facial expressions of emotion. *Proceedings of the National Academy of Sciences of the United States of America, 99*(13), 5.

Pollak, S. D., & Sinha, P. (2002). Effects of early experience on children's recognition of facial displays of emotion. *Developmental Psychology, 38*(5), 784-791.

Pollak, S. D., & Tolley-Schell, S. A. (2003). Selective attention to facial emotion in physically abused children. *Journal of Abnormal Psychology, 112*(3), 323-338.

Polusny, M. A., & Follette, V. M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied and Preventive Psychology, 4*, 148-166.

Reilly, J., Baker, G. A., Rhodes, J., & Salmon, P. (1999). The association of sexual and physical abuse with somatization: Characteristics of patients presenting with irritable bowel syndrome and non-epileptic attack disorder. *Psychological Medicine, 29*(2), 399-406.

Riggs, D. S., & O'Leary, K. D. (1996). Aggression between heterosexual dating partners: An examination of a causal model of courtship aggression. *Journal of Interpersonal Violence, 11*(4), 519-540.

Roodman, A. A., & Clum, G. A. (2001). Revictimization rates and method variance: A meta-analysis. *Clinical Psychology Review, 21*(2), 183-204.

Russell, J. A. (1994). Is there universal recognition of emotion from facial expressions? A review of the cross-cultural studies. *Psychological Bulletin, 115*(1), 102-141.

Salminen, J. K., Saarijaervi, S., & Aeaerelae, E. (1995). Two decades of alexithymia. *Journal of Psychosomatic Research, 39*(7), 803-807.

Salzinger, S., Feldman, R. S., Hammer, M., & Rosario, M. (1991). Risk for physical child abuse and the personal consequences for its victims. *Criminal Justice & Behavior Special Issue: Physical child abuse, 18*(1), 64-81.

Salzinger, S., Feldman, R. S., Hammer, M., & Rosario, M. (1993). The effects of physical abuse on children's social relationships. *Child Development, 64*(1), 169-187.

Sandberg, D. A., Matorin, A. I., & Lynn, S. J. (1999). Dissociation, posttraumatic symptomatology, and sexual revictimization: A prospective examination of mediator and moderator effects. *Journal of Traumatic Stress, 12*(1), 127-138.

Schaaf, K. K., & McCanne, T. R. (1998). Relationship of childhood sexual, physical, and combined sexual and physical abuse to adult victimization and posttraumatic stress disorder. *Child Abuse and Neglect, 22*(11), 1119-1133.

Scher, D., & Twaite, J. A. (1999). The relationship between child sexual abuse and alexithymic symptoms in a population of recovering adult substance abusers. *Journal of Child Sexual Abuse, 8*(2), 25-40.

Sherman, M. (1997). *Why people believe weird things: Pseudoscience, superstition, and other confusions of our times*. New York: WH Freeman and Company.

Soler-Baillo, J. M., Marx, B. P., & Sloan, D. M. (2005). The psychophysiological correlates of risk recognition among victims and non-victims of sexual assault. *Behaviour Research & Therapy, 43*, 169-181.

Straus, M. A. (1977). Wife beating: How common and why? *Victimology, 2*(3-sup-4), 443-458.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage & the Family, 41*(1), 75-88.

Straus, M. A. (2001). *Beating the devil out of them: Corporal punishment in American families and its effects on children*. New Brunswick, NJ: Transaction Publishers.

Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The revised Conflict Tactics Scales (CTS2): Development and preliminary psychometric data. *Journal of Family Issues, 17*(3), 283-316.

Sutton, S. K., Davidson, R. J., Donzella, B., Irwin, W., & et al. (1997). Manipulating affective state using extended picture presentations. *Psychophysiology, 34*(2), 217-226.

Taylor, G. J., Ryan, D., & Bagby, R. M. (1985). Toward the development of a new self-report alexithymia scale. *Psychotherapy & Psychosomatics, 44*(4), 191-199.

Thelen, M. H., Sherman, M. D., & Borst, T. S. (1998). Fear of intimacy and attachment among rape survivors. *Behavior Modification, 22*(1), 108-116.

Trickett, P. K. (1998). Multiple maltreatment and the development of self and emotion regulation. *Journal of Aggression, Maltreatment & Trauma, 2*(1), 171-187.

van der Kolk, B. A., & Fisler, R. E. (1994). Childhood abuse and neglect and loss of self-regulation. *Bulletin of the Menninger Clinic, 58*(2), 145-168.

van der Kolk, B. A., Pelcovitz, D., Roth, S., Mandel, F. S., McFarlane, A., & Herman, J. L. (1996). Dissociation, somatization, and affect dysregulation: The

complexity of adaptation to trauma. *American Journal of Psychiatry, 153*(7), 83-93.

Wagner, A. W., & Linehan, M. M. (1999). Facial expression recognition ability among women with borderline personality disorder: Implications for emotion regulation. *Journal of Personality Disorders, 13*(4), 329-344.

Wilson, A. E., Calhoun, K. S., & Bernat, J. A. (1999). Risk recognition and trauma-related symptoms among sexually revictimized women. *Journal of Consulting & Clinical Psychology, 67*(5), 705-710.

Wilson, M., & Daly, M. (1993). Spousal homicide risk and estrangement. *Violence & Victims, 8*(1), 3-16.

Witt, D. D. (1987). A conflict theory of family violence. *Journal of Family Violence, 2*(4), 291-301.

Wyatt, G. E. (1985). The sexual abuse of Afro-American and White American women in childhood. *Child Abuse and Neglect, 9*, 507-519.

Wyatt, G. E., Guthrie, D., & Notgrass, C. M. (1992). Differential effects of women's child sexual abuse and subsequent sexual revictimization. *Journal of Consulting & Clinical Psychology, 60*(2), 167-173.

Wyatt, G. E., & Newcomb, M. D. (1990). Internal and external mediators of women's sexual abuse in childhood. *Journal of Consulting & Clinical Psychology, 58*(6), 758-767.

Yelsma, P. (1996). Affective orientations of perpetrators, victims, and functional spouses. *Journal of Interpersonal Violence, 11*(2), 141-161.

Zeitlin, S. B., McNally, R. J., & Cassiday, K. L. (1993). Alexithymia in victims of sexual assault: An effect of repeated traumatization? *American Journal of Psychiatry, 150*(4), 661-663.

Zlotnick, C., Mattia, J. I., & Zimmerman, M. (2001). The relationship between posttraumatic stress disorder, childhood trauma and alexithymia in an outpatient sample. *Journal of Traumatic Stress, 14*(1), 177-188.

Zlotnick, C., Zakriski, A. L., Shea, M. T., & Costello, E. (1996). The long-term sequelae of sexual abuse: Support for a complex posttraumatic stress disorder. *Journal of Traumatic Stress, 9*(2), 195-205.

Zuravin, S. J. (1991). Research definitions of child physical abuse and neglect: Current problems. In R. H. Starr, Jr. & D. A. Wolfe (Eds.), *The effects of child abuse and neglect: Issues and research* (pp. 100-128). New York: The Guilford Press.

Appendix A

Self-Report Instruments

Personal Data Survey

Directions: For each of the questions below either circle the response that best describes you or fill in the appropriate blank.

1. What is your age?_____years

2. What is your relationship status?

   01 Single and not involved in a dating relationship
   02 Single and currently dating/in a relationship
   03 Engaged
   04 Living with a boyfriend or sexual partner
   05 Married
   06 Separated/Divorced
   07 Widowed

3. What best describes your race/ethnicity?

   01 Asian/Pacific Islander
   02 African American
   03 Hispanic/Latino
   04 Native American
   05 White
   06 Other

4. What best describes your occupation?

   01 Professional/Technical
   02 Upper Management/Executive
   03 Middle Management
   04 Sales/Marketing
   05 Clerical/Service Worker
   06 Tradesman/Machine Operator/Laborer
   07 Military Personnel
   08 Self Employed
   09 Full-time Homemaker
   10 Retired
   11 Full-time Student
   12 Unemployed

5. If you are a student, what is your class standing upon entering this semester?

   01 Freshman
   02 Sophomore
   03 Junior
   04 Senior
   05 Graduate Student/Graduate Special
   06 Non-degree seeking student

6. What is your religion?

   01 Catholic
   02 Protestant
   03 Jewish
   04 Other:_____
   05 None

7. What is your current yearly income?

   01 $15,000 or less
   02 $15,001 - $25,000
   03 $25,001 - $35,000
   04 $35,001 - $50,000
   05 over $50,000

8. If you are a student, what do you think your family's income was growing up?

   01 $15,000 or less
   02 $15,001 - $25,000
   03 $25,001 - $35,000
   04 $35,001 - $50,000
   05 over $50,000

9. Where do you currently reside?

   01 House
   02 Apartment
   03 Duplex
   04 Residence Hall (dormitory)
   05 Sorority House
   06 Other:_____

10. Which of the terms listed below would you say best describes how you think of yourself?

    01 Heterosexual, straight
    02 Homosexual, gay, lesbian
    03 Bisexual
    04 Other

Please read: The following questions refer to your current and previous dating behavior. For each of the questions below either mark the response that best describes you and/or fill in the appropriate blank.

11. Approximately **how many** dates have you been on in the last 4 weeks?
    01 With individuals of the opposite sex: _____
    02 With individuals of the same sex: _____
    03 I have not dated anyone in the past 4 weeks.

12. Approximately **how many** dates have you been on in the past 6 months?
    01 With individuals of the opposite sex: _____
    02 With individuals of the same sex: _____
    03 I have not dated anyone in the past 6 months.

13. Approximately **how many** dates have you been on in the past year?
    - 01 With individuals of the opposite sex: _____
    - 02 With individuals of the same sex: _____
    - 03 I have not dated anyone in the past year.

14. Are you **currently** dating one person regularly?
    - 01 No
    - 02 If yes, how long have you been dating that person?_____.
    - 03 If there was more than one person you dated regularly, please describe: _____
      _____

15. How **satisfied** are you with the amount of dating you currently do? (Please circle the appropriate response.)

1	2	3	4	5	6	7	8
Extremely satisfied		Moderately satisfied		Moderately dissatisfied			Extremely dissatisfied

16. How **comfortable** do you feel with members of the opposite sex in social situations? (Please circle the appropriate response.)

1	2	3	4	5	6	7	8
Extremely comfortable		Moderately comfortable		Moderately uncomfortable			Extremely uncomfortable

17. Have you had any kind of sex with another person in the last 4 months?
    - 01 No
    - 02 Yes

For the purposes of this study, sexual intercourse with an individual is defined as follows: A man puts his penis in a woman's mouth, vagina, or rectum.

18. When was the last time you had sexual intercourse with a person of the opposite sex?
    - 01 Never
    - 02 Within the last 6 months
    - 03 At least 6 months ago, but less than 2 years ago
    - 04 More than 2 years ago

19. How many different individuals of the opposite sex have you had sexual intercourse with during the past 30 days?

    _____individuals [ ]None

20. How many different individuals of the opposite sex have you had sexual intercourse with during the last six months?

_____individuals [ ]None

21. How many different individuals of the opposite sex have you had sexual intercourse with during the last 5 years?

_____individuals [ ]None

Session Two: Daily Alcohol, Nicotine, and Caffeine Use

1. Have you drunk any alcoholic products within the past two hours? Yes No
   a. If yes, what type(s) of alcohol product(s) have you used? _____
   b. How much alcohol have you had in the past two hours? _____
2. Have you used any nicotine products within the past two hours? Yes No
   a. If yes, what type(s) of nicotine product(s) have you used? _____
   b. How much nicotine have you had in the past two hours? _____
3. Have you used any caffeinated products (e.g. soda, coffee, tea, etc...) within the past two hours? Yes No
   a. If yes, what type(s) of caffeinated product(s) have you used? _____
   b. How much caffeine have you had in the past two hours? _____
4. Are you currently taking any prescription medications? Yes No
   a. If yes, are any of these medications used to help reduce anxiety? Yes No
   b. What are the names of these medications? _____

Facial Expression Recognition Questionnaire

1. *What was the emotion being expressed in the photograph you just viewed?*

Anger Sadness Fear Happiness Indifference Surprise Disgust

2. *How confident are you that your response to Question 1 is correct?*

Not at all Confident	Only a little Confident	Somewhat Confident	Quite a bit Confident	Extremely Confident

Please respond to the following items as if the photograph you just viewed portrayed someone close to you (e.g. lover, close friend, mother, father, brother, sister, etc.).

3. *How much would you try to avoid this person?*

Not at all avoid	Avoid slightly	Avoid a great deal	Definitely avoid at all costs

4. *How much would you try to change what this person is feeling?*

Not change at all	Try to change slightly	Try to change a great deal	Try to change at all costs

5. *How likely are you to approach this person?*

Not at all likely to approach	Somewhat likely to approach	Mostly likely to approach	Extremely likely to approach

6. *How comfortable are you with this person?*

Not at all comfortable	Somewhat comfortable	Mostly comfortable	Extremely comfortable

7. *How likely are you to tense up or freeze and become unable to respond to this person?*

Completely unable to respond	Respond to some extent	Mostly able to respond	Completely free to respond

8. *Notice how the facial expression in the current photograph made you feel. How comfortable are you with the emotion that this photograph aroused in you?*

Not at all comfortable	Somewhat comfortable	Mostly comfortable	Extremely comfortable

9. *How much would you like to change how you feel in response to the expression presented in the current photograph?*

Not change at all	Try to change slightly	Try to change a great deal	Try to change at all costs

Follow-Up Questionnaire

Please answer the following questions about your experiences as a participant in this study:

1. Right now, rate how upsetting participating in this study has been for you.

1	2	3	4	5	6
Not at all upsetting		Somewhat upsetting			Very upsetting

2. Right now, rate how interesting participating in this study has been for you.

1	2	3	4	5	6
Very interesting	Somewhat interesting		Somewhat boring		Very boring

3. Right now, rate how difficult participating in this study has been for you.

1	2	3	4	5	6
Not at all difficult	Somewhat difficult		Quite difficult		Very difficult

4. Right now, rate how bothered you are by thoughts about aspects of this study.

1	2	3	4	5	6
Not at all bothered	Somewhat bothered		Quite a bit bothered		Very bothered

5. What in particular are you most bothered by?

_____

_____

_____

_____

6. Right now, rate your emotional reactions to participating in this study.

1	2	3	4	5
Did not experience any feelings	Felt minimal feelings	Some feelings but not strong	Some strong feelings	Felt very strong feelings

7. Right now, rate how beneficial it has been for you to participate in this study.

1	2	3	4	5	6
Not at all beneficial			Somewhat beneficial		Very beneficial

8. What in particular did you find beneficial about participating in this study?

_____

_____

_____

_____

9. Right now, rate how inconvenient it has been for you to participate in this study.

1	2	3	4	5	6
Not at all inconvenient			Somewhat inconvenient		Very inconvenient

10. Right now, rate how much you have enjoyed participating in this study.

1	2	3	4	5	6
Not at all enjoyable			Somewhat enjoyable		Very enjoyable

11. Right now, knowing what you do about this study, rate how willing you would be to participate again.

1	2	3	4
Quite willing	Might be willing	Don't think I am willing	Definitely not willing

Appendix B

Human Subjects Institutional Review Board
Letters of Approval

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Centennial 1903-2003 Celebration

Date: January 5, 2004

To: Amy Naugle, Principal Investigator
Kathryn Bell, Student Investigator for dissertation
Elizabeth Weiss-DeBoer, Student Investigator for honors thesis

From: Mary Lagerwey, Ph.D., Chair Mary Lagerwey

Re: HSIRB Project Number: 03-10-02

This letter will serve as confirmation that your research project entitled "The Impact of Childhood Victimization Experiences on the Interpretation of Facial Expressions in an Arousal-Inducing Situation" has been **approved** under the **full** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 15, 2004

Walwood Hall, Kalamazoo, MI 49008-5456

WESTERN MICHIGAN UNIVERSITY

Centennial 1903-2003 Celebration

Human Subjects Institutional Review Board

Date: February 13, 2004

To: Amy Naugle, Principal Investigator
Kathryn Bell, Student Investigator for dissertation
Elizabeth Weiss-DeBoer, Student Investigator for honors thesis

From: Mary Lagerwey, Ph.D., Chair Mary Lagerwey

Re: HSIRB Project Number: 03-10-02

This letter will serve as confirmation that the change to your research project "The Impact of Childhood Victimization Experiences on the Interpretation of Facial Expressions in an Arousal-Inducing Situation" dated February 12, 2004 has been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 15, 2004

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Centennial 1903-2003 Celebration

Date: October 1, 2004

To: Amy Naugle, Principal Investigator
Kathryn Bell, Student Investigator for dissertation
Elizabeth Weiss-DeBoer, Student Investigator for honors thesis

From: Daryle Gardner-Bonneau, Interim Vice Chair Daryle J. Gardner-Bonneau

Re: HSIRB Project Number: 03-10-02

This letter will serve as confirmation that the change to your research project "The Impact of Childhood Victimization Experiences on the Interpretation of Facial Expressions in an Arousal-Inducing Situation" dated 9/30/2004 (increase total number of subjects to 300) has been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 15, 2005

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276

Appendix C

Informed Consent Document

Western Michigan University
Department of Psychology

"The Impact of Childhood Victimization Experiences on the Interpretation of Facial Expressions in an Arousal-Inducing Situation"

Principal Investigator: Amy E. Naugle, Ph.D.
Student Investigator: Kathryn M. Bell, M.A.
Student Investigator: Liz Weiss-DeBoer

You have been invited to participate in a research project entitled "The impact of childhood victimization experiences on the interpretation of facial expressions in an arousal-inducing situation" designed to study how people with different types of childhood experiences react to and interpret facial expressions under arousal-inducing situations. We believe that how people interpret facial expressions may be one factor that places them at risk for unwanted interpersonal experiences, including sexual assault. Understanding the different ways people respond to facial expressions may lead us to developing more effective treatments and prevention strategies for women who are at risk for unwanted sexual experiences. This study is being conducted by Dr. Amy Naugle, Kathryn Bell, and Liz Weiss-DeBoer from Western Michigan University's Department of Psychology and will serve as Kathryn Bell's dissertation project and Liz Weiss-DeBoer's undergraduate honor's thesis project.

Session One

You have been asked to participate in two sessions and one follow-up meeting. The first session will last approximately 60 minutes and will involve the following:

- You will be asked to respond to 2 questionnaires that will ask questions regarding general information about you, such as your age and race, as well as more personal questions regarding your childhood experiences and current and previous dating experiences. Some of these questionnaire items inquire about potentially upsetting childhood events that you may or may not have experienced.
- You may also be asked to participate in a 25-30 minute interview that will be used to get more detailed information about the responses you provided on the two questionnaires described above. The interview will ask several questions about childhood events you may or may not have encountered, including unwanted sexual experiences and physically aggressive acts. You may experience some distress while responding to these questions about your childhood experiences.
- Before the interview begins, the researcher or research assistant will ask your permission to audiotape the interview. The purpose of the audiotape

is to make sure that the interview is conducted appropriately. Your name will not be associated with the audiotape and the tapes will be destroyed after the researcher reviews them.

- After completing the interview, you will be asked to respond to an additional questionnaire that asks you to provide information about your reactions to the questionnaires and interview you just completed.
- You will then be asked to schedule an appointment for the second session and will be asked to provide the research assistant with your telephone contact information so that she can call you to confirm your appointment for the second session.
- Before leaving this first session you will also receive both a mental health services referral list and sexual assault prevention booklet.

Between Sessions One and Two

Prior to your next scheduled research session, a researcher or research assistant will contact you by telephone to inform you about whether or not you qualify to participate in the second session. If you qualify and are interested in participating in the second session, the research assistant will confirm your appointment time and provide you with general instructions for your second appointment. If you do not qualify or are not interested in participating in the second session, the researcher or research assistant will invite you to attend a follow-up meeting. If you are not interested in participating in the follow-up meeting, the researcher will thank you for your time and address any final questions or concerns that you may have about the study.

Second Session

The second session will last approximately 3 hours and will involve the following:

- When you arrive for your second session, you will be greeted by a research assistant and taken to a room where you will be instructed on how to put a heart monitor on your chest and wrist. The research assistant will then leave the room while you put the heart monitor on.
- After you have finished putting the heart rate monitor on, the research assistant will return to the room and ask that you sit quietly for five minutes while your heart rate is recorded.
- After the five-minute period has ended, the heart rate recording will be stopped and you will be asked to respond to seven questionnaires. These questionnaires include items that inquire about your various thoughts, feelings, and behaviors. Additional items will ask that you provide information about your substance use and dating experiences. You may

experience some discomfort or become distressed while revealing personal information about yourself on the questionnaires.

- You will then be asked to be seated in front of a computer screen where you will be introduced to a practice trial of a computer task that will involve viewing and responding to a number of different photographs depicting emotional expressions. In addition, you will be introduced to a sample of potentially distressing pictures and sounds designed to induce physiological arousal. Therefore, you may experience some anxiety and distress while being exposed to these images and sounds. During the practice trial of the computer task, you will also be given the opportunity to practice using an additional measure to rate your emotional reaction and arousal level. The research assistant will remain in the room for the entire practice trial to address any questions or concerns that you may have about the computer task.
- After you have completed the practice trial of the computer task, you will begin the experimental trial, which will involve viewing and responding to additional photographs of people depicting various emotional expressions. During this trial, you will also occasionally be exposed to additional pictures and sounds that may be distressing and anxiety-provoking for you. In addition, you will be asked periodically to respond to the additional questionnaire that assesses your emotional reaction and arousal level during the computer task. Throughout the experimental trial, the research assistant will monitor you from another room via video camera. This will allow you to indicate to the research assistant if you become too upset to continue the task or if you wish to stop the procedure for other reasons.
- In order to determine whether the arousal-inducing images and noises are making you feel anxious or aroused, you will be asked to continue wearing the heart monitor during both the practice and experimental trials of the computer task, so that your heart rate can be recorded during both of these trials.
- After you complete the experimental trial, you will be encouraged to remain in the laboratory for at least 10 more minutes to engage in some type of relaxing activity provided by the researchers. These activities may include listening to a relaxation tape, listening to soothing music, reading a magazine, or viewing pleasant pictures and listening to pleasant sounds provided on a computer program. Throughout this relaxation period, your heart rate will continue to be recorded through the heart monitor. At the end of the relaxation period, the heart rate monitor will be stopped and you will be asked to remove it from both your chest and wrist.
- You will then be asked to respond to a questionnaire that includes items inquiring about your experiences and reactions to the questionnaires, interview, and tasks you completed during Sessions 1 and 2.

- Before leaving the laboratory, you will be asked to schedule a one-week follow-up appointment.

Follow-up meeting

The follow-up meeting will last approximately 15 minutes and will involve the following:

- You will be asked to respond to a questionnaire inquiring about your experiences and reactions to the questionnaires, interview, and tasks you completed during Sessions 1 and 2.
- An opportunity to talk with researchers if you are experiencing any distress following participating in the study.

Potential Risks and Protection for Participants

There are a number of potential risks associated with this study. One potential risk of your participation is that you may experience discomfort or become upset while revealing personal information about your childhood and dating history on the questionnaires and during the interview. You may choose not to answer any question on the questionnaires and may simply leave a question or questions blank. You may also choose not to answer any question during the interview or end the interview at any time. If you become upset, the investigators will be available to provide crisis counseling, should that become necessary, during the time of testing. In addition, a referral list of local counseling services will be given to you in case counseling is desired following the testing session. You will be responsible for any costs associated with additional counseling if you choose to pursue it. Another risk of your participation is that you may experience distress from viewing and listening to some of the potentially anxiety-provoking pictures and sounds. At any time during the practice and experimental trials, you can leave the experimental room and end the session. If the pictures and/or sounds are too distressing for you, you can also end the session by closing your eyes, covering your ears with your hands, and calling out for the research assistant to end the computer task. Various relaxation activities will be provided by the investigators following the computer task that you will also be encouraged to use. Although the investigators will ask that you engage in one of these relaxation activities for at least 10 minutes after finishing the computer task, you will be encouraged to remain in the laboratory and continue in engaging in these activities for as long as you feel is needed. As stated above, the investigators will also be available to provide crisis counseling, if necessary, at any time during the session and a referral list will be provided with a listing of additional mental health resources that you may utilize at your expense. You will also be encouraged to return for a follow-up appointment, during which time the investigators will be available to provide additional crisis counseling and referrals, if necessary.

Potential Benefits of Study

Depending on your instructor, you may also be able to receive extra credit points for participating in the study. In addition, your instructor may have additional ways for you to obtain extra credit points if you choose not to participate in this study. If you decide to participate and are able to earn extra credit points, the investigators will give you a signed document at each of the two testing sessions verifying your participation in the study. To receive extra credit, give the slip to your instructor. One additional way that you may benefit from this study is by receiving a booklet on dating strategies and sexual assault prevention. There are no other known personal benefits for participating in this study. However, this study may benefit others by identifying key factors that may place women at greater risk for becoming sexually victimized during college. The results from this study may be useful in developing more effective sexual assault prevention and treatment programs in the future.

Confidentiality Issues

All of the information collected from you is confidential. This means that your name will not be included on any of the questionnaires, interview booklet, computer data files, or audiotape materials. In order to link your Session 1 and Session 2 information, a master list with your name and code number will be kept in a locked drawer in the principal investigator's office. The master list will be kept separate from your other information and will be destroyed at the end of the study. All of the information you provide will be coded and kept separately from any telephone contact information that you provide. Your telephone contact information will be destroyed after your participation in the study is complete. The audiotape of your interview will be destroyed after it is reviewed by a research assistant. All of the collected information will be kept in a locked file in the principal investigator's research laboratory for at least three years.

Your identity will be protected by the full extent allowed by the law. There are certain circumstances that cannot be kept confidential and must be reported to law enforcement, emergency mental health services or protection agencies. These circumstances include (1.) if you are a danger to yourself or someone else; or (2.) if you report knowledge of current child or elder abuse. Within the extent of the law your participation in this project as well as your responses during the study will be kept strictly confidential.

In all cases you may refuse to participate or quit the study at any time and for any reason without effect on your WMU class grades. If you have any questions or concerns about this study, you may contact either Dr. Amy Naugle at 269-387-4726 or Kathryn Bell at 269-387-4485. You may also contact the Chair of the Human Subjects Institutional Review Board at 269-387-8293 or the Vice President for Research at 269-387-8298 if questions or problems arise during the course of the study.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is older than one year. Refusing to participate or withdrawing from this study will not affect your class grades or any services you receive at WMU.

Your signature below indicates that you have read and/or had explained to you the purpose and requirements of the study and that you agree to participate.

_____ _____

Signature Date

Consent obtained by: _____ _____

Initials of researcher Date

Appendix D

Oral Recruitment Script

Student Oral Recruitment Script

Hello, my name is _____, and I am here to ask for your help in completing a study entitled "The impact of childhood victimization experiences on the interpretation of facial expressions in an arousal-inducing situation."

This study is looking at how people with different types of childhood experiences react to and interpret facial expressions under arousal-inducing situations. If you decide to participate, you will be asked to participate in two sessions, approximately one week apart. During the first session, you will be asked to respond to a questionnaire that includes questions about various potentially upsetting childhood events that you may or may not have experienced. You will then be asked to respond to a second questionnaire that assesses various thoughts, feelings, and behaviors associated with intimate relationships. In addition, you will be asked to provide some basic background information about yourself. After completing the second questionnaire, you may be requested to participate in a 25-30 minute interview that involves getting more detailed information about the responses you provided on the first questionnaire. You will then be asked to complete a questionnaire asking about your reactions to the questionnaires and interview you just completed. You may experience some distress and anxiety while responding to some of the questionnaire and interview questions. Before leaving this first session, you will be invited to participate in a second session that will be held approximately one week later. If you agree, the research assistant will schedule the appointment with you and ask that you provide some basic telephone contact information about yourself. This first session should take approximately 60 minutes to complete. All the information that you provide during this session is confidential and will be coded and kept separately from any of the information that you provided that contains personal identifiers (e.g. name, phone number...). We also want to remind you that you can withdraw from the study at anytime with absolutely no penalty. Before the next session, a research assistant will contact you by telephone to verify that you are eligible to participate in the following session and confirm your appointment time.

The second session will take place approximately one week later and includes participating in a computer task will involve viewing and responding to several pictures that depict different emotional expressions. During the second session you will be asked to wear a heart monitor and we will be recording your heart rate. Prior to completing the computer tasks, we will measure your heart rate as well as ask you to respond to seven paper and pencil questionnaires that ask about your substance use experience, dating relationships, and different thoughts, feelings, and behaviors that you might have. Revealing information about your personal history may make you feel somewhat uncomfortable and distressed. After you finish with the questionnaires, you will be seated in front of a computer screen where you will be asked to view and respond to a computer tasks. The computer task will involve looking at several photographs of people expressing different emotions. In addition, you will occasionally be shown pictures that may be potentially distressing and may make you feel anxious. These images will also be accompanied by loud sounds that are also

designed to make you feel more upset or anxious. If the pictures or sounds are too distressing to you, you can leave the experimental room and end the session at anytime. Throughout the computer task you will be asked to respond to a series of questions pertaining to your reaction to and interpretation of the photographs and pictures. Before beginning the computer task, you will have the opportunity to practice viewing the photographs and responding to the two measures. After you have completed the computer task, the heart monitor will be stopped and you will be encouraged to remain in the lab for an additional 10 minutes and engage in a relaxing activity. After the relaxation period is over, you will be asked to respond to a final questionnaire that inquires about your experiences and reactions to the various questionnaires, interview, and tasks you participated in during Sessions 1 and 2. You will then be asked to return in one week for a brief follow-up session. The entire second session will take approximately three hours to complete. Again, we want to remind you that you can withdraw from the study at anytime with absolutely no penalty.

The follow-up session will take approximately 15 minutes to complete and will occur approximately one week after the second session. During this session, you will be asked to respond to a questionnaire that asks you again about your experiences and reactions to the tasks you completed in Sessions 1 and 2.

Depending on your instructor, it may be possible to receive some extra credit points for participating in this study. Alternatively, your instructor may have additional methods for obtaining extra credit points if you choose not to participate in this study. Please check with your instructor to verify the various methods for obtaining extra credit points. If you decide to participate and are able to receive some extra credit points, the investigators will give you a signed document at each of the two testing sessions verifying your participation in the study. You will then be required to return the signed document to your instructor in order to receive the extra credit points.

If you are interested in learning more about the study or possibly participating in the study, please feel free to take one of these sheets listing the lab phone number where you can reach me. When you call the lab to inquire about participating, please be sure to leave your name and phone number where I or another research assistant can reach you, as well as times when you can best be reached. During the testing sessions, more detailed information will be provided regarding your participation.

Thank you for your time.

Appendix E

Tables

Table 1

Childhood Trauma Grouping Criteria as Measured by the Childhood Trauma Questionnaire (CTQ) and the Childhood Maltreatment Interview Schedule (CMIS)

Group	Criteria
Childhood Sexual Abuse Only (CSA)	Participant reports history of childhood sexual abuse **at or before age 14** as indicated by endorsement of item(s) on CTQ and/or CMIS acknowledging: 1) **Nonconsensual** sexual kissing by a family member, caregiver, teacher, professional, doctor, nanny/babysitter, or other adult who was **at least 5 years older** than the participant – **AND/OR** – sexual touching of body and/or sexual parts that was **nonconsensual** and/or was perpetrated by someone who was **at least 5 years older** than the participant – **AND/OR** – had fingers or objects placed in anus or vagina and/or engaged in oral, anal, or vaginal intercourse that was **nonconsensual** and/or was perpetrated by someone who was **at least 5 years older** than the participant **– AND –** 2) Participant **does not** meet criteria for CPA (as described below)
Childhood Physical Abuse Only (CPA)	Participant reports history of childhood physical abuse **at or before age 14** as indicated by endorsement of item(s) on CTQ and/or CMIS acknowledging: 1) Physical assault (e.g. hitting, punching, kicking, cutting, pushing down, etc…) by an adult and/or sibling resulting in injury (e.g. bruises, scratches, broken bones or teeth, bleeding, etc…) – **AND/OR** – corporeal punishment resulting in bruising or red welts – **AND/OR** – Excessive corporeal punishment (i.e. hit, spanked, and/or slapped by an adult > 20 times in worst year), with or without injury – **AND/OR** – hit with object by an adult > 2 times in worst year **and** left a mark (e.g. bruise, red welt) – **AND/OR** – slapped by an adult > 2 times in worst year **and** left a mark (e.g. bruise, red welt) **– AND –** 2) Participant **does not** meet criteria for CSA (as described above)

Childhood Sexual & Physical Abuse (CSPA)	Participant reports history of childhood sexual abuse **AND** childhood physical abuse **at or before age 14** as indicated by: 1) Participant meets CSA Criterion 1 (as described above) **– AND –** 2) Participant meets CPA Criterion 1 (as described above)
Dysfunctional Family Environment (DFE)	Participant reports history of family dysfunction, excluding childhood physical and sexual abuse, **at or before age 14** as indicated by endorsement of item(s) on CTQ and/or CMIS acknowledging: 1) Significant physical neglect and/or significant disruption in participant's home life (e.g. poor care, homeless, repeated movements to different homes, etc…) – **AND/OR** – significant emotional abuse by a family member – **AND/OR** – parental psychiatric problems resulting in physical and/or psychological mistreatment – **AND/OR** – parental substance abuse problems resulting in physical and/or psychological mistreatment and/or significant impairment in parent's overall level of functioning (e.g. substance abuse led to medical problems, arrest, divorce, job loss, etc…) – **AND/OR** – witnessing (i.e. heard or saw) domestic assault within the home – **AND/OR** – parental incarceration **– AND –** 2) Participant **does not** meet criteria for CSA, CPA, **and** CSPA (as described above)
No Childhood Abuse or Neglect (NA)	Participant denies any history of childhood abuse AND neglect **at or before age 14** as indicated by: 1) Participant **does not** meet CSA Criterion 1 (as described above) **– AND –** 2) Participant **does not** meet CPA Criterion 1 (as described above) **– AND –** 3) Participant **does not** meet DFE Criterion 1 (as described above)

Exclusionary Criteria	Participant was excluded from the study if **at least one of the following** criteria was met: 1) Under the age of 18 2) Male 3) Qualified group was closed to new recruits due to a sufficient number of participants already included in group 4) Participant reported being the perpetrator of physical and/or sexual abuse at or before the age of 14 5) Participant reported experiencing significant abuse by a peer who was less than 5 years older than the participant (e.g. extreme bullying) 6) Participant reported experiencing significant emotional abuse/neglect by non-family members (e.g. babysitter) – **AND** – did not meet criteria for either the CSA, CPA, or CSPA groups (as described above)

Table 2

One-Way ANOVAs to Determine Childhood Trauma Group Differences on Adult Sexual & Physical Victimization, Alexithymia, and Posttraumatic Stress Disorder Scores

	NA (n=27)	DFE (n=22)	CSA (n=19)	CPA (n=22)	CSPA (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
SES Composite Score – Any Unwanted ASA	.67 (1.90)	3.05 (3.55)	4.25 (6.19)[a]	7.86 (16.79)	9.79 (17.09)	2.441	.052
SES Composite Score – Attempted/Completed Adult Sexual Assault	.30 (.87)	1.55 (2.35)	1.28 (2.05)[b]	3.55 (7.91)	4.43 (7.28)	2.522	.046*
CTS2 Physical Victimization Score	.52 (1.23)[c]	.50 (1.41)	.82 (1.78)[d]	1.05 (1.59)	1.38 (2.26)[e]	.943	.443
TAS Total Score	62.89 (13.82)*	72.15 (15.07)[f]	77.33 (16.64)*[,b]	69.09 (15.47)	72.14 (17.55)	2.615	.040*
MPSS-SR Composite Score[g]	4.00 (10.28)*[,h]	12.50 (16.28)	28.00 (27.90)*	25.00 (18.36)*	23.00 (19.58)*	8.262	.000*

Note. NA = No abuse; DFE = Dysfunctional family environment; CSA = Childhood sexual abuse only; CPA = Childhood physical abuse only; CSPA = Childhood sexual and physical abuse; SES = Sexual Experiences Survey; ASA = Adult sexual assault; CTS2 = Conflict Tactics Scale Revised; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a]n=16. [b]n=18. [c]n=25. [d]n=17. [e]n=13. [f]n=20. [h]n=26.

[g]Variable was transformed to correct for skewness. Medians are presented for this variable to provide a more accurate representation of central tendency.

* Statistically significant at the .05 alpha level.

Table 3

One-Way ANOVAs to Determine Childhood Trauma Group Differences on Emotion Recognition Hit Proportion & Average Reaction Time

	NA (n=27)	DFE (n=22)	CSA (n=19)	CPA (n=22)	CSPA (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Hit Proportion							
Positive Emotions	.90 (.11)	.88 (.13)	.91 (.11)	.86 (.17)	.88 (.14)	.480	.750
Negative Emotions[a]	.88 (.09)	.88 (.10)	.94 (.12)	.88 (.09)	.81 (.10)	.482	.749
Neutral Emotions[a]	.75 (.17)	.75 (.23)	.63 (.20)	.75 (.25)	.75 (.19)	.438	.781
All Emotions[a]	.84 (.08)	.84 (.10)	.84 (.10)	.86 (.12)	.81 (.08)	.127	.972
Average Reaction Time							
Positive Emotions[a]	2.75 (2.20)	2.31 (1.31)	2.00 (.66)*	2.31 (1.16)	2.69 (2.86)*	2.729	.033*
Negative Emotions[a]	3.00 (.81)	3.28 (1.38)	2.63 (1.51)	3.34 (1.95)	3.72 (2.41)	1.318	.268
Neutral Emotions[a]	3.25 (1.91)	3.81 (2.45)	3.75 (1.99)	4.50 (2.34)	4.81 (2.50)	2.324	.062
All Emotions[a]	2.86 (1.17)	3.15 (1.33)	2.82 (1.11)	3.30 (1.55)	3.39 (2.15)	2.264	.068

Note. NA = No abuse; DFE = Dysfunctional family environment; CSA = Childhood sexual abuse only; CPA = Childhood physical abuse only; CSPA = Childhood sexual and physical abuse.

[a] Variables were transformed to correct for skewness. Medians are presented for these variables to provide a more accurate representation of central tendency.

* Statistically significant at the .05 alpha level.

Table 4

One-Way ANOVAs to Determine Childhood Trauma Group Differences on Emotion Recognition Confidence Ratings

	NA (n=26)	DFE (n=21)	CSA (n=19)	CPA (n=21)	CSPA (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Confidence Ratings							
Positive Emotions	4.30 (.48)	4.13 (.36)[a]	4.30 (.58)	4.35 (.45)	4.31 (.46)	.681	.607
Negative Emotions	4.27 (.47)	3.96 (.50)	4.12 (.61)	4.08 (.56)	4.26 (.37)[b]	1.315	.270
Neutral Emotions	3.28 (.56)[c]	2.94 (.63)	3.10 (.67)[d]	3.18 (.44)[e]	3.28 (.49)	1.243	.298
All Emotions	4.14 (.47)[c]	3.83 (.42)[a]	4.03 (.59)[d]	4.04 (.46)[e]	4.12 (.38)[b]	1.295	.278

Note. All ANOVAs were non-significant at the .05 alpha level. NA = No abuse; DFE = Dysfunctional family environment; CSA = Childhood sexual abuse only; CPA = Childhood physical abuse only; CSPA = Childhood sexual and physical abuse.

[a]n=20. [b]n=12. [c]n=25. [d]n=17. [e]n=19.

Table 5

One-Way ANOVAs to Determine Childhood Trauma Group Differences on Behavioral Responding Items

	NA (n=26)	DFE (n=21)	CSA (n=19)	CPA (n=21)	CSPA (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Avoid Person							
Positive Emotions	1.22 (.22)	1.27 (.26)	1.38 (.43)	1.23 (.20)[a]	1.33 (.38)[b]	.955	.436
Negative Emotions	1.76 (.40)	1.77 (.38)[a]	1.90 (.29)	1.79 (.41)[c]	1.89 (.46)[b]	.574	.682
Neutral Emotions	1.30 (.27)	1.40 (.33)[a]	1.50 (.35)	1.26 (.26)[c]	1.42 (.33)[b]	1.919	.114
All Emotions	1.54 (.29)	1.57(.28)[a]	1.69 (.28)	1.55 (.30)[d]	1.63 (.39)[e]	.858	.493
Change Emotion							
Positive Emotions	1.47 (.26)	1.53 (.26)[c]	1.43 (.35)	1.48 (.28)[a]	1.50 (.31)	.261	.902
Negative Emotions	2.57 (.49)	2.57 (.42)	2.39 (.56)	2.54 (.47)[c]	2.52 (.52)[e]	.473	.755
Neutral Emotions	1.92 (.37)	1.89 (.49)[a]	1.83 (.58)	1.91 (.51)[c]	1.87 (.33)	.129	.972
All Emotions	2.16 (.36)	2.17 (.35)[d]	2.04 (.44)	2.18 (.35)[d]	2.15 (.38)[e]	.458	.767
Approach Person							
Positive Emotions	3.29 (.44)	3.05 (.46)	3.05 (.66)	3.03 (.50)	3.08 (.51)	1.060	..381
Negative Emotions	2.61 (.61)	2.44 (.45)[f]	2.38 (.59)	2.26 (.65)[a]	2.48 (.50)[e]	1.189	.321
Neutral Emotions	2.90 (.58)	2.55 (.56)[a]	2.66 (.73)	2.80 (.50)[c]	2.70 (.49)	1.148	.339

Note. Table 5 continues on next page.

Table 5 (continued)

One-Way ANOVAs to Determine Childhood Trauma Group Differences on Behavioral Responding Items

	NA (n=26)	DFE (n=21)	CSA (n=19)	CPA (n=21)	CSPA (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
All Emotions	2.85 (.54)	2.66 (.41)[a]	2.61 (.57)	2.60 (.56)[d]	2.68 (.49)[e]	.871	.484
Comfort with Emotion							
Positive Emotions	3.27 (.50)	3.04 (.43)	3.16 (.51)	3.09 (.39)	3.09 (.46)	.858	.492
Negative Emotions	2.69 (.62)	2.47 (.47)	2.40 (.44)	2.34 (.53)[a]	2.52 (.46)[b]	1.546	.195
Neutral Emotions	2.99 (.56)[g]	2.67 (.45)	2.72 (.63)	2.88 (.49)[c]	2.77 (.49)	1.313	.271
All Emotions	2.90 (.54)	2.69 (.39)[a]	2.67 (.43)	2.64 (.46)[c]	2.73 (.43)[b]	1.232	.303
Ability to Respond							
Positive Emotions	3.50 (.41)	3.27 (.44)	3.41 (.38)	3.46 (.37)	3.38 (.44)[b]	1.088	.367
Negative Emotions	3.08 (.53)	2.88 (.53)[c]	2.88 (.40)	2.95 (.51)[c]	2.98 (.53)[e]	.640	.635
Neutral Emotions	3.32 (.49)	3.05 (.51)	3.18 (.54)	3.34 (.44)[c]	3.25 (.43)[b]	1.268	.288
All Emotions	3.24 (.46)	3.03 (.46)[c]	3.07 (.37)	3.20 (.39)[d]	3.14 (.46)[e]	.817	.518
Comfort w/ Own Emotional Reaction							
Positive Emotions	3.16 (.59)	3.10 (.36)[f]	3.17 (.44)	3.08 (.47)[a]	3.19 (.33)[b]	.224	.924

Note. Table 5 continues on next page.

Table 5 (continued)

One-Way ANOVAs to Determine Childhood Trauma Group Differences on Behavioral Responding Items

	NA (n=26)	DFE (n=21)	CSA (n=19)	CPA (n=21)	CSPA (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Negative Emotions	2.59 (.57)	2.64 (.50)[c]	2.60 (.48)[d]	2.49 (.56)[c]	2.56 (.50)[b]	.217	.928
Neutral Emotions	2.97 (.61)	2.80 (.51)	2.80 (.47)	2.86 (.41)[c]	2.79 (.45)	.507	.731
All Emotions	2.81 (.54)	2.81 (.44)	2.81 (.37)[d]	2.73 (.49)[d]	2.83 (.37)[e]	.111	.978
Desire to Change Own Emotional Reaction							
Positive Emotions	2.69 (.68)	2.61 (.77)[c]	2.83 (.74)	2.63 (.60)[c]	2.69 (.75)[b]	.285	.887
Negative Emotions	1.74 (.45)	1.68 (.51)[c]	1.85 (.52)	1.80 (.61)[a]	1.89 (.67)[e]	.384	.820
Neutral Emotions	1.44 (.39)	1.51 (.46)[c]	1.68 (.51)	1.43 (.36)[c]	1.61 (.43)[b]	1.185	.323
All Emotions	1.56 (.38)	1.55 (.45)[d]	1.70 (.44)	1.59 (.45)[c]	1.60 (.46)[h]	.351	.843

Note. All ANOVAs were non-significant at the .05 alpha level. NA = No abuse; DFE = Dysfunctional family environment; CSA = Childhood sexual abuse only; CPA = Childhood physical abuse only; CSPA = Childhood sexual and physical abuse.

[a]n=20. [b]n=13. [c]n=19. [d]n=18. [e]n=12. [f]n=22. [g]n=27. [h]n=11.

Table 6

Regression Model for Predicting Emotion Recognition Negative Emotion Hit Proportion[a] Using Childhood Trauma, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 96)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.027	2.642	.107
	CTQ	.000	.000	.165	1.625			.107
2						.029	.905	.442
	CTQ	.000	.000	.154	1.305			.195
	TAS Total Score	−.007	.000	−.030	−.278			.782
	MPSS-SR Composite Score[a]	.000	.002	.036	.291			.772

Note. Both steps of the regression model were non-significant at the .05 alpha level. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

Table 7

Regression Model for Predicting Emotion Recognition Positive Emotion Hit Proportion Using Childhood Trauma, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 96)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.009	.822	.367
	CTQ	−.001	.001	−.093	−.906			.367
2						.047	1.518	.215
	CTQ	.000	.001	.011	.097			.923
	TAS Total Score	.000	.001	.050	.460			.647
	MPSS-SR Composite Score[a]	−.012	.006	−.234	−1.927			.057

Note. Both steps of the regression model were non-significant at the .05 alpha level. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variable was transformed to correct for skewness.

Table 8

Regression Model for Predicting Emotion Recognition Neutral Emotion Hit Proportion[a] *Using Childhood Trauma, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 96)*

Step	Variable	B	SE B	β	t	R^2	F	p
1						.002	.160	.690
	CTQ	.000	.000	.041	.400			.690
2						.031	.993	.400
	CTQ	.001	.001	.123	1.039			.301
	TAS Total Score	.000	.000	−.118	−1.080			.283
	MPSS-SR Composite Score[a]	−.003	.003	−.115	−.938			.351

Note. Both steps of the regression model were non-significant at the .05 alpha level. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

Table 9

Regression Model for Predicting Emotion Recognition Negative Emotion Reaction Time[a] Using Childhood Trauma, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 96)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.054	5.371	.023*
	CTQ	.003	.001	.232	2.318			.023*
2						.062	2.026	.116
	CTQ	.003	.001	.257	2.216			.029*
	TAS Total Score	.001	.001	.077	.715			.477
	MPSS-SR Composite Score[a]	−.005	.008	−.084	−.693			.490

Note. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

* Statistically significant at the .05 alpha level.

Table 10

Regression Model for Predicting Emotion Recognition Positive Emotion Reaction Time[a] Using Childhood Trauma, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 96)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.019	1.815	.181
	CTQ	.002	.001	.138	1.347			.181
2						.023	.731	.536
	CTQ	.002	.002	.133	1.123			.264
	TAS Total Score	−.001	.001	−.068	−.621			.536
	MPSS-SR Composite Score[a]	.003	.010	.039	.315			.754

Note. Both steps of the regression model were non-significant at the .05 alpha level. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

Table 11

Regression Model for Predicting Emotion Recognition Neutral Emotion Reaction Time[a] *Using Childhood Trauma, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 96)*

Step	Variable	B	SE B	β	T	R^2	F	p
1						.063	6.280	.014*
	CTQ	.003	.001	.250	2.506			.014*
2						.090	3.021	.034*
	CTQ	.004	.001	.342	2.993*			.004*
	TAS Total Score	−.001	.001	−.048	−.452			.652
	MPSS-SR Composite Score[a]	−.012	.008	−.167	−1.405			.163

Note. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

* Statistically significant at the .05 alpha level.

Table 12

Correlations Between Childhood Trauma and Emotion Recognition Confidence Ratings and Behavioral Responding Items

	CTQ Total Score	
	r	*p*
Confidence Rating		
Positive Emotions (n=96)	.059	.570
Negative Emotions (n=95)	−.108	.296
Neutral Emotions (n=92)	.031	.768
Avoid Person		
Positive Emotions (n=95)	.160	.122
Negative Emotions (n=93)	.075	.472
Neutral Emotions (n=93)	.090	.392
Change Emotion		
Positive Emotions (n=94)	−.098	.349
Negative Emotions (n=93)	−.106	.311
Neutral Emotions (n=94)	−.075	.474
Approach Person		
Positive Emotions (n=97)	−.155	.129
Negative Emotions (n=95)	−.155	.135
Neutral Emotions (n=94)	−.042	.689
Comfort with Emotion		
Positive Emotions (n=97)	−.118	.251
Negative Emotions (n=95)	−.190	.064
Neutral Emotions (n=96)	−.111	.282

Note. Table 12 continues on next page.

Table 12 (continued)

Correlations Between Childhood Trauma and Emotion Recognition Confidence Ratings and Behavioral Responding Items

	CTQ Total Score	
	r	*p*
Ability to Respond		
Positive Emotions (n=96)	−.134	.193
Negative Emotions (n=91)	−.208	.048*
Neutral Emotions (n=94)	−.063	.548
Comfort w/ Own Emotional Reaction		
Positive Emotions (n=96)	.025	.812
Negative Emotions (n=91)	−.072	.497
Neutral Emotions (n=95)	−.101	.331
Desire to Change Own Emotional Reaction		
Positive Emotions (n=92)	−.020	.850
Negative Emotions (n=92)	.015	.890
Neutral Emotions (n=92)	.104	.326

Note. CTQ = Childhood Trauma Questionnaire.

* Statistically significant at the .05 alpha level.

Table 13

One-Tailed T-Tests Examining Adult Sexual Victimization Group Differences on Childhood Trauma, Adult Physical Victimization, Alexithymia, and Posttraumatic Stress Disorder Scores

	No ASA Present (n=40)		ASA Present (n=63)			
	Mean	SD	Mean	SD	*t*	*p*
CTQ Total	40.69[a]	13.11	47.62[b]	13.37	-2.558	.006*
CTS2 Physical Victimization Score	.59	1.34	1.10[c]	1.91	-1.456	.075
TAS Total Score	66.35[d]	14.89	75.62[e]	16.18	-2.943	.002*
MPSS-SR Composite Score[f]	10.00	18.95	24.50	21.19	-3.054	.002*

Note. ASA = Adult sexual assault; CTQ = Childhood Trauma Questionnaire; CTS2 = Conflict Tactics Scale Revised; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a]n=39. [b]n=61. [c]n=59. [d]n=39. [e]n=62.

[f]Variable was transformed to correct for skewness. Medians are presented for this variable to provide a more accurate representation of central tendency.

* Statistically significant at the .05 alpha level.

Table 14

One-Way ANOVAs to Determine Adult Sexual Revictimization Group Differences on Childhood Trauma, Adult Physical Victimization, Alexithymia, and Posttraumatic Stress Disorder Scores

	NA (n=43)	CSA (n=19)	ASA (n=26)	Revictimized (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
CTQ Total	35.63 (9.76)*	52.78 (12.29)*[a]	45.32 (14.71)*[b]	51.71 (9.71)*	12.906	.000*
CTS2 Physical Victimization Score	.49 (1.03)	.88 (1.96)[c]	1.00 (1.85)	1.29 (2.05)	1.120	.345
TAS Total Score	65.33 (14.99)*	68.68 (14.78)*	71.23 (14.65)	84.38 (16.03)*[d]	5.484	.002*
MPSS-SR Composite Score[e]	8.00 (13.65)*[f]	21.00 (25.49)	19.50 (19.59)	33.50 (22.26)*	6.376	.001*

Note. NA = No abuse; CSA = Childhood sexual assault only; ASA = Adult sexual assault only; Revictimized = Childhood and adult sexual assault; CTQ = Childhood Trauma Questionnaire; CTS2 = Conflict Tactics Scale Revised; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a]n=18. [b]n=25. [c]n=16. [d]n=13. [f]n=44.

[e] Variable was transformed to correct for skewness. Medians are presented for this variable to provide a more accurate representation of central tendency.

* Statistically significant at the .05 alpha level.

Table 15

One-Tailed T-Tests Examining Adult Sexual Victimization Group Differences on Emotion Recognition Hit Proportion and Average Reaction Time

	No ASA Present (n=64)		ASA Present (n=40)			
	Mean	SD	Mean	SD	*t*	*p*
Hit Proportion						
Positive Emotions	.90	.13	.88	.13	.695	.245
Negative Emotions[a]	.88	.11	.88	.09	.303	.381
Neutral Emotions[a]	.75	.21	.75	.22	.280	.390
All Emotions[a]	.84	.10	.84	.09	.042	.484
Average Reaction Time						
Positive Emotions[a]	2.38	1.69	2.63	1.97	-1.155	.126
Negative Emotions[a]	3.06	1.59	3.31	1.69	-.047	.481
Neutral Emotions[a]	4.06	2.41	4.50	2.03	-.423	.337
All Emotions[a]	3.13	1.43	3.28	1.56	-.536	.297

Note. All *t* tests were non-significant at the .05 alpha level. ASA = Adult sexual assault.

[a] Variables were transformed to correct for skewness. Medians are presented for these variables to provide a more accurate representation of central tendency.

Table 16

One-Tailed T-Tests Examining Adult Sexual Victimization Group Differences on Emotion Recognition Confidence Ratings

	No ASA Present (n=63)		ASA Present (n=38)			
	Mean	SD	Mean	SD	*t*	*p*
Confidence Ratings						
Positive Emotions	4.31	.49	4.22[a]	.44	.945	.174
Negative Emotions	4.15[b]	.49	4.10	.56	.488	.314
Neutral Emotions	3.18[c]	.58	3.11[a]	.56	.582	.281
All Emotions	4.05[d]	.48	3.99[e]	.48	.663	.255

Note. All *t* tests were non-significant at the .05 alpha level. ASA = Adult sexual assault.
[a]n=37. [b]n=61. [c]n=59. [d]n=58. [e]n=35.

Table 17

One-Tailed T-Tests Examining Adult Sexual Victimization Group Differences on Behavioral Responding Items

	No ASA Present (n=63)		ASA Present (n=38)			
	Mean	SD	Mean	SD	*t*	*p*
Avoid Person						
Positive Emotions	1.23	.29	1.35[a]	.30	−1.990	.025*
Negative Emotions	1.77[b]	.39	1.89[c]	.38	−1.555	.062
Neutral Emotions	1.34[b]	.32	1.42[c]	.30	−1.149	.127
All Emotions	1.55[b]	.30	1.66[d]	.30	−1.624	.054
Change Emotion						
Positive Emotions	1.49[b]	.28	1.46[a]	.30	.466	.322
Negative Emotions	2.50[e]	.46	2.57[a]	.53	−.646	.260
Neutral Emotions	1.90[b]	.48	1.87[a]	.41	.325	.373
All Emotions	2.13[f]	.35	2.16[d]	.41	−.285	.388
Approach Person						
Positive Emotions	3.24	.43	2.90	.57	3.404	.001*
Negative Emotions	2.54[e]	.54	2.29	.59	2.128	.018*
Neutral Emotions	2.83[b]	.56	2.57[a]	.60	2.196	.016*
All Emotions	2.78[e]	.48	2.53[g]	.55	2.281	.013*
Comfort with Emotion						
Positive Emotions	3.25	.45	2.95	.42	3.340	.001*
Negative Emotions	2.60[b]	.54	2.32[h]	.47	2.674	.005*
Neutral Emotions	2.90	.56	2.68[h]	.47	2.101	.019*
All Emotions	2.83[b]	.47	2.57[c]	.41	2.787	.003*

Note. Table 17 continues on next page.

Table 17 (continued)

One-Tailed T-Tests Examining Adult Sexual Victimization Group Differences on Behavioral Responding Items

	No ASA Present (n=63)		ASA Present (n=38)			
	Mean	SD	Mean	SD	*t*	*p*
Ability to Respond						
Positive Emotions	3.49	.37	3.28[h]	.44	2.565	.006*
Negative Emotions	3.00[e]	.48	2.90[g]	.52	1.000	.160
Neutral Emotions	3.27[b]	.46	3.16[a]	.54	1.126	.132
All Emotions	3.18[e]	.40	3.07[d]	.47	1.174	.122
Comfort w/ Own Emotional Reaction						
Positive Emotions	3.20	.50	3.03[h]	.36	1.739	.043*
Negative Emotions	2.63[f]	.54	2.48[c]	.48	1.319	.096
Neutral Emotions	2.92[b]	.54	2.76[h]	.42	1.524	.066
All Emotions	2.84[f]	.48	2.72[d]	.38	1.267	.104
Desire to Change Own Emotional Reaction						
Positive Emotions	2.64[e]	.71	2.78[c]	.66	−.943	.174
Negative Emotions	1.75[f]	.52	1.83[a]	.57	−.708	.241
Neutral Emotions	1.50[e]	.46	1.56[c]	.39	−.679	.250
All Emotions	1.58[f]	.43	1.63[d]	.41	−.579	.282

Note. ASA = Adult sexual assault.

[a]n=36. [b]n=62. [c]n=35. [d]n=33. [e]n=61. [f]n=60. [g]n=34. [h]n=37.

* Statistically significant at the .05 alpha level.

Table 18

One-Way ANOVAs to Determine Adult Sexual Revictimization Group Differences on Emotion Recognition Hit Proportion and Average Reaction Time

	NA (n = 45)	CSA (n = 19)	ASA (n = 26)	Revictimized (n = 14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Hit Proportion						
Positive Emotions	.89(.13)	.91(.14)	.87(.15)	.89(.11)	.315	.814
Negative Emotions[a]	.88 (.09)	.88 (.13)	.88 (.09)	.84 (.08)	.317	.813
Neutral Emotions[a]	.75 (.21)	.75 (.19)	.75 (.22)	.63 (.21)	.145	.933
All Emotions[a]	.84 (.10)	.84 (.10)	.84 (.10)	.81 (.07)	.084	.969
Average Reaction Time						
Positive Emotions[a]	2.63 (1.89)	2.25 (1.01)	2.50 (1.19)	2.69 (2.88)	1.372	.256
Negative Emotions[a]	3.06 (1.60)	2.75 (1.61)	3.28 (1.02)	3.59 (2.34)	1.760	.160
Neutral Emotions[a]	4.00 (2.53)	4.38 (2.14)	3.94 (1.62)	4.69 (2.55)	.767	.515
All Emotions[a]	3.16 (1.51)	3.11 (1.25)	3.15 (.96)	3.50 (2.16)	1.500	.219

Note. All ANOVAs were non-significant at the .05 alpha level. NA = No abuse; CSA = Childhood sexual assault only; ASA = Adult sexual assault only; Revictimized = Childhood and adult sexual assault.

[a] Variables were transformed to correct for skewness. Medians are presented for these variables to provide a more accurate representation of central tendency.

Table 19

One-Way ANOVAs to Determine Adult Sexual Revictimization Group Differences on Emotion Recognition Confidence Ratings

	NA (n=44)	CSA (n=19)	ASA (n=25)	Revictimized (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Confidence Rating						
Positive Emotions	4.30 (.45)	4.34 (.57)	4.19 (.42)[a]	4.27 (.47)	.394	.758
Negative Emotions	4.14 (.52)[b]	4.19 (.41)[c]	4.08 (.51)	4.15 (.67)[d]	.181	.909
Neutral Emotions	3.19 (.57)[e]	3.15 (.62)[f]	3.05 (.55)[a]	3.21 (.58)	.338	.798
All Emotions	4.05 (.48)[e]	4.08 (.47)[g]	3.95 (.42)[h]	4.05 (.57)[d]	.300	.825

Note. All ANOVAs were non-significant at the .05 alpha level. NA = No abuse; CSA = Childhood sexual assault only; ASA = Adult sexual assault only; Revictimized = Childhood and adult sexual assault.

[a]n=23. [b]n=43. [c]n=18. [d]n=13. [e]n=42. [f]n=17. [g]n=16. [h]n=22.

Table 20

One-Way ANOVAs to Determine Adult Sexual Revictimization Group Differences on Behavioral Responding Items

	NA (n=44)	CSA (n=19)	ASA (n=25)	Revictimized (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Avoid Person						
Positive Emotions	1.20 (.23)	1.30 (.39)	1.31 (.21)[a]	1.43 (.43)[b]	2.354	.077
Negative Emotions	1.73 (.39)[c]	1.85 (.36)	1.85 (.39)[d]	1.97 (.37)[b]	1.476	.226
Neutral Emotions	1.28 (.27)[c]	1.49 (.37)	1.40 (.31)[d]	1.44 (.29)[b]	2.577	.058
All Emotions	1.52 (.29)[c]	1.64 (.32)	1.63 (.28)[e]	1.71 (.34)[f]	1.850	.144
Change Emotion						
Positive Emotions	1.49 (.25)[c]	1.50 (.34)	1.49 (.29)[d]	1.41 (.32)	.319	.811
Negative Emotions	2.51 (.46)[c]	2.47 (.47)[g]	2.66 (.45)[a]	2.40 (.64)[b]	.979	.406
Neutral Emotions	1.90 (.47)[c]	1.91 (.52)	1.94 (.39)[d]	1.76 (.43)	.469	.705
All Emotions	2.14 (.34)[h]	2.12 (.38)[g]	2.24 (.36)[i]	2.02 (.47)[b]	.966	.413
Approach Person						
Positive Emotions	3.24 (.43)*	3.23 (.44)	2.93 (.48)[j]	2.84 (.72)*,[b]	3.906	.011*
Negative Emotions	2.56 (.59)[c]	2.47 (.42)[g]	2.26 (.53)	2.34 (.71)[b]	1.650	.183
Neutral Emotions	2.86 (.54)[c]	2.76 (.62)	2.56 (.57)[d]	2.57 (.66)	1.731	.166

Note. Table 20 continues on next page.

Table 20 (continued)

One-Way ANOVAs to Determine Adult Sexual Revictimization Group Differences on Behavioral Responding Items

	NA (n=44)	CSA (n=19)	ASA (n=25)	Revictimized (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
All Emotions	2.80 (.51)[c]	2.73 (.40)[g]	2.54 (.48)[e]	2.52 (.67)[b]	1.808	.151
Comfort with Emotion						
Positive Emotions	3.24 (.46)	3.28 (.44)	2.97 (.39)[j]	2.92 (.48)	3.734	.014*
Negative Emotions	2.63 (.59)[c]	2.53 (.38)	2.31 (.45)[j]	2.34 (.52)[b]	2.536	.061
Neutral Emotions	2.95 (.53)	2.80 (.61)	2.68 (.45)[a]	2.67 (.52)	1.843	.145
All Emotions	2.85 (.51)[c]	2.78 (.37)	2.57 (.38)[d]	2.55 (.48)[b]	2.655	.053
Ability to Respond						
Positive Emotions	3.51 (.37)	3.45 (.38)	3.26 (.45)[j]	3.32 (.42)[b]	2.321	.080
Negative Emotions	3.03 (.50)[h]	2.94 (.44)	3.26 (.45)[d]	3.32 (.42)[f]	.462	.709
Neutral Emotions	3.31 (.43)[c]	3.20 (.52)	3.12 (.59)[a]	3.22 (.47)[b]	.744	.528
All Emotions	3.21 (.41)[h]	3.12 (.39)	3.08 (.50)[e]	3.06 (.42)[f]	.628	.599
Comfort w/ Own Emotional Reaction						
Positive Emotions	3.19 (.53)	3.20 (.43)	2.97 (.36)[j]	3.14 (.35)[b]	1.399	.248

Note. Table 20 continues on next page.

Table 20 (continued)

One-Way ANOVAs to Determine Adult Sexual Revictimization Group Differences on Behavioral Responding Items

	NA (n=44)	CSA (n=19)	ASA (n=25)	Revictimized (n=14)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Negative Emotions	2.66 (.58)[h]	2.56 (.45)[g]	2.40 (.43)[d]	2.62 (.54)[b]	1.229	.304
Neutral Emotions	2.99 (.55)[c]	2.75 (.48)	2.70 (.42)[a]	2.86 (.43)	2.113	.104
All Emotions	2.86 (.53)[h]	2.78 (.37)[g]	2.63 (.36)[e]	2.86 (.37)[f]	1.353	.262
Desire to Change Own Emotional Reaction						
Positive Emotions	2.55 (.67)[c]	2.85 (.79)[g]	2.85 (.66)[e]	2.68 (.68)	1.227	.305
Negative Emotions	1.69 (.49)[h]	1.90 (.57)[g]	1.84 (.56)[a]	1.81 (.60)[b]	.841	.475
Neutral Emotions	1.40 (.41)[h]	1.70 (.50)	1.56 (.37)[d]	1.57 (.44)[b]	2.317	.081
All Emotions	1.51 (.40)[h]	1.73 (.47)[g]	1.67 (.43)[e]	1.56 (.39)[f]	1.377	.255

Note. NA = No abuse; CSA = Childhood sexual assault only; ASA = Adult sexual assault only; Revictimized = Childhood and adult sexual assault.

[a]n=23. [b]n=13. [c]n=43. [d]n=22. [e]n=21. [f]n=12. [g]n=18. [h]n=42. [i]n=20. [j]n=24.

* Statistically significant at the .05 alpha level.

Table 21

Correlations Between Adult Sexual Victimization and Emotion Recognition Hit Proportion & Reaction Time (N = 101)

	SES Composite Score	
	r	*p*
ER Hit Proportion		
Positive Emotions	−.059	.555
Happiness	−.034	.739
Surprise	−.057	.569
Negative Emotions[a]	−.051	.614
Sadness	−.068	.496
Fear	.031	.760
Anger	.091	.367
Disgust	.047	.640
Neutral Emotions[a]	−.121	.230
ER Average Reaction Time		
Positive Emotions[a]	.181	.070
Happiness[a]	.130	.196
Surprise[a]	.193	.054
Negative Emotions[a]	.103	.306
Sadness[a]	.258	.009*
Fear[a]	.009	.932
Anger[a]	.050	.620
Disgust[a]	−.119	.236
Neutral Emotions[a]	.037	.714

Note. ER = Emotion Recognition; SES = Sexual Experiences Survey.

[a] Variables were transformed to correct for skewness.

* Statistically significant at the .05 alpha level.

Table 22

Correlations Between Adult Sexual Victimization and Behavioral Avoidance Composite Score

	SES Composite Score	
	r	*p*
Behavioral Avoidance Composite Score		
Positive Emotions (n=95)	.171	.097
Happiness (n=95)	.072	.490
Surprise (n=97)	.201	.049*
Negative Emotions (n=90)	.245	.020*
Sadness (n=98)	.307	.002*
Fear (n=92)	.108	.307
Anger (n=97)	.301	.003*
Disgust (n=92)	.217	.038*
Neutral Emotions (n=94)	.194	.061

Note. SES = Sexual Experiences Survey.

* Statistically significant at the .05 alpha level.

Table 23

Regression Model for Predicting Adult Sexual Victimization Using Childhood Trauma, Sadness Average Reaction Time, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 93)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.052	5.027	.027*
	CTQ	.187	.083	.229	2.242			.027*
2						.101	5.034	.008*
	CTQ	.139	.084	.170	1.645			.103
	Sadness Average Reaction Time [a]	10.631	4.837	.227	2.198			.031*
3						.167	5.941	.001*
	CTQ	.107	.083	.131	1.295			.199
	Sadness Average Reaction Time [a]	8.473	4.752	.181	1.783			.078
	TAS Total Score	.189	.071	.266	2.660			.009*
4						.187	5.066	.001*
	CTQ	.034	.095	.042	.358			.721
	Sadness Average Reaction Time [a]	9.586	4.779	.205	2.006			.048*
	TAS Total Score	.151	.075	.212	2.001			.048*
	MPSS-SR Composite Score [a]	.807	.544	.179	1.484			.142

Note. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

* Statistically significant at the .05 alpha level.

Table 24

Regression Model for Predicting Adult Sexual Victimization Using Childhood Trauma, Behavioral Avoidance, Sadness Average Reaction Time, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 86)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.049	4.309	.041*
	CTQ	.128	.062	.221	2.076			.041*
2						.054	2.349	.102
	CTQ	.137	.063	.236	2.159			.034*
	Sadness Average Reaction Time[a]	–2.645	4.091	–.071	–.647			.520
3						.128	2.975	.024*
	CTQ	.103	.063	.177	1.627			.108
	Sadness Average Reaction Time[a]	–.933	4.038	–.025	–.231			.818
	Behavioral Avoidance - Anger	.103	.090	.146	1.144			.256
	Behavioral Avoidance - Sad	.147	.110	.171	1.336			.185

Note. Table 24 continues on next page.

Table 24 (continued)

Regression Model for Predicting Adult Sexual Victimization Using Childhood Trauma, Behavioral Avoidance, Sadness Average Reaction Time, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 86)

Step	Variable	B	SE B	β	t	R^2	F	p
4						.159	3.031	.015*
	CTQ	.097	.062	.167	1.549			.125
	Sadness Average Reaction Time[a]	−2.095	4.046	−.056	−.518			.606
	Behavioral Avoidance - Anger	.076	.091	.108	.841			.403
	Behavioral Avoidance - Sad	.093	.114	.107	.816			.417
	TAS Total Score	.103	.060	.201	1.722			.089
5						.172	2.729	.018*
	CTQ	.056	.073	.096	.769			.444
	Sadness Average Reaction Time[a]	−1.433	4.087	−.038	−.351			.727
	Behavioral Avoidance - Anger	.052	.093	.074	.563			.575
	Behavioral Avoidance - Sad	.104	.114	.121	.913			.364
	TAS Total Score	.086	.062	.168	1.392			.168
	MPSS-SR Composite Score[a]	.458	.421	.143	1.089			.279

Note. CTQ = Childhood Trauma Questionnaire; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

* Statistically significant at the .05 alpha level.

Table 25

One-Tailed T-Tests Examining Severe Adult Physical Victimization Group Differences on Childhood Trauma, Adult Sexual Victimization, Alexithymia, and Posttraumatic Stress Disorder Scores

	No APA Present (n=90)		APA Present (n=10)			
	Mean	SD	Mean	SD	*t*	*p*
CTQ Total	42.83[a]	14.15	47.60	8.57	–1.042	.150
SES Composite Score – Any Unwanted ASA	3.27[b]	7.91	19.00[c]	22.79	–2.058	.037*
SES Composite Score – Attempted/Completed Adult Sexual Assault	1.32	3.24	8.60	10.63	–2.155	.030*
TAS Total Score	69.59[d]	15.93	74.80	15.78	–.981	.165
MPSS-SR Composite Score[e]	14.00[b]	20.70	22.50	22.43	–1.086	.140

Note. APA = Adult physical assault; CTQ = Childhood Trauma Questionnaire; SES = Sexual Experiences Survey; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a]n=86. [b]n=89. [c]n=9. [d]n=87.

[e] Variable was transformed to correct for skewness. Medians are presented for this variable to provide a more accurate representation of central tendency.

* Statistically significant at the .05 alpha level.

Table 26

One-Way ANOVAs to Determine Adult Physical Revictimization Group Differences on Childhood Trauma, Adult Sexual Victimization, Alexithymia, and Posttraumatic Stress Disorder Scores

	NA (n=62)	CPA (n=28)	APA (n=3)	Revictimized (n=7)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
CTQ Total	37.62 (10.17)*[a]	70.29 (15.42)*[b]	76.67 (12.66)	74.00 (17.82)	14.233	.000*
SES Composite Score – Any Unwanted ASA	2.23 (3.83)*[c]	5.54 (12.79)*	8.50 (10.61)[d]	22.00 (25.03)*	8.602*	.000*
SES Composite Score – Attempted/Completed Adult Sexual Assault	.92 (1.81)*	2.21 (5.09)*	2.67 (2.89)*	11.14 (11.89)*	11.966	.000*
TAS Total Score	69.25 (16.29)[e]	70.29 (15.42)	76.67 (12.66)	74.00 (17.82)	.360	.782
MPSS-SR Composite Score[e]	10.00 (19.82)*[f]	25.50 (20.42)*	14.00 (43.29)	24.00 (10.85)	4.002	.010*

Note. NA = No abuse; CPA = Childhood physical assault only; APA = Adult physical assault only; Revictimized = Childhood and adult physical assault; CTQ = Childhood Trauma Questionnaire; SES = Sexual Experiences Survey; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a]n=60. [b]n=26. [c]n=61. [d]n=2. [f]n=59.

[e]Variable was transformed to correct for skewness. Medians are presented for this variable to provide a more accurate representation of central tendency.

* Statistically significant at the .05 alpha level.

Table 27

One-Tailed T-Tests Examining Severe Adult Physical Victimization Group Differences on Emotion Recognition Hit Proportion & Average Reaction Time

	No APA Present (n=90)		APA Present (n=10)			
	Mean	SD	Mean	SD	*t*	*p*
Hit Proportion						
Positive Emotions	.88	.13	.89	.14	−.063	.475
Negative Emotions[a]	.88	.10	.94	.05	1.737	.043*
Neutral Emotions[a]	.75	.21	.75	.18	1.390	.084
All Emotions[a]	.84	.10	.86	.07	1.654	.051
Average Reaction Time						
Positive Emotions[a]	2.63	1.89	2.38	1.16	.103	.460
Negative Emotions[a]	3.25	1.68	3.25	1.21	.109	.457
Neutral Emotions[a]	4.31	2.27	4.31	2.50	−.446	.328
All Emotions[a]	3.20	1.52	3.13	1.30	.027	.489

Note. APA = Adult physical assault.

[a] Variables were transformed to correct for skewness. Medians are presented for these variables to provide a more accurate representation of central tendency.

* Statistically significant at the .05 alpha level.

Table 28

One-Tailed T-Tests Examining Severe Adult Physical Victimization Group Differences on Emotion Recognition Confidence Ratings

	No APA Present (n=86)		APA Present (n=10)			
	Mean	SD	Mean	SD	*t*	*p*
Confidence Rating						
Positive Emotions	4.26	.47	4.53	.46	−1.704	.046*
Negative Emotions	4.10[a]	.53	4.42	.47	−1.811	.037*
Neutral Emotions	3.10[b]	.57	3.50[c]	.52	−1.984	.025*
All Emotions	4.00[d]	.48	4.31[c]	.47	−1.826	.036*

Note. APA = Adult physical assault.

[a]n=85. [b]n=84. [c]n=9. [d]n=81.

* Statistically significant at the .05 alpha level.

Table 29

One-Tailed T-Tests Examining Severe Adult Physical Victimization Group Differences on Behavioral Responding Items

	No APA Present (n=87)		APA Present (n=10)			
	Mean	SD	Mean	SD	*t*	*p*
Avoid Person						
Positive Emotions	1.26	.27	1.34[a]	.30	−.870	.194
Negative Emotions	1.78[b]	.38	2.06[a]	.36	−2.005	.024*
Neutral Emotions	1.35[b]	.29	1.47[a]	.41	−1.103	.137
All Emotions	1.57[c]	.29	1.74[d]	.34	−1.511	.067
Change Emotion						
Positive Emotions	1.47[b]	.28	1.53[e]	.40	−.393	.352
Negative Emotions	2.52[b]	.48	2.62[a]	.60	−.525	.301
Neutral Emotions	1.91[b]	.46	1.68[e]	.41	1.424	.079
All Emotions	2.14[f]	.37	2.19[a]	.48	−.362	.360
Approach Person						
Positive Emotions	3.13	.53	2.94	.39	1.112	.135
Negative Emotions	2.47[g]	.59	2.22[e]	.34	1.222	.113
Neutral Emotions	2.76[b]	.61	2.61[e]	.43	.691	.246
All Emotions	2.71[h]	.54	2.54[a]	.30	.866	.195
Comfort with Emotion						
Positive Emotions	3.15	.48	2.96	.24	2.063	.027*
Negative Emotions	2.52[g]	.53	2.17[e]	.34	1.923	.029*
Neutral Emotions	2.85	.55	2.60[e]	.45	1.321	.095
All Emotions	2.76[c]	.48	2.46[e]	.29	1.873	.032*

Note. Table 29 continues on next page.

Table 29 (continued)

One-Tailed T-Tests Examining Severe Adult Physical Victimization Group Differences on Behavioral Responding Items

	No APA Present (n=87)		APA Present (n=10)			
	Mean	SD	Mean	SD	t	*p*
Ability to Respond						
Positive Emotions	3.44	.42	3.18[e]	.35	1.782	.039*
Negative Emotions	2.98[c]	.51	2.77[d]	.22	2.122	.027*
Neutral Emotions	3.25[g]	.50	3.09[a]	.43	.830	.204
All Emotions	3.16[h]	.45	2.98[d]	.19	1.017	.156
Comfort w/ Own Emotional Reaction						
Positive Emotions	3.14[i]	.47	3.08[a]	.37	.385	.351
Negative Emotions	2.59[c]	.51	2.37[a]	.63	1.166	.124
Neutral Emotions	2.88[g]	.51	2.74[e]	.40	.794	.215
All Emotions	2.80[h]	.46	2.74[d]	.40	.340	.368
Desire to Change Own Emotional Reaction						
Positive Emotions	2.67[h]	.68	2.86[e]	.88	-.795	.215
Negative Emotions	1.76[h]	.51	1.90[e]	.70	-.721	.237
Neutral Emotions	1.53[c]	.43	1.39[a]	.39	.874	.192
All Emotions	1.59[f]	.41	1.59[a]	.52	.000	.500

Note. APA = Adult physical assault.

[a]n=8. [b]n=85. [c]n=84. [d]n=7. [e]n=9. [f]n=81. [g]n=86. [h]n=83. [i]n=88.

* Statistically significant at the .05 alpha level.

Table 30

One-Way ANOVAs to Determine Adult Physical Revictimization Group Differences on Emotion Recognition Hit Proportion and Average Reaction Time

	NA (n = 62)	CPA (n = 28)	APA (n = 3)	Revictimized (n = 7)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Hit Proportion						
Positive Emotions	.90 (.11)	.86 (.17)	.83 (.19)	.91 (.12)	.837	.477
Negative Emotions [a]	.88 (.10)	.88 (.10)	.94 (.04)	.94 (.05)	1.536	.210
Neutral Emotions [a]	.75 (.20)	.75 (.24)	.63 (.26)	.75 (.16)	.744	.529
All Emotions [a]	.84 (.09)	.84 (.11)	.84 (.13)	.88 (.05)	1.256	.294
Average Reaction Time						
Positive Emotions [a]	2.56 (1.70)	2.69 (2.24)	1.88 (.40)	2.63 (1.28)	1.005	.394
Negative Emotions [a]	3.16 (1.25)	3.38 (2.33)	2.94 (.81)	3.56 (1.34)	.863	.463
Neutral Emotions [a]	4.00 (2.17)	4.50 (2.44)	3.00 (.51)	4.75 (2.61)	2.227	.090
All Emotions [a]	3.01 (1.23)	3.37 (1.97)	2.82 (.56)	3.41 (1.44)	1.696	.173

Note. All ANOVAs were non-significant at the .05 alpha level. NA = No abuse; CPA = Childhood physical assault only; APA = Adult physical assault only; Revictimized = Childhood and adult physical assault.

[a] Variables were transformed to correct for skewness. Medians are presented for these variables to provide a more accurate representation of central tendency.

Table 31

One-Way ANOVAs to Determine Adult Physical Revictimization Group Differences on Emotion Recognition Confidence Ratings

	NA (n=60)	CPA (n=27)	APA (n=3)	Revictimized (n=7)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Confidence Ratings						
Positive Emotions	4.26 (.48)[a]	4.25 (.46)	4.17 (.73)	4.68 (.23)	1.804	.152
Negative Emotions	4.13 (.54)	4.04 (.50)[b]	4.15 (.76)	4.54 (.30)	1.672	.179
Neutral Emotions	3.09 (.63)[c]	3.14 (.44)[d]	4.42 (.73)	3.54 (.47)[e]	1.366	.258
All Emotions	4.01 (.50)[f]	3.98 (.42)[g]	4.05 (.75)	4.43 (.28)[e]	1.554	.206

Note. All ANOVAs were non-significant at the .05 alpha level. NA = No abuse; CPA = Childhood physical assault only; APA = Adult physical assault only; Revictimized = Childhood and adult physical assault.

[a]n=59. [b]n=25. [c]n=58. [d]n=26. [e]n=6. [f]n=57. [g]n=24.

Table 32

One-Way ANOVAs to Determine Adult Physical Revictimization Group Differences on Behavioral Responding Items

	NA (n=60)	CPA (n=27)	APA (n=3)	Revictimized (n=7)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Avoid Person						
Positive Emotions	1.26 (.26)	1.26 (.29)	1.33 (.31)	1.35 (.32)[a]	.250	.861
Negative Emotions	1.79 (.36)[b]	1.77 (.43)[c]	2.00 (.44)	2.10 (.36)[a]	1.372	.257
Neutral Emotions	1.37 (.31)[b]	1.28 (.25)[c]	1.46 (.44)	1.48 (.45)[a]	.929	.430
All Emotions	1.58 (.27)[b]	1.55 (.34)[d]	1.73 (.39)	1.75 (.36)[e]	.801	.497
Change Emotion						
Positive Emotions	1.48 (.28)[f]	1.46 (.27)	1.38 (.45)	1.60 (.40)[g]	.547	.651
Negative Emotions	2.54 (.49)	2.47 (.46)[d]	2.21 (.52)	2.86 (.54)[a]	1.377	.255
Neutral Emotions	1.91 (.47)[b]	1.91 (.45)[c]	1.54 (.51)	1.75 (.38)[g]	.802	.496
All Emotions	2.15 (.38)[h]	2.12 (.34)[i]	1.88 (.49)	2.38 (.41)[a]	1.204	.313
Approach Person						
Positive Emotions	3.16 (.54)	3.06 (.51)	2.92 (.26)	2.95 (.46)	.679	.567
Negative Emotions	2.51 (.56)[j]	2.36 (.66)[d]	2.19 (.41)	2.24 (.35)[g]	.946	.422
Neutral Emotions	2.74 (.66)[b]	2.80 (.50)[c]	2.67 (.36)	2.58 (.49)[g]	.230	.876

Note. Table 32 continues on next page.

Table 32 (continued)

One-Way ANOVAs to Determine Adult Physical Revictimization Group Differences on Behavioral Responding Items

	NA (n=60)	CPA (n=27)	APA (n=3)	Revictimized (n=7)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
All Emotions	2.74 (.52)[b]	2.63 (.57)[i]	2.46 (.35)	2.59 (.30)[a]	.555	.646
Comfort with Emotion						
Positive Emotions	3.18 (.50)	3.11 (.44)	3.00 (.25)	2.95 (.26)	.639	.592
Negative Emotions	2.56 (.54)	2.44 (.53)[c]	2.15 (.38)	2.19 (.36)[g]	1.544	.209
Neutral Emotions	2.83 (.58)[j]	2.88 (.48)[c]	2.63 (.43)	2.58 (.50)[g]	.609	.611
All Emotions	2.79 (.48)[b]	2.70 (.46)[d]	2.46 (.31)	2.46 (.32)[g]	1.342	.266
Ability to Respond						
Positive Emotions	3.42 (.43)	3.48 (.38)	3.21 (.26)	3.17 (.42)[g]	1.170	.326
Negative Emotions	2.62 (.51)[f]	2.54 (.52)[c]	2.50 (.82)	2.29 (.58)[e]	.446	.721
Neutral Emotions	3.21 (.54)	3.34 (.42)[c]	3.08 (.36)	3.10 (.51)[a]	.623	.602
All Emotions	3.15 (.45)[f]	3.18 (.44)[d]	2.88 (.20)	3.06 (.17)[e]	.481	.697
Comfort w/ Own Emotional Reaction						
Positive Emotions	3.15 (.49)[j]	3.13 (.42)	3.21 (.14)	3.00 (.45)[a]	.195	.899

Note. Table 32 continues on next page.

Table 32 (continued)

One-Way ANOVAs to Determine Adult Physical Revictimization Group Differences on Behavioral Responding Items

	NA (n=60)	CPA (n=27)	APA (n=3)	Revictimized (n=7)		
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	F	*p*
Negative Emotions	2.62 (.51)[f]	2.54 (.52)[c]	2.50 (.82)	2.29 (.58)[a]	.695	.558
Neutral Emotions	2.89 (.57)	2.85 (.40)[c]	2.96 (.26)	2.63 (.43)[g]	.527	.665
All Emotions	2.82 (.46)[f]	2.76 (.45)[d]	2.77 (.49)	2.71 (.39)[e]	.147	.931
Desire to Change Own Emotional Reaction						
Positive Emotions	2.70 (.73)[f]	2.59 (.55)[d]	2.67 (.63)	2.96 (1.02)[g]	.459	.712
Negative Emotions	1.74 (.47)[f]	1.82 (.60)[d]	1.83 (.45)	1.93 (.83)[g]	.320	.811
Neutral Emotions	1.52 (.45)[f]	1.55 (.40)[c]	1.54 (.51)	1.30 (.34)[a]	.481	.696
All Emotions	1.59 (.41)[h]	1.61 (.43)[i]	1.64 (.42)	1.57 (.62)[a]	.024	.995

Note. All ANOVAs were non-significant at the .05 alpha level. NA = No abuse; CPA = Childhood physical assault only; APA = Adult physical assault only; Revictimized = Childhood and adult physical assault.

[a]n=5. [b]n=59. [c]n=26. [d]n=25. [e]n=4. [f]n=58. [g]n=6. [h]n=57. [i]n=24. [j]n=61.

Table 33

Correlations Between Adult Physical Victimization and Emotion Recognition Hit Proportion & Reaction Time (N = 99)

	CTS2 Physical Victimization Score	
	r	*p*
ER Hit Proportion		
Positive Emotions	−.161	.112
Happiness	−.150	.135
Surprise	−.033	.744
Negative Emotions[a]	−.187	.064
Sadness	.002	.986
Fear	−.011	.910
Anger	.063	.531
Disgust	−.032	.753
Neutral Emotions[a]	−.177	.080
ER Average Reaction Time		
Positive Emotions[a]	.049	.631
Happiness[a]	.073	.471
Surprise[a]	.025	.804
Negative Emotions[a]	−.041	.685
Sadness[a]	.032	.752
Fear[a]	−.011	.913
Anger[a]	.085	.401
Disgust[a]	−.152	.132
Neutral Emotions[a]	−.032	.750

Note. All correlations were non-significant at the .05 alpha level. ER = Emotion recognition; CTS2 = Conflict Tactics Scale Revised.

[a] Variables were transformed to correct for skewness.

Table 34

Correlations Between Adult Physical Victimization and Behavioral Avoidance Composite Score

	CTS2 Physical Victimization Score	
	r	*p*
Behavioral Avoidance Composite Score		
Positive Emotions (n=93)	.081	.439
Happiness (n=93)	−.030	.778
Surprise (n=95)	.146	.159
Negative Emotions (n=89)	.098	.362
Sadness (n=96)	.185	.071
Fear (n=90)	.138	.196
Anger (n=95)	.110	.287
Disgust (n=91)	.095	.368
Neutral Emotions (n=92)	.051	.629

Note. All correlations were non-significant at the .05 alpha level. CTS2 = Conflict Tactics Scale Revised.

Table 35

Regression Model for Predicting Adult Physical Victimization Using Childhood Trauma, Emotion Recognition Hit Proportion, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 90)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.008	.676	.413
	CTQ	.010	.013	.087	.822			.413
2						.140	3.502	.011*
	CTQ	.014	.012	.113	1.111			.270
	Negative Emotion HP [a]	−11.627	5.453	−.224	−2.132			.036*
	Positive Emotion HP	−3.660	1.355	−.292	−2.701			.008*
	Neutral Emotion HP [a]	−5.436	2.686	−.219	−2.024			.046*
3						.144	2.861	.019*
	CTQ	.012	.013	.100	.958			.341
	Negative Emotion HP [a]	−11.700	5.473	−.226	−2.138			.035*
	Positive Emotion HP	−3.625	1.361	−.289	−2.663			.009*
	Neutral Emotion HP [a]	−5.173	2.728	−.208	−1.896			.061
	TAS Total Score	.007	.011	.065	.630			.530

Note. Table 35 continues on next page.

Table 35 (continued)

Regression Model for Predicting Adult Physical Victimization Using Childhood Trauma, Emotion Recognition Hit Proportion, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 90)

Step	Variable	B	SE B	β	t	R^2	F	p
4						.147	2.409	.034*
	CTQ	.008	.014	.070	.583			.562
	Negative Emotion HP[a]	–11.772	5.499	–.227	–2.141			.035*
	Positive Emotion HP	–3.441	1.412	–.274	–2.436			.017*
	Neutral Emotion HP[a]	–4.903	2.789	–.198	–1.758			.082
	TAS Total Score	.005	.011	.049	.454			.651
	MPSS-SR Composite Score[a]	.044	.084	.067	.520			.605

Note. CTQ = Childhood Trauma Questionnaire; HP = Hit Proportion; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.

* Statistically significant at the .05 alpha level.

Table 36

Regression Model for Predicting Adult Physical Victimization Using Childhood Trauma, Emotion Recognition Average Reaction Time, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 90)

Step	Variable	B	SE B	β	t	R^2	F	p
1						.008	.676	.413
	CTQ	.010	.013	.087	.822			.413
2						.013	.284	.888
	CTQ	.012	.013	.097	.869			.387
	Negative Emotion RT [a]	−.711	1.482	−.070	−.480			.633
	Positive Emotion RT [a]	.626	1.101	.075	.568			.571
	Neutral Emotion RT [a]	−.238	1.248	−.025	−.191			.849
3						.023	.408	.842
	CTQ	.009	.014	.075	.657			.513
	Negative Emotion RT [a]	−.965	1.506	−.095	−.641			.523
	Positive Emotion RT [a]	.720	1.106	.086	.651			.517
	Neutral Emotion RT [a]	−.070	1.261	−.007	−.056			.956
	TAS Total Score	.011	.012	.106	.951			.344

Note. Table 36 continues on next page.

Table 36 (continued)

Regression Model for Predicting Adult Physical Victimization Using Childhood Trauma, Emotion Recognition Average Reaction Time, Alexithymia, and Posttraumatic Stress Disorder Scores (N = 90)

Step	Variable	B	SE B	β	t	R^2	F	p
4						.036	.523	.789
	CTQ	.001	.016	.005	.039			.969
	Negative Emotion RT [a]	−.868	1.508	−.085	−.576			.566
	Positive Emotion RT [a]	.608	1.111	.073	.548			.585
	Neutral Emotion RT [a]	.112	1.272	.012	.088			.930
	TAS Total Score	.007	.012	.070	.595			.553
	MPSS-SR Composite Score [a]	.092	.088	.140	1.048			.298

Note. All four steps of the regression model were non-significant at the .05 alpha level. CTQ = Childhood Trauma Questionnaire; RT = Average Reaction Time; TAS = Toronto Alexithymia Scale; MPSS-SR = Modified PTSD Symptom Scale.

[a] Variables were transformed to correct for skewness.