

**DEFENSE MECHANISMS AS MODERATORS OF TRAUMA  
SYMPTOMATOLOGY IN MALTREATED ADOLESCENTS**

by

**Michelle Warren**

**B.A., University of Manitoba, 1994**

**M.A., Simon Fraser University, 1996**

**Dissertation / Thesis Submitted in Partial Fulfillment of the Requirements for the**

**Degree of**

**Doctor of Philosophy**

in the Department

of

Psychology

**© Michelle Warren, 2000**

**SIMON FRASER UNIVERSITY**

**July, 2000**

All rights reserved.

This work may not be reproduced in whole or part, by photocopy or other means, without permission of the author.



**National Library  
of Canada**

**Acquisitions and  
Bibliographic Services**

**395 Wellington Street  
Ottawa ON K1A 0N4  
Canada**

**Bibliothèque nationale  
du Canada**

**Acquisitions et  
services bibliographiques**

**395, rue Wellington  
Ottawa ON K1A 0N4  
Canada**

*Your file Votre référence*

*Our file Notre référence*

**The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.**

**The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.**

**L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.**

**L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.**

0-612-61691-6

**Canada**

## **ABSTRACT**

Three defense styles, as measured by the *Defense Style Questionnaire* (DSQ-R; Andrews, Pollock, & Stewart, 1989), were investigated as possible moderators of the relationship between maltreatment experiences and psychological symptomatology in an adolescent clinical population ( $N = 75$ ). Participants indicated the degree to which they experienced maltreatment, including child sexual abuse, child physical abuse, child exposure to family violence, and child emotional abuse, on the *Record of Maltreatment Experiences* (ROME; Wolfe & McGee, 1994). Psychological symptomatology was indicated by participants' self-reports of externalizing and internalizing behaviour problems on the *Youth Self-Report* (YSR; Achenbach, 1991) and data from the *Clinician-Administered PTSD Scale - Child and Adolescent Version* (CAPS-CA; Nader, 1996), pertaining to DSM-IV Criteria B, C, and D PTSD symptomatology. Results suggested that specific defense styles moderate the effects of specific types of maltreatment. An immature defense style was found to moderate the relationship between child sexual abuse and externalizing behaviour problems. A mature defense style was found to moderate the relationship between child emotional abuse and internalizing behaviour problems. A neurotic defense style was found to moderate the effects of child physical abuse and child exposure to family violence, on the development of PTSD symptomatology. In addition, the defense styles were found to operate in different fashions. An immature defense style protected against the effects of increasing levels of maltreatment, whereas neurotic and mature defense styles exacerbated the effects of increasing maltreatment. Limitations of these findings and implications for future research are discussed.

## **DEDICATION**

**Dedicated to my greatest teachers, my mother and father.**

## **ACKNOWLEDGEMENTS**

I would like to thank many people who contributed to this project at various stages. Thank you, first and foremost, to Dr. Marlene Moretti who provided me with the opportunity to collect clinical data from a fascinating group of young people. Thank you to the Maples residents, themselves, and to the people that encouraged them to participate, including the Maples unit staff and the psychology department staff. I also appreciate the contributions of my fellow students, including Regan Shercliffe, J'Anne Ward, Jocelyne Lessard, Vaneesa Wiebe, Corina Brown, and Sue McKay. Other faculty members, Drs. Patricia Kerig, Ray Koopman, and Dennis Krebs, provided me with guidance. Lastly, I would like to acknowledge the support that I have received from my friends and family, particularly Renee Patenaude, Marie Achille, Lindsey Jack, Michael Neilson, and Erna and Wayne Warren.

# TABLE OF CONTENTS

<b>APPROVAL .....</b>	<b>ii</b>
<b>ABSTRACT .....</b>	<b>iii</b>
<b>DEDICATION .....</b>	<b>iv</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>v</b>
<b>TABLE OF CONTENTS .....</b>	<b>vi</b>
<b>LIST OF FIGURES.....</b>	<b>ix</b>
<b>INTRODUCTION.....</b>	<b>1</b>
A PTSD Formulation of Child Maltreatment .....	2
The Impact of Trauma on Children .....	2
Child Sexual Abuse, Physical Abuse, Exposure to Family Violence, and PTSD .....	4
Moderators of the Child Maltreatment - PTSD Relationship.....	7
Children's Mechanisms of Affect Regulation.....	10
The Development of Children's Defense Mechanisms .....	16
Atypical Development of Defenses in Traumatized Children .....	19

Interrelations between Traumatic Stress, Defenses, and Child Adjustment.....	22
Rationale for the Current Study .....	25
Hypotheses .....	26
<b>METHOD.....</b>	<b>28</b>
Participants .....	28
Procedure.....	29
Measures .....	29
<b>RESULTS .....</b>	<b>37</b>
Descriptives.....	38
Degree of Child Maltreatment.....	38
Use of Defense Styles .....	40
Degree of Psychopathology .....	40
Model Specification .....	41
Regression Analyses.....	43
Externalizing Behaviour Problems.....	43
Internalizing Behaviour Problems.....	47
DSM-IV Criteria B PTSD Symptoms.....	49
DSM-IV Criteria C PTSD Symptoms .....	52
DSM-IV Criteria D PTSD Symptoms .....	52
Exploratory Analyses.....	54
<b>DISCUSSION.....</b>	<b>55</b>
Sample Characteristics.....	55
Support for the main hypotheses.....	56
Specific moderating effects of an immature defense style .....	58
Specific moderating effects of a mature defense style.....	60
Specific moderating effects of a neurotic defense style .....	60
Summary.....	62
Limitations .....	63
Clinical Implications.....	67
Directions for Future Research.....	70

<b>REFERENCES.....</b>	<b>72</b>
Appendix A: Social History Coding Criteria.....	83
Appendix B: Pearson <i>R</i> for Age, Gender, and Key Variables.....	85
Appendix C: Pearson <i>R</i> for Social History Severity Ratings and ROME Scales.....	86
Appendix D: Pearson <i>R</i> for CAPS-CA Scales, YSR Scales, and DICA Total Number of Diagnoses .....	87
Appendix E: Pearson <i>R</i> for ROME Scales and DSQ Defense Style Scales .....	88
Appendix F: Significant Main Effects .....	89



## LIST OF FIGURES

Figure 1: The Moderating Effect of an Immature Defense Style on the Relationship between Child Sexual Abuse and Externalizing Behaviour Problems.....	45
Figure 2: The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Exposure to Family Violence and Externalizing Behaviour Problems.....	46
Figure 3: The Moderating Effect of a Mature Defense Style on the Relationship between Child Emotional Abuse and Internalizing Behaviour Problems.....	48
Figure 4: The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Physical Abuse and DSM-IV Criteria B PTSD Symptoms.....	50
Figure 5: The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Exposure to Family Violence and DSM-IV Criteria B PTSD Symptoms .....	51
Figure 6: The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Physical Abuse and DSM-IV Criteria D PTSD Symptoms.....	53

## INTRODUCTION

Empirical evidence suggests that different forms of child maltreatment have initial and long term effects for a significant portion of victims (Cicchetti, 1990). There are a number of child maltreatment typologies (Barnett, Manly, & Cicchetti, 1993; Garbarino, Guttman, & Seely, 1986; McGee & Wolfe, 1991). The general consensus is that child sexual abuse (CSA), child physical abuse (CPA), child exposure to family violence (CFV), and child emotional abuse and neglect (CEA) are distinct forms of child maltreatment (McGee, Wolfe, & Wilson, 1997). These forms of child maltreatment are associated with distinct, as well as shared, consequences. Research suggests that CSA is particularly related to anxiety disorders, sexual dysfunction, and low self-esteem; CPA is related to poor peer relations and aggression; CFV is also related to aggression and guilt; and CEA is related to learning problems (Trickett & McBride-Chang, 1995; Wolfe & Jaffe, 1991). All forms are associated with developmental delays, health problems, and psychological disorders, in general (McGee et al., 1997). Until recently, the field has lacked a conceptual framework to explain why the different forms of maltreatment are associated with specific and shared symptoms (McGee et al., 1997). It is also uncertain as to what factors moderate the impact of child maltreatment and, in particular, what child factors enable those victims who do not develop symptoms to be resilient. Investigation of the factors accounting for child resiliency is integral to the assessment and treatment of children who are maltreated (Rutter, 1979). This study examined a new conceptual framework of the effects of child maltreatment, namely a post-traumatic stress disorder (PTSD) framework, and the moderating effects of children's defense

mechanisms.

### **A PTSD Formulation of Child Maltreatment**

#### ***The Impact of Trauma on Children***

The notion of stress-related disorders has been applied to the symptomatology associated with the varying forms of child maltreatment (Wolfe & Jaffe, 1991). A post-traumatic stress disorder (PTSD) formulation for the effects of sexual abuse has received the most attention (Wolfe, Gentile, Michienzi, Sas, & Wolfe, 1991; Wolfe, Gentile, & Wolfe, 1989). The sequelae to CSA may be a form of PTSD for the following reasons: 1) CSA meets the criteria for trauma (criterion A1) according to the Diagnostic and Statistical Manual - IV (DSM-IV; American Psychiatric Association, 1994); 2) sexually abused children show symptoms consistent with the three symptom clusters that define PTSD; 3) individual and contextual factors that mediate the relationship between other traumas and symptomatology have been found to mediate the impact of CSA (Wolfe, Gentile, & Wolfe, 1989).

Conceptualizing CSA and the other forms of child maltreatment as traumatic stressors helps to explain the reasons why child maltreatment has such a profound impact on child and adolescent functioning. Many researchers have examined the pathways through which traumatic stress affects multiple areas of child functioning (e.g., Koverola, 1995; Foy, Madvig, Pynoos, & Camilleri, 1996; Pynoos, Steinberg, & Wraith, 1995; Vernberg, La Greca, Silverman, & Prinstein, 1996) and various models have been proposed. Reduced to their common elements, the models suggest that traumatic events can impact children's own psychological functioning and the functioning of their

social environment, including their family, school, and community.

One important way that trauma impacts children's individual functioning, and functioning in relation to others, is through its impact on affect regulation (Pynoos et al., 1995). Affect regulation refers to conscious and unconscious ways in which individuals control their emotional experiences in order to meet certain goals (Thompson, 1994). As they develop, children are increasingly able to moderate their emotions in order to meet goals such as keeping their caregivers in close proximity or maintaining their self-esteem. Generation of intense negative affect by a traumatic event has been found to challenge children's developing mechanisms of affect regulation (Parens, 1991). Newly developing strategies for tolerating negative emotions are often too fragile to deal effectively with extremely negative emotions such as the terror and rage associated with child maltreatment. Children may then revert to primitive affect regulation mechanisms from previous stages of development or they may become overwhelmed by negative affect, thus resulting in symptoms of psychopathology (Cole et al., 1994).

The mechanisms of affect regulation thought to be used by traumatized children include defense mechanisms (Carlson & Sroufe, 1995). There is confusion in the literature, however, as to the role of defense mechanisms in maltreated children. For example, dissociation is the label given to a defense mechanism but it is also the term used to describe a symptom of maltreatment (Lipovsky, 1994), rather than a mechanism that moderates the impact of abuse by helping children to moderate their affective response. Indeed, dissociative symptoms are a defining characteristic of one of the three PTSD symptom clusters in DSM-IV (APA, 1994). An important step in the investigation of children's trauma is, therefore, a delineation of defense mechanisms as internal processes that continually impact the ways in which they perceive traumatic

events and the defensive behaviours that result from these processes and are observable, as post-traumatic symptoms. Hence the moderating role of defensive processes on the relationships between child sexual abuse, child physical abuse, and child exposure to family violence, and the development of PTSD-specific and -related symptomatology was investigated in this study.

### ***Child Sexual Abuse, Physical Abuse, Exposure to Family Violence, and PTSD***

As mentioned, the first reason to conceptualize the responses of CSA victims as PTSD is that sexual abuse meets the criteria for trauma according to the current psychiatric nosology. Physical abuse and exposure to family violence also meet the criteria. In DSM-IV (APA, 1994), the initial set of criteria for a diagnosis of PTSD is that “[t]he person has been exposed to a traumatic event in which both of the following were present: 1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others; 2) the person’s response involved intense fear, helplessness, or horror. *Note:* In children, this may be expressed instead by disorganized or agitated behaviour” (p. 427-428).

CSA, CPA, and CFV meet the first criterion because sexual abuse, physical abuse, and domestic violence do present a severe threat to the physical integrity of child victims and/or their significant others. Child physical abuse and domestic violence are injurious by definition and sexual abuse is often accompanied by physical brutality (Briere, 1996). In addition, children are often threatened that their lives or the lives of people that they love will be jeopardized if they do not co-operate during the abuse or if they disclose the abuse afterwards. CSA, CPA, and CFV meet the second trauma

criterion because all of the listed responses to traumatic events, from intense fear to helplessness, are reliably observed in their victims (Wolfe & Jaffe, 1991).

The remaining criteria for a PTSD diagnosis are the presence of each of three symptom clusters, namely re-experiencing of the traumatic event, avoidance of stimuli associated with the traumatic event, and hyperarousal (APA, 1994). Research suggests that CSA, CPA, and CFV are each associated to varying degrees with these three types of symptoms (Deblinger, McLeer, Atkins, Ralphe, & Foa, 1989; Pynoos & Eth, 1984; Trickett & McBride-Chang, 1995). For CSA victims, re-experiencing can take the form of dissociative flashbacks or repetitive sexualized re-enactments, sexual talk, sexually inappropriate behaviour (e.g., public masturbation), and nightmares (Deblinger et al., 1989). For CPA and CFV victims, re-experiencing involves aggressive acting out (Pynoos & Eth, 1984; Trickett & McBride-Chang, 1995). For all groups, symptoms of avoidance can appear as loss of developmental accomplishments, limited range of affect, depression, avoidant behaviours, loss of interest in regular activities, and peer relation difficulties. Symptoms of hyperarousal can appear as startle reactions, increased irritability, anger, aggression, sleep difficulties, and difficulties concentrating.

With regards to the fourth category of child maltreatment, child emotional abuse and neglect, it does not meet the criteria for trauma to the same extent as CSA, CPA, and CFV do. Nor do reactions to emotional abuse and neglect necessarily include re-experiencing, avoidance, and hyperarousal symptoms. However, research suggests that the degree of PTSD symptomatology in otherwise maltreated children, for example CSA, CPA, and CFV victims, is strongly related to the degree of emotional maltreatment also present (McGee et al., 1997).

In terms of PTSD prevalence rates in CSA, CPA, and CFV victims, studies

suggest that from 21% (Deblinger et al., 1989) to 100% of CSA victims meet all the criteria for PTSD (Frederick, 1985). When large samples of victims spanning the age range of childhood are examined, PTSD rates are approximately 50% (Adams, Everett, & O'Neal, 1992; McLeer, Deblinger, Henry, & Orvaschel, 1992; Wolfe, Sas, & Wekerle, 1994). Of the CSA victims who do not meet the full criteria for PTSD, many have symptoms from one to two of the symptom clusters ("partial PTSD"; McLeer et al., 1992). PTSD prevalence rates are somewhat lower for CPA victims, ranging from 7% (Deblinger et al., 1989) to 20% of physically abused psychiatric samples (Adams et al., 1992). In his 1985 review of the then-existing literature, Frederick ranked acute PTSD and chronic PTSD as the first and second most prevalent diagnoses for sexually abused children. Acute and chronic PTSD were ranked fourth and fifth for diagnoses of physically abused children. PTSD prevalence rates have not yet been determined in multiple samples of children exposed to family violence, however, a recent study found that the PTSD rate in a sample of CFV victims was significantly higher than that of a sample of children singly attacked by animals (Rossman, Bingham, & Emde, 1997). Another study found that nineteen of twenty children exposed to family violence exhibited mild symptoms of PTSD, at the least (Kilpatrick & Williams, 1998).

The accumulating evidence for a PTSD conceptualization of child maltreatment has influenced the theorists who were originally opposed to it. For example, Finkelhor previously argued that CSA is not necessarily violent or terrifying and, therefore, PTSD may not be the primary reaction in children (e.g., Finkelhor & Browne, 1985). He and Browne furthered another conceptualization of CSA dynamics that included traumatic sexualization, betrayal, stigmatization, and powerlessness. However, as Lipovsky (1994) notes, it may be these feelings and cognitions that contribute to the intrusive

thoughts and avoidant behaviours that characterize traumatized children. Finkelhor's more recent work (e.g., Kendall-Tackett et al., 1993) supports the notion that PTSD is a prevalent response to CSA. Similarly, Terr (1985) initially did not believe that PTSD adequately described the response of chronically traumatized children and, hence, reserved the term PTSD to describe children's responses to singly traumatizing incidences. Terr (1991) has subsequently reformulated child PTSD into Types I and II, the latter referring to phenomena observed in children who are repeatedly maltreated.

In an effort to contribute to this burgeoning area of research, the current study pursued further validation of a PTSD formulation of child maltreatment. The degree to which each form of child maltreatment was associated with each cluster of PTSD symptomatology within a psychiatric sample of maltreated adolescents was examined. The prevalence rate of PTSD in this sample was also examined. Lastly, an argument is made that defense mechanisms have the potential to be an important moderator of adolescents' trauma reactions to child maltreatment, leading to an examination of the role of three different defense styles.

### ***Moderators of the Child Maltreatment - PTSD Relationship***

Despite changes to theorists' conceptualizations of child maltreatment and reports of high rates of PTSD in child maltreatment samples, PTSD does not describe the reactions of all child maltreatment victims. Reported prevalence rates have been highly variable and few studies have found that all maltreated children develop PTSD. Rather, some children appear resilient and develop few or no symptoms of PTSD. Much of the research on factors moderating between child maltreatment and PTSD has focussed on sexual abuse. Kendall-Tackett et al. (1993) reported that symptomatology



is predicted by a lack of maternal support and many abuse variables, including duration and frequency of sexual abuse, penetration, use of force, and relationship to the perpetrator. Briggs and Joyce (1997) found that sexual intercourse and beatings during the abuse predicted PTSD rates in children, even when controlling for the overall level of psychopathology. In McLeer et al.'s (1992) study, 54% of children sexually abused by their fathers developed PTSD, as compared to 42% of children abused by trusted adults and 10% abused by strangers. Wolfe et al. (1989) found that abuse variables accounted for variance in PTSD symptomatology, as did children's age and attributional style. Younger children were more prone to symptoms, as were children who made internal, global, and negative attributions of the abuse. Previous research indicates that these same attributions predict the severity of adult PTSD in survivors of war and rape (Foy, Sipprelle, Rueger, & Carroll, 1984; Steketee & Foa, 1987). Wolfe et al. (1994) also found that the affective component of guilt predicted symptomatology in CSA victims. Taken together, this research suggests that a number of factors related to the type of abuse, the individual child, and the social support system influence the likelihood that a maltreated child will develop PTSD. Many of these factors are already incorporated into the leading models of children's traumatic stress, which will now be discussed.

General models of childhood trauma agree that factors both intrinsic and extrinsic to the child interact to determine the impact of a traumatic event (e.g., Koverola, 1995; Foy et al., 1996; Pynoos et al., 1995; Vernberg et al., 1996). The models also specify similar intrinsic and extrinsic moderating factors. Extrinsic factors include the systemic context of the trauma (e.g., community and family characteristics) and characteristics of the traumatic event (e.g., identity of the perpetrator, number of perpetrators, type of traumatic event, and number of traumatic events). Intrinsic factors include physical

characteristics of the child (e.g., child's age and gender) and psychological characteristics (e.g., child's developmental stage, child personality characteristics, and child's efforts to cope with the trauma). Foy et al. (1996) suggested that the above factors can play various roles in the aetiology of PTSD. Factors that protect children from the effects of trauma are termed "resiliency factors". "Vulnerability factors" are those that add to the effects of trauma to increase reactivity. Factors that alone could result in symptomatology are "independent causes".

Factors that are intrinsic to the child may be particularly important. From a treatment standpoint, maltreated children often present individually for assessment or treatment. While the impact of the perpetrator, other family members, or the community cannot be negated, our ability to help traumatized children often rests in our ability to treat those intrinsic factors that represent a child's vulnerabilities and support those intrinsic factors that promote a child's resiliency (Rutter, 1979). The various childhood PTSD models all posit that children's affect regulation plays a substantial role in their vulnerability or resiliency against PTSD. Koverola (1995) discusses affect as one of the primary areas of child functioning that interacts with the trauma and the systemic context in the development of PTSD. Pynoos et al. (1995) suggest that the child's emerging emotional regulation mechanisms and the immediate generation of intense negative emotions by trauma factor significantly into the aetiology of PTSD, as does the capitulatory emotional regulation of repeated or sequential traumatizations. Vernberg et al. (1996) divide coping efforts into positive coping and "blame and anger", or negative emotional coping. The specific feelings or strategies that constitute positive emotional coping remain unclear. The current study examined those affect regulation mechanisms that protect against or exacerbate a maltreated child's vulnerability given the varying

contextual factors of type and severity of abuse.

### **Children's Mechanisms of Affect Regulation**

The consensus in recent literature (e.g., Cassidy, 1994; Cole, et al., 1994; Garber et al., 1995) is that Thompson's (1994) definition of affect regulation is a succinct one that encompasses the common themes of most emotion theories. According to Thompson (1994):

Emotion regulation consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals (p. 27-28).

This definition has many important features, the first one being that emotions are regulated by the self and by others (Thompson & Caulkins, 1996). Regulation of emotions by others is particularly pertinent to children's affect regulation because caregivers regularly provide emotional support and put emotional demands on children.

The second feature of this definition is that affect regulation is functional in that it is used "to accomplish one's goals". Children's goals are multifaceted but, as Bowlby (1969) notes, the most important goals for children, given their dependency on adults, are to keep adult caregivers close in order to provide for both their emotional and physical well-being.

Thirdly, affect regulation not only involves the suppression of feelings, it may involve the heightening of emotions. For example, if it were beneficial for a child to express more joy than he or she is feeling, affect regulation would involve heightening of positive emotions. If it were detrimental to express an emotion, for example anger,

affect regulation would involve suppression of hostile feelings.

The fourth feature of Thompson's (1994) definition is that this heightening or suppression of emotions occurs via the regulation of attention. Attention to self and others informs children of whether or not an emotion would be beneficial or detrimental in a given situation. Attention to particular aspects of a situation, for example kind words from parents rather than harsh ones, also allows children some control over their emotional experience.

Lastly, this definition suggests that individuals are more able to alter the intensity or persistence with which they experience an emotion than change a discrete emotion. For example, it is more difficult to change anger to its opposite, happiness, than it is to diminish the degree of anger or its persistence over time.

Another consideration is that children have a more limited repertoire of regulatory mechanisms than do adults. Kopp (1989) proposes three general types of affect regulation mechanisms: preadapted programs, elemental cognitive mechanisms, and planful cognitive mechanisms. Kopp considers the mechanisms developmental because they emerge at different times in childhood and, therefore, are not available to all children. Preadapted programs are species-specific ways in which very young infants protect themselves from overwhelming physiological arousal. Eye closing, head turning, and sucking are ways that young infants self-soothe. Bowlby (1969) and Ekman (1982) also suggest that primitive defense mechanisms such as denial are human-specific ways in which infants avoid overwhelming arousal. Later in the first year of life, elemental cognitive mechanisms develop requiring perceptual ability and ability to learn. For example, a distraught child who quiets down upon hearing her mother's voice recognizes that previously her needs were met shortly after hearing that sound and her

affect improves.

Planful cognitive mechanisms demand the increasingly sophisticated cognitive abilities of representation, anticipation of consequences, and monitoring of self and others. Kopp believes that pre-school-age and older children may have access to planful cognitive mechanisms, however, "situations that markedly overload the child inhibit the ability to think in an organized fashion" (p. 345). Children may then revert to more solidified mechanisms of affect regulation from earlier stages of development.

Traumatic experiences are exactly the sort that can overload children's affect regulation abilities. Pynoos et al. (1995) suggest three basic ways in which this can happen. Trauma is characterized by extremely intense negative emotions such as fright and anger. Extreme affect can interfere with certain developmental tasks, depending on a child's stage. Traumatized pre-schoolers may be delayed in their ability to differentiate affective states, school-age children in their ability to express affect, and adolescents in their ability to understand origins and consequences of their emotions.

Secondly, children often attribute blame or ineffectiveness to themselves when they have been helpless participants in a traumatic event. Extremely negative self-focused emotions present a formidable challenge to the developing child's ability to self-soothe and experience pleasant emotions.

As children grow older, trauma-related emotions may also accelerate the awareness of discrepancies between subjective emotions and social expressions of feelings. Hence children may increasingly privatize their affective life, feeling less rather than more able to share their feelings with others.

Cole et al. (1994) use the term emotion "dysregulation" to describe interference by emotions with other important processes. Attention is one process, in particular,

which is implicated in affect regulation (Kopp, 1989; Thompson, 1994). When children are exposed to threatening circumstances or are reminded of such circumstances, their attention is drawn away from the processing of other information in their environment. Temporary alterations in information processing are normal but extended or repeated alterations can interfere with adaptive functioning, for example the ability to learn at school.

Pynoos et al. (1995) observe that the most severe changes to children's attentional processes occur when their own physical integrity is compromised. While many children exposed to trauma focus their attention on certain aspects of the situation, such as monitoring the behaviour of an assailant, children who themselves are threatened may need to engage in more radical self-protective mechanisms. Self-protective mechanisms include fantasy and dissociative responses that enable children to feel distanced from what is happening, to feel it is not happening to them, to control autonomic arousal or pain, and to decrease their feelings of active participation.

When children live in violent environments, the risk of deviation from normal information processing is also increased (Pynoos et al., 1995). Children living with violence are repeatedly threatened and may be unable to recover from acute trauma reactions before re-traumatization occurs. Exacerbating the effects of child-focused trauma and repeated traumatization is trauma perpetrated by caregivers.

If children are abused or witness abuse by their own parents, the implications for affect regulation are even more severe. Revisiting the tenets of Thompson's (1994) theory, parents provide extrinsic regulation of emotions, especially for young children. Not only do parents who abuse their children or one another use unhealthy methods of affect regulation, they substantially increase their children's negative affect, thus

increasing the demands on their developing regulatory systems.

In addition, the goals of affect regulation are very complicated for children of abusive parents. Children must express themselves in order to have needs met by caregivers but certain emotional expressions, for example fear and anger, may incite abusive behaviours. Even positive emotional displays may encourage negative attention from an abusive parent. Children may develop an avoidant attachment style to parents as a result of parental maltreatment (Cicchetti, 1990). Avoidant behaviours, such as avoiding social interaction or maintaining a neutral affective display, may meet the short-term goal of avoiding abuse but in the long-term this style may be maladaptive. Opportunities for positive interactions with other caregivers may be missed (Pynoos et al., 1995). Incongruencies between true feelings and expressed emotions may also develop into a personality style characterized by muted emotionality (Thompson & Caulkins, 1996). This personality style is contrasted with an "affect balanced personality" which is characterized by a balance and range of emotions (Tomkins, 1963; cited in Cassidy, 1994).

While most traumatized children tend to be sensitive to cues associated with the traumatic event, children who are abused in their homes must constantly pay attention. They are frequently exposed to the traumatic agent (e.g., mother or father) and stimuli associated with him or her. These attentional demands increase the likelihood of hypervigilance in children who are traumatized by their own parents. Hypervigilance impairs normal information processing in ways already described (Kopp, 1989; Pynoos et al., 1995) and exhausts many victims of parental maltreatment (Thompson & Caulkins, 1996).

Lastly, if children have been traumatized, they often need to "emotionally re-

process” the events and their ensuing emotions. Both offending and non-offending parents in abusive households may prefer that children deny their experiences or negate their emotions in order to maintain a peaceful household. When children are encouraged to disregard their own attributions and emotions, healthy emotional recovery from trauma can be curtailed (Pynoos et al., 1995).

Thus far it has been argued that trauma interferes with children's development of affect regulation mechanisms, as well as other aspects of emotional development. This interference is greatest when children's physical integrity is threatened, when they are living in a violent environment, and when their caregivers are responsible for their trauma. For all of these reasons, it is highly probable that CSA, CPA, and CFV are some of the most challenging traumas for children's affect regulation. When the ability to regulate emotions is challenged, researchers believe that children revert to more primitive mechanisms of affect regulation (e.g., Kopp, 1989; Thompson & Caulkins, 1996). Defense mechanisms are often conceptualized as the more innate or primitive affect regulation mechanisms. Within defense mechanisms, there also exists a hierarchy from more primitive, or immature, defense mechanisms to more mature ones. Behaviours associated with the more primitive defense mechanisms have been observed in victims of child maltreatment. For example, dissociation and denial are regularly observed in maltreated children (Terr, 1991). In sum, both theory and research suggest that defense mechanisms should play a significant role in the affect regulation of maltreated children. Therefore, the next section will review the normal development of children's defense mechanisms, departures from normal development in traumatized children, and the potential impact of abnormal defensive functioning on child adjustment.



### ***The Development of Children's Defense Mechanisms***

Defense mechanisms refer to processes that maintain aspects of experience compartmentalized from or unintegrated with other organizational aspects of the self. Defensive processes operate in such a way that current modes of perceiving and interpreting situations, feelings, and actions are determined or strongly influenced by earlier responses to emotionally significant events (Carlson & Sroufe, 1995 p. 596-597).

Freud was the first to suggest that an individual's lack of integration of threatening stimuli is an attempt to protect oneself when faced with frightening reminders of the past (1900; cited in Pynoos et al., 1995). Freud later stated that one's self-control of emotions occurs through this process, which he termed defense mechanisms, and that ineffective control resulted in psychopathology such as depression and anxiety (Freud, 1938). Our understanding of defense mechanisms has expanded since Freud's initial theorizing and now multiple lists of defense mechanisms and systems for classifying them exist.

Classification systems for defense mechanisms most often fall along developmental lines. Earlier systems involved the a priori application of labels ranging from "immature" to "mature" to adult defenses, based on constructs such as the cognitive complexity or the degree of reality distortion associated with each defense (Cramer, 1997). Using this approach, both Vaillant (1971) and Haan (1977) created vertical hierarchies of defense mechanisms with the least mature defenses at one end and the most mature defenses at the other. Vaillant has produced impressive longitudinal data on a group of men he has followed for 50 years, demonstrating that clinician ratings of "mature" defenses correlate positively and "immature" defenses correlate negatively with continued success in working and loving (Soldz & Vaillant,

1998). Haan (1977) also found that a mature defense style, which she termed "coping", and an immature defense style, which she termed "defending", correlated positively and negatively, respectively, with upward social mobility and adult increases in IQ. Bond, Gardner, Christian, and Sigal (1983) developed a self-report of twenty-four defense mechanisms for which factor analysis suggested four factors. Research has consistently shown significant relationships between defenses comprising the least mature factor and negative indices of adolescent and adult mental health, and defenses comprising the most mature factor and positive indices (Bond, Christian, Gardner, & Sigal, 1983; Bond et al., 1989).

A second general method for classifying defense mechanisms along developmental lines is to classify them according to the chronological ordering of their emergence (Cramer, 1997). Here it is expected that immature defenses appear earlier in life and mature defenses appear later. This method of classification is pertinent when studying children's defense mechanisms because it also suggests that the different defenses predominate at different stages of child development and, therefore, are normative in all children at some point in their development. Cramer (1997) has expanded this method of classification and proposed that each defense has its own developmental history, being present in some early form in younger children, being full-blown at the appropriate stage in child development, and then declining in use as a new defense predominates. Cramer (1991) has proposed that the developmental course of each defense is as follows. Each defense starts as an innate reflex, which serves as a precursor for a voluntary motor response. Similar to Kopp (1989), Cramer (1997) gives the example of the defense mechanism of denial starting as an innate blink reflex, which is designed to protect the infant from overwhelming visual stimuli, developing into the

voluntary motor reaction of closing one's eyes. This motor reaction is then internalized into a cognitive operation, for example, attention withdrawal from distressing stimuli. The defense continues to develop into more sophisticated forms that include the use of language (i.e., "it didn't really happen") or other more cognitively complex forms such as reaction formation (i.e., "it happened but it was really a good thing"). Each of these forms depends on the cognitive operations that are available to a child at any given stage. Cramer (1997, 1991) has proposed a specific developmental model for three defenses, denial, projection, and identification, each of which encapsulates various developmental forms that are considered to be discrete defense mechanisms by other researchers. However, the defense mechanisms that fall under Cramer's three general defense labels roughly correspond to the defense mechanisms that have been grouped together to form immature, neurotic, and mature defense styles in adult research (Andrews, Pollock, & Stewart, 1989; Vaillant, 1971).

Cramer and others have conducted an impressive number of cross-sectional studies (Brody, Rozek, & Muten, 1985; Cramer, 1979; Cramer, 1983; Diehl, Coyle, & Labouvie-Vief, 1996) and longitudinal studies (Cramer, 1997; Cramer & Block, 1998) on the development of defenses. These studies support the notion that the normal development of defense mechanisms proceeds from a reliance on denial in pre-school, to decreasing use of denial and increasing use of projection in early school years, to the predominance of projection in mid-adolescence, to the decreasing use of projection and increasing use of identification by late adolescence. Cramer and Block's (1998) longitudinal research also suggests that an over-reliance on immature forms of defense mechanisms as late into development as adulthood is a result of the strong use of the defense at the stage where it predominated. They found that the use of denial in 23-

year-old men was predicted by indications of low ego resiliency and high levels of environmental stress when the men were pre-schoolers, ages 3 to 4. This finding is an example of the atypical development of defense mechanisms, or the over-reliance on immature defenses at later stages in development, that is thought to be responsible for the long-term negative impact of traumatic levels of stress on maltreated children.

### ***Atypical Development of Defenses in Traumatized Children***

As described earlier, when children are overwhelmed by stress at a particular developmental level, they may over-utilize certain affect regulation mechanisms or use developmentally primitive ones. This over-utilization may permanently alter their course of affect regulation development and, thus, have long-lasting effects on their patterns of defensive functioning. Indeed, Adams-Tucker (1984) examined the hospital charts of sexually abused school-age children for evidence of any of 22 defense mechanisms commonly discussed in the literature. She found that the majority of children were still using denial, a defense characteristic of pre-school age children, as their dominant defense mechanism in later childhood.

In addition to denial, Fischer and Ayoub (1995) describe dissociation and affective splitting as normal cognitive processes that predominate in early and mid-childhood but become fixed parts of the personality used to defend throughout the lifespan if a child is chronically abused in earlier childhood stages. Affective splitting refers to children's natural tendency to organize their worlds into polar opposites, such as positive and negative, right and wrong, or friends and enemies. Affective splitting occurs when children perceive events, people, or aspects of a situation as completely positive or negative. Affective splitting is a developmentally intermediate defense in that

children are only expected to bridge concepts of positive and negative occurring in the same object starting around the ages of 6 or 7.

Affective splitting is a specific type of the general category of dissociative processes. Children may engage in other forms of dissociation when they process information, for example, they often dissociate the height and width of an object. Young children sometimes judge the size of an object by its height, sometimes by its width, but only with increasing cognitive capacity can they consider both aspects at once. Fischer and Ayoub (1995) maintain that affective splitting and dissociation are natural processes in children. However, they discuss motivated splitting and dissociation as something very different than those processes that occur normally in all young children.

When children are directly and repeatedly maltreated through their caregivers, they are motivated to “escape: their reality however possible. As Cole et al. (1994) point out, help seeking, avoidant, or instrumental coping are not viable options when a child’s own parent is abusive. For children incapable of physically escaping, dissociation (often considered a form of denial; Cramer, 1991) allows them to psychologically disconnect from their experience and “go somewhere else”. Affective splitting allows them to maintain a good parent (e.g., “Dad is evil, Mom’s an angel”), or a good part of the parent or the self (e.g., “I’m bad at night but I’m good during the day”; Fischer & Ayoub, 1995). Research has found that levels of dissociation peak in pre-school and quickly decline in non-maltreated children (Cole, Alexander, & Anderson, 1996). However, Macfie et al. (1999) found that, for those children who were sexually or physically abused during the pre-school stage, dissociation actually increased from pre-school to school-age. Friedrich and colleagues (1997) also found that the duration and nature of sexual abuse was a better predictor of dissociation than child age in a paediatric in-patient sample. In

keeping with Cramer's (1997) theory of the long-lasting effects of defense overuse, Chu and Dill (1990) found that the degree of sexual abuse and physical abuse that occurred during childhood was more highly correlated with dissociation in adult in-patients, than was psychiatric diagnosis of a dissociative disorder. Less research has examined the short- and long-term effects of school-age maltreatment on levels of affective splitting. Other defenses have also been observed in child victims of trauma, although researchers have yet to document the degree to which these defenses appear (Pynoos et al., 1995). For example, traumatized children who have revenge fantasies are said to be engaging in "identification with the aggressor" and, for example, may imagine themselves to be the killer with the gun. Or children may have rescue fantasies using the defense mechanism of "omnipotence" and envision themselves as all-powerful beings, for example superheroes, so that they can protect themselves from danger next time. However, as already mentioned, these defenses have not been reliably observed across samples of maltreated or otherwise traumatized children. The discrete defenses that have been reliably observed continue to be denial and dissociation.

Thus far, child maltreatment victims who had few options when faced with intolerable circumstances in childhood seem wise to have dissociated from their experiences or denied them altogether. But as Terr (1991) observed, "massive denial and psychic numbing are primarily associated with the long-standing horrors of childhood...Children who experience this type of stress may employ such extreme numbing and denial that they look extremely withdrawn or inhuman" (p. 177). Numbing and denial to the extent of looking "inhuman" sounds highly maladaptive. Herein lies an inconsistency in the treatment of maltreated children's defenses in the literature. While some theorists discuss them as necessary for psychic survival and, therefore, adaptive,

other theorists discuss the same defenses as being maladaptive. Understanding the finer distinctions that make a defense, or defense style, adaptive or maladaptive for a maltreated child is the focus of much of the current literature, and of the current study.

### ***Interrelations between Traumatic Stress, Defenses, and Child Adjustment***

The relationships between varying levels of stress, defense styles, and psychological adjustment have been under debate for decades. Anna Freud (1966) was the first to theorize that defenses are only pathological if one or a few are used to the exclusion of others or if age-inappropriate defense mechanisms are used. Current theorists maintain that it is rigidity in defensive functioning that is detrimental for psychological adjustment. Cassidy (1994) believes that the experience of traumatic stress often leads to the inflexible distortion of information by the same few defenses and that this is unhealthy, whereas the occasional distortion of painful stimuli promotes psychological health. In line with Thompson's (1994) affect regulation theory, the ability to distort incoming stimuli would not exist were it not functional for the individual. However, continual distortion may negatively impact attention, memory, or personality development (Carlson & Sroufe, 1995).

When denial or dissociation are apparent in adult survivors of child maltreatment, Cole et al. (1994) deem it psychopathological, again suggesting that developmental stage is an important consideration for the virtue of defenses. Indeed, research has found that the use of denial and dissociation and other defenses associated with earlier stages in development positively correlates with suicidality, delinquency, and violence in adolescents (Apter et al., 1997; Feldman & Gowen, 1998; Steiner & Feldman, 1995).

Thompson and Caulkins (1996) go beyond the delineation of developmental

stages and suggest that the specific point in time when an affect regulation mechanism is used will determine its role. Using Foy et al.'s (1996) language, defense mechanisms that protect the child from current abuse will be resiliency factors, whereas the same defenses can be vulnerability factors years, months, or even days later. For example, dissociating during an actual abusive incident is beneficial for a child but dissociating in the classroom days or months later is not.

Lastly, recent research suggests that the severity of stress is relevant to the impact that the various defense mechanisms will have. Studies generally find that children who have poor psychological adjustment use more of the immature defenses (e.g., Feldman, Araujo, & Steiner, 1996; Shaw, Ryst, & Steiner, 1996). In a group of boys exposed to low levels of interparental conflict, Warren (1996) also found a positive relationship between immature defenses and psychological symptomatology. However, boys who were exposed to higher levels of conflict, escalating to domestic violence, demonstrated less symptomatology if they used more of the immature defenses. This finding supports the notion that the degree of stress to which children are exposed has implications for the relative impact of their defense styles on their psychological functioning. Warren (1996) also found that use of a mature defense style corresponded with lesser psychological symptomatology in girls exposed to low levels of interparental conflict. However, for girls exposed to higher levels of interparental conflict, use of a mature defense style corresponded with increased psychological symptomatology. The role of "intermediate" or "neurotic" defenses was less clear in Warren's study, however, Steiner and Feldman's (1995) examination of defense styles in adolescents suggested that the role of neurotic defenses may also be gender-related. They found that both male and female adolescents who used primarily immature defenses had poorer



psychological functioning and male and female adolescents who used primarily mature defenses had better psychological functioning. Males who were characterized as having a neurotic defense style also had better psychological functioning relative to their peers but females with a neurotic defense style had relatively poorer psychological functioning.

Taken together, the above findings suggest that the theoretical role of immature through mature defense mechanisms postulated earlier in this thesis bare out in the research. While there is a hierarchy of affect regulation mechanisms with defense mechanisms being the more primitive or innate mechanisms, there is a hierarchy amongst the defense mechanisms, themselves. The more cognitively complex defense mechanisms that are still undergoing development in a child are adequate to regulate lower levels of stress and, indeed, are associated with better psychological adjustment under this condition. However, the more immature defense mechanisms that are associated with a greater distortion of reality, but are nonetheless fully developed and available to a child, are more adaptive under conditions of high stress, in that they are associated with better psychological adjustment to potentially traumatizing conditions. In sum, the relationships between developmental stage, defense style, and exposure to stress appear highly complex. No conclusive evidence has come forth to suggest that one way or another of defending is best under any or all levels of stress. The current study aims to contribute to a developing literature that examines the psychological costs and benefits of different styles of defending against stress, in the form of child maltreatment.

### **Rationale for the Current Study**

It is apparent that the goals of affect regulation are highly complex for children living in environments characterized by maltreatment (Thompson & Caulkins, 1996). They must keep caregivers available but they must protect against further maltreatment, if possible. They must also use newly developing affect regulation techniques to regulate extremely negative emotions. There are many reasons why the experience of abuse would overwhelm a child's capacity to regulate affect (Pynoos et al., 1995), hence we expect that child victims revert to more immature defense mechanisms (Kopp, 1989; Cramer, 1997). There is confusion in the literature, however, as to the role that defense mechanisms play. For example, dissociation is labelled as a symptom of PTSD in children rather than a mechanism that protects them. Research is only beginning to examine the interrelations between intra-psychic defense mechanisms and the symptoms that are traditionally associated with traumatic stress (Muris & Merckelbach, 1997). This study will do so with regards to the most prevalent source of traumatic stress in children's lives, namely child maltreatment. The impact of child maltreatment, in the form of child sexual abuse, child physical abuse, child exposure to family violence, and child emotional abuse on children's defense styles, and the impact of children's defense styles on their reactions to maltreatment, will be examined within the childhood stage of adolescence. Adolescence is a particularly important stage within which to examine the inter-relations amongst these variables because adolescence is a time when many children reflect on their life experiences, thus far, and begin to develop a coherent sense of themselves across place and time. Thus an indication of the lasting impact of childhood maltreatment on individuals' self-concepts may become apparent as

they enter this last stage of childhood. As summarized by McGee et al. (1997, p, 133),

**Youth's perceptions of their maltreatment history may convey diverse elements: their capacity to consciously integrate maltreatment by attachment figures vis a vis defenses aimed at denial or distortion of maltreatment, their self-awareness regarding the impact of such events, and their negotiation of the affect generated by such reflection.**

### **Hypotheses**

The amount of child maltreatment, use of defense styles, and amount of psychological symptomatology in an adolescent psychiatric sample was examined and the following specific predictions were made.

1 a.) It was predicted that greater levels of child maltreatment would be associated with greater levels of psychological symptomatology, in the form of PTSD-specific symptomatology (i.e., re-experiencing, avoidance, and hyper-arousal symptoms) and PTSD-related symptomatology (i.e., internalizing and externalizing behaviour problems).

1 b.) It was predicted that greater use of an immature defense style would be related to greater psychological symptomatology in the sample, as a whole. It was also predicted that greater use of a mature defense style would be related to lesser symptomatology.

The relationship between an intermediate, or neurotic, defense style and psychological symptomatology was less certain but it was explored in this study. Lastly, the relationships between child age and child gender and all other named variables were examined.

The second set of hypotheses regarded the moderating effects of defense mechanisms on the relationship between the other variables. It was hypothesized that the relationship between child maltreatment and psychological symptomatology would change depending on the degree to which adolescent participants used each of the defense styles.

2 a.) At high levels of an immature defense style, it was hypothesized that low levels of maltreatment would be associated with greater psychopathology than at low levels of an immature defense style. However, at high levels of an immature defense style, it was predicted that high levels of maltreatment would be associated with less psychopathology than at low levels of an immature defense style.

2 b.) At high levels of a mature defense style, it was hypothesized that low levels of maltreatment would be associated with less psychopathology than at low levels of a mature defense style. However, at high levels of a mature defense style, it was predicted that high levels of maltreatment would be associated with greater psychopathology than at low levels of a mature defense style.

Again, the impact of a neurotic defense style was less predictable. However, the moderating effects of a neurotic defense style on the relationships between child maltreatment and psychopathology were also examined.

The second set of hypotheses examined the moderating effects of three defense styles on the relationships between four types of child maltreatment (CSA, CPA, CFV, and CEA) and five indices of psychological adjustment (internalizing behaviour problems, externalizing behaviour problems, and DSM-IV Criteria B, C, and D PTSD symptoms).

## **METHOD**

### **Participants**

The participants in this study were adolescents who were referred to the Maples Adolescent Centre in Burnaby, BC from January, 1998 to June, 1999. As this is a provincial assessment centre, the adolescents came to the Maples from rural and urban settings throughout British Columbia. The mandate for the Maples program is to assess and treat severe behaviour disorders in adolescents. All adolescents who participated in this research project were specifically members of the Response Program at the Maples which offers an assessment of the adolescents' needs for continuing care in their home communities.

Forty-five males and 30 females participated in this study. The age of participants ranged from 11 years, 2 months to 18 years, 0 months ( $M = 14.5$  years;  $SD = 17.5$  months). The ethnic breakdown of participants was as follows: 76% Caucasian; 12.7% Native Canadian; 3.2% Asian; 1.6% Indo-Canadian; and 6.3% other ethnicity. The socio-economic breakdown of the sample, according to that of their parents, was as follows: 4.0% did not report their SES status; for 2.6% it was not applicable (e.g., their parents were both deceased); 10.7% of participants' families made more than \$50,000 annual income; 17.3% made \$30,000 to \$45,000; 34.7% made \$15,000 to \$30,000; and 30.7% made less than \$15,000.

## Procedure

This study was part of a larger investigation of adolescent behaviour problems. Adolescents were interviewed three times on the Maples' premises during their month-long stay. During one session, clinical interviews were conducted, including a diagnostic interview to assess a wide range of DSM-IV disorders and an interview pertaining specifically to the assessment of PTSD. During another session, projective tests were administered that were not used for the purposes of this study. During a third session, participants completed questionnaire packets that included self-report measures of child maltreatment, defense mechanisms, and behaviour problems. The adolescents were paid \$30 for their participation. Trained graduate students, supervised by a registered psychologist, conducted the interview sessions. Guardians provided informed consent at the outset of admission of their adolescents to the Maples program. Adolescents, themselves, were asked for consent upon contact by the graduate student research assistants. They were informed of the nature of the study, their freedom to withdraw from the study at any time, and the limits of confidentiality. Once they were discharged from the Maples, participants' names were removed from all data and replaced with subject numbers.

## Measures

*Clinician-Administered PTSD Scale - Child and Adolescent Version (CAPS-CA;* Nader et al., 1996). The CAPS-CA is a semi-structured interview designed to aid in the diagnosis of PTSD in children and adolescents. It begins with an assessment of

children's exposure to possibly traumatizing events and proceeds with an assessment of the frequency and intensity of past and current PTSD symptoms, including the three clusters of re-experiencing, avoidance, and hyperarousal symptoms. The CAPS-CA is a new measure of children's PTSD and reliability and validity information has yet to be published but the original CAPS for adults, on which it is based, has demonstrated discriminant validity (Hyer, Summers, Boyd, & Boudewyns, 1996) and test-retest reliability (Blake et al., 1995).

Recent research highlights the importance of analyzing the three PTSD symptom clusters separately, when examining the relationships between different types of trauma and re-experiencing, avoidance, and hyperarousal symptoms (Blaustein, 1999; Maes et al., 1998a). Hence the CAPS-CA data was analyzed in this study as three measures of PTSD symptomatology (aligning with DSM-IV PTSD criteria B, C, and D). The CAPS-CA was chosen as the measure of PTSD symptomatology for this study specifically because it does provide continuous scores for symptom frequency and intensity for past and current symptoms, thus capturing more variance in PTSD symptomatology than traditional diagnostic interviews (e.g., the DICA). The CAPS-CA was additionally used in this study to collect current symptom frequency and intensity information for adolescents who did not endorse a Criterion A event, given research that suggests that many maltreated adolescents do not deem their maltreatment experiences as life-threatening or frightening (Warren, Shercliffe, & Moretti, 1998). The CAPS-CA was administered by two sets of three graduate students trained by a psychologist. Reliability was calculated to be 0.50 using Cohen's Kappa statistic, for agreement between raters on a current diagnosis of PTSD for a subset of interviews ( $N = 12$ ). Because of the relatively low rate of agreement, the qualifications for CAPS-CA scores were further clarified with the raters

and they scored additional practise interviews.

*Diagnostic Interview for Children and Adolescents - Revised* (DICA-R; Reich, Shayka, & Taibleson, 1991). The DICA-R is a structured interview that assesses symptoms indicative of DSM-IV (APA, 1994) diagnoses. Children are asked about the frequency, impact, and age of onset for symptoms. Good construct validity is suggested for its predecessor, the DICA, because of the high concordance between DICA- and clinician-derived diagnoses ( $K = .75$ ; Welner, Reich, Herjanic, Jung, & Amado, 1987). The total number of DICA-R diagnoses was used in this study as an alternative measure of psychopathology, other than PTSD, with which to compare adolescents' self-reported psychopathology. Specifically, major depressive disorder, separation anxiety disorder, generalized anxiety disorder, attention-deficit-hyperactivity disorder, oppositional defiant disorder, conduct disorder, alcohol abuse and dependence, marijuana abuse and dependence, and street drug abuse and dependence were assessed using the DICA-R. DICA-R interviews were conducted by two sets of three graduate students; their reliability on a subset of fourteen interviews was calculated using Cohen's Kappa statistic. Reliability ranged from 0.44 for Generalized Anxiety Disorder to 0.80 for Conduct Disorder.

*Defense Style Questionnaire-Revised* (DSQ-R; Andrews, Pollock, & Stewart, 1989). The DSQ-R is 72-item version of Bond's original 88-item DSQ that measured 24 defense mechanisms (Bond et al., 1983). Andrews et al. (1989) dropped the 10 items comprising Bond's Lie Scale and six other items that could not be reliably labelled with DSM-III-R labels by multiple clinicians. The DSQ-R now sums items into 20 defense mechanism scales. The DSQ and DSQ-R are self-reports that require individuals to indicate their use of individual defense mechanisms, as well as groupings of defense



mechanisms called defense styles, with ratings on a nine-point Likert scale. Bond (1986) warns against the interpretation of individual defenses, stating that "it would be impossible to conclude anything about isolated defense mechanisms, but we hoped that we could approximate the measurement of groups of defense mechanisms" (p. 5-6).

The DSQ and DSQ-R rely on individuals' awareness of their own defense mechanisms which are, by definition, hidden from awareness. However, Bond (1986) maintains that there are times when defenses fail and individuals temporarily become aware of their impulses and their usual ways of coping with them. Other people may also point out to individuals the characteristic ways that they respond to stress. Individuals may also be aware of their behaviours, such as taking their anger out on other people, without realizing the defensive process responsible for it. In all of these ways, Bond (1986) believes that self-reports of defense styles are meaningful.

Indeed, Bond and colleagues have provided much support for the validity and reliability of the DSQ defense styles when used with adults (Bond et al., 1983; Bond et al., 1989). The internal consistency of the DSQ-R factors fall within an acceptable range (alpha coefficients from .59 to .89) and the 4 week test-retest reliability is high (.68 to .86; Andrews, Singh, & Bond, 1993). Good construct validity is suggested by the distinction of anxiety patients from normals, based on their greater use of immature and neurotic defense styles (Andrews et al., 1989). Most importantly for the purposes of this study, the DSQ-R has been used reliably with normal samples of adolescents (Tuulio-Henriksson, Poikolainen, Aalto-Setälä, & Lonnqvist, 1997). However, as of 1998, the DSQ-R had not been used in its adult format with clinical samples of adolescents. Rather, researchers have rewritten items for a lower reading level and summed items according to the standard instructions and/or factor analyzed their adolescent data to

inform their calculation of defense style scores (Feldman, Araujo, & Steiner, 1996; Nasserbakht, Araujo, & Steiner, 1996; Sammallahti et al., 1994; Steiner & Feldman, 1995).

For this study, the DSQ-R was re-worded similarly to the Nasserbakht et al. (1996) version. In Nasserbakht et al.'s (1996) study, data from 737 adolescents were examined; half of the sample were normals, a quarter were adolescent psychiatric in-patients, and a quarter were juvenile offenders. Nasserbakht et al. (1998) re-worded a minority of the original DSQ items to a 7th to 8th Grade reading level. They then summed the defense items into varying number of defense mechanism scores according to the summation rules of Bond et al. (1983), Andrews et al. (1989), and Steiner and Feldman (1995). Finally, they completed three separate factor analyses of the defense mechanism scores arrived at by the three methods of summation. The results were similar for all three analyses, suggesting that any one of the three methods for calculating individual defense mechanism scores could be used with adolescents. This finding supports the decision to use the Andrews et al. (1989) defense mechanism summation rules in this study. For each factor analysis, Nasserbakht et al. (1998) found that four factors best fit the data. One factor was comprised entirely of defense mechanisms that are traditionally considered to be immature. Another factor contained some defense mechanisms that are considered to be mature in the adult literature and others that are considered to be immature, or intermediate, but likely represent mature defenses within adolescents. The last two factors were less stable, containing items from one defense mechanism each, humour and reaction formation.

In this study, six of Andrews et al.'s (1989) DSQ-R items were re-worded, in order that the DSQ-R would have an approximately 8th grade reading level, in

consultation with two child psychologists and two adolescent volunteers. Individual defense mechanism scores and defense style scores were then calculated in the manner informed by Andrews et al. (1989) factor analysis of adult data rather than Nasserbakht's factor analysis of adolescent data. This decision was made because the styles derived from Andrews et al.'s (1989) factor analysis appeared to be the most stable and the most interpretable. The three defense styles that were derived were consistent with the theoretical understanding of a defense hierarchy. An immature defense style was composed of projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization; a neurotic defense style was composed of undoing, altruism, idealization, and reaction formation; and a mature defense style was composed of sublimation, humour, anticipation, and suppression.

An individual defense mechanism score in this study is the average response of the items contributing to that defense mechanism. A defense style score is the average score for the individual defense mechanisms that contribute to that style. The Mature defense style score represents an average score on defense items that had the highest loadings on a "mature" factor. The Immature defense style score represents an average score on defense items that had the highest loadings on an "immature" factor. The Neurotic defense style score represents an average score on defense items that had the highest loadings on an intermediate, or "neurotic" factor.

*Record of Maltreatment Experiences (ROME; Wolfe & McGee, 1994).* The self-report version of the ROME was used in this study. It is an 87-item scale consisting of five subscales, four of which were used; child sexual abuse, child physical abuse, child exposure to family violence, and child emotional abuse. Participants were asked to

indicate a rating from 0 "never happened" to 3 "happened often" for a variety of items tapping maltreatment that they may have experienced at the hands of mothers, fathers, or other adults across their lifetimes. A significant relationship between the factors represented by the ROME's subscales and actual abuse experiences has been demonstrated in a sample of high-risk adolescents (Wolfe & McGee, 1994).

The ROME also provided the basis for the coding system that was used to detect evidence of child maltreatment in participants' social histories. Social histories are reports written by social workers for every adolescent under assessment at the Maples. Social histories were coded on the basis of the severity and the chronicity of child sexual abuse, child physical abuse, child exposure to family violence, and child emotional abuse and neglect. Severity ratings from 0 "never happened", to 1 "mild form", 2 "moderate form", and 3 "severe form" were based on hierarchies of abusive behaviours taken from ROME self-report items and organized according to the prevailing literature (e.g., Barnett, Manly, & Cicchetti, 1993; McGee, Wolfe, & Wilson, 1997; Wolfe & McGee, 1994, see Appendix A). Chronicity ratings were based on the number of developmental stages over which particular types of maltreatment were mentioned. A rating of 0 indicated that the abuse "never happened", 1 indicated that it happened within "one developmental stage", 2 indicated that it happened across "two developmental stages", and 3 indicated that it happened across "three or more developmental stages". Lastly, an indication was made for each form of maltreatment whether it was "suspected" by the social worker or "confirmed" by social work or the police. The author and a trained Honours psychology student completed the social history codings. Reliability was calculated using Cohen's Kappa statistic and ranged from 0.50 for the child sexual abuse scale to 0.84 for the child physical abuse scale. The severity scales alone were

used as a second indication of participants' exposure to each form of maltreatment.

*Youth Self-Report* (YSR; Achenbach, 1991). The YSR is a 112-item questionnaire that asks youth to self-report the specific behaviour problems that they have been having in the last six months. Items are rated from 0 "not true" to 2 "very true or often". Acceptable test-retest and inter-rater reliability and content-, construct-, and criterion-related validity have been reported for the Child Behaviour Checklist, on which the YSR is based (Achenbach & Edelbrock, 1981). Two scores were used for the purposes of this study: the internalizing behaviour problems score and the externalizing behaviour problems score.

## RESULTS

All participants in this study completed the child maltreatment measure and the defense style measure ( $n = 75$ ). However, sixteen participants were missing data for seven items of the 72-item DSQ-R because the measure was revised part way through the study. For those participants missing items, the BMDP A/M program was used to estimate values for the items, based on regression coefficients derived from the participants' scores on the other DSQ-R items.

Some participants were missing data for each of psychological adjustment measures. Most notably, fifteen participants were missing data for the CAPS-CA symptom cluster sub-scales because of the protocol that was originally used when collecting the data. The instructions accompanying the CAPS-CA suggest termination of the semi-structured interview regarding post-traumatic symptomatology if individuals do not endorse experiencing a Criterion A traumatic event. These instructions were followed for approximately the first six months of data collection. However, research was subsequently conducted that suggests that despite their denial of having experienced a traumatic event, some individuals may have post-traumatic symptoms (Warren, Shercliffe, & Moretti, 1998). From that point forth, participants' post-traumatic symptoms were queried regardless of their Criterion A status. DICA-R semi-structured interviews were also incomplete for thirteen participants and fourteen participants failed to return their self-reports of psychological symptomatology (YSR).

The distribution of key variables was examined and the data were examined for outliers. The impact of age and gender on participants' scores was examined by

correlating these variables with all other variables (see Appendix B). A positive correlation was found between age and accumulated experiences of child physical abuse, as well as age and self-reported internalizing and externalizing behaviour problems. No meaningful patterns of correlations were found for age and other key variables, including defense styles, suggesting that the age group examined represented a single stage in defense development. Significant correlations were found for gender and other variables. Therefore, the role of gender was explored in subsequent analyses.

## **Descriptives**

### ***Degree of Child Maltreatment***

Twenty-five participants (7 females, 18 males), or 33% of the sample, refused to indicate whether or not they had experienced child sexual abuse in their lifetimes. Thirty-six participants (10 females, 26 males), or 48% of the sample, indicated that they had not been sexually abused. Fourteen participants (13 females, 1 male), or 18.7 % of the sample, indicated that they had experienced a number of sexual abuse acts in childhood thus far ( $M = 1.96$ ,  $SD = 3.92$ ). Notably, only one of the fourteen positive respondents was male.

All subjects completed the portion of the ROME questionnaire pertaining to the three other types of child maltreatment investigated in this study. The physical abuse, exposure to family violence, and emotional abuse scales were calculated differently than the sexual abuse scale. Participants were asked to elaborate on the frequency of abusive acts (from 0 "never happened" to 3 "happened often"). The frequency of nine

acts of physical abuse by three different caregivers (i.e., mother, father, and other) was examined, for a range of possible scores from 0 to 81. Ten participants (3 females, 7 males), or 13.3% of the sample, reported that they had not been physically abused in their lifetimes, while 65 participants (27 females, 38 males), or 86.7% of the sample, reported that they had been ( $M = 11.7$ ,  $SD = 10.4$ ).

The frequency of nine acts of exposure to family violence by three different caregivers was also examined. Twenty participants (6 females, 14 males), or 26.7% of the sample, reported that they had not been exposed to acts of family violence. Fifty-five participants (24 females, 31 males), or 73.3% of the sample, reported child exposure to family violence ( $M = 7.47$ ;  $SD = 8.72$ ).

The frequency of 23 acts of emotional abuse by three different caregivers was examined, for a range of possible scores from 0 to 207. All participants reported experiencing some degree of child emotional abuse ( $M = 38.45$ ;  $SD = 26.43$ ).

Correlations between participants' self-reports of maltreatment experiences and the severity scores assigned to social worker reports documenting their maltreatment experiences support the notion that the majority of adolescents accurately reported their maltreatment experiences (see Appendix C). In particular, there were significant positive relationships between participants' self-reports of child sexual abuse experiences and social worker reports, and participants' self-reports of exposure to family violence and social worker reports. The experiences of the researchers coding the social work reports suggested that the lesser correlation of self-reports of child physical abuse and child emotional abuse, with social worker reports was most likely due to the lesser degree of notoriety associated with these two types of maltreatment. Acts of child physical abuse appeared to have to reach a higher threshold (e.g., resulting in the injury



of a child), relative to the other forms of maltreatment, in order to be documented by social workers. And although child emotional abuse is oftentimes concomitant with physical or sexual abuse, it is particularly difficult to quantify (McGee, Wolfe, & Wilson, 1997; Wolfe & McGee, 1994) and it, too, appeared to be documented in less detail in the social worker reports used in this study.

### ***Use of Defense Styles***

The participants in this study reported behaviours indicative of all of three defense styles. Defense style scale scores are directly comparable with one another, as scores represent an average score for all items loading onto a particular defense style. The defense style scores range from 1 "strong disagreement" to 9 "strong agreement" that an individual uses the defenses contributing to a particular defense style. Items reflecting the different defense styles were similarly endorsed. The average score on items contributing to a mature defense style was the highest ( $M = 4.46$ ,  $SD = 1.14$ ). Items reflecting an immature defense style were the second most endorsed ( $M = 4.04$ ,  $SD = 1.11$ ). Participants endorsed items reflecting a neurotic defense style the least ( $M = 3.82$ ,  $SD = 1.26$ ).

### ***Degree of Psychopathology***

On their self-report of problem behaviours, participants reported a similar degree of externalizing behaviour problems ( $M = 65.63$ ,  $SD = 12.13$ ) and internalizing behaviour problems ( $M = 56.93$ ,  $SD = 13.05$ ). Thirty-three participants, or 54% of respondents to the questionnaire, had scores within the clinical range on the YSR externalizing scale. Eighteen participants, or 30% of respondents, had scores within the clinical range on the

internalizing scale.

A semi-structured clinical interview was used to assess the number of psychiatric diagnoses for which participants met the DSM-IV criteria. Participants met criteria for zero through seven of nine psychiatric disorders that were assessed, with a mean of 3.15 disorders ( $SD = 1.81$ ). Conduct Disorder was the psychiatric disorder that was most frequently observed in this sample; 45 participants who completed the DICA-R interview, or 60% of the total sample, met the criteria for a current diagnosis of Conduct Disorder.

On the semi-structured clinical interview for PTSD, specifically, 12 participants, or 16% of the sample, met the DSM-IV criteria for a current PTSD diagnosis. Of those participants who did not meet the criteria for a full PTSD diagnosis, the majority reported some degree of PTSD symptoms. Only 12 participants, or 16% of the sample, reported no DSM-IV Criteria B, C, or D symptoms.

In terms of the correspondence between different measures of psychological adjustment, both self-reported rates of internalizing and externalizing behaviour problems correlated positively with the number of psychiatric disorders assessed through the DICA-R interview (see Appendix D). Self-reports of internalizing and externalizing behaviour problems were also positively correlated with the amount of DSM-IV Criteria B, C, and D PTSD symptoms.

### **Model Specification**

Throughout this thesis it has been postulated that defense mechanisms moderate the relationship between experiences of childhood maltreatment and levels of

psychopathology in adolescence. If this is the case, then certain statistical relationships between these variables should exist. Namely, the independent variable(s) (i.e., the types of child maltreatment) should be significantly related to the dependent variable(s) (i.e., the measures of psychological adjustment). Moderator variables (i.e., defense styles) are considered to be at the same level of independent variables, in that they are both antecedent to changes in the dependent variable (Baron & Kenny, 1986). An alternative model to moderation that explains the role of third variables is mediation. Mediation stipulates that the third variable must intervene between the independent and dependent variables, in order for their relationship to be significant. Moderation does not stipulate this order of events; the assignment of variables to independent and moderator status may appear arbitrary from a statistical standpoint. However, one group of variables may be deemed to be the independent variables because theory or research suggests the strongest causal role for those variables in determining the values of the dependent variables. Moderator variables, alternatively, may or may not have a causal relationship with dependent variables; their importance in this model is that they act to “[partition] a focal independent variable into subgroups that establish its domains of maximal effectiveness in regard to a given dependent variable” (Baron & Kenny, 1986, p. 1173). In this way, a variable is said to be a moderator because it affects the degree or strength of the pre-existing relationship between an independent variable and a dependent variable.

The current data suggest that it is unlikely that a mediation model, rather than a moderation model, would better explain the maltreatment-defense-psychopathology relationship. The main effects that will be presented for maltreatment variables with all forms of psychopathology support the notion that the independent and dependent

variables in this study have a significant relationship with one another (see Appendix F). However, the data suggest that defense styles affect the degree and the direction in which this relationship exists.

### **Regression Analyses**

In order to test the main hypotheses, that defense styles moderate the relationships between child maltreatment and psychopathology, sixty sets of regression analyses were run. This number represents an analysis of the impact of three different defense styles on the relationship between four types of child maltreatment and five indices of psychological adjustment. The overall pattern of results suggests that interactions between certain types of maltreatment and certain defense styles have implications for the development of specific types of psychopathology. Therefore, the results will be presented here in sections according to the dependent variable in the analyses, including self-reported externalizing and internalizing behaviour problems, and structured interview data regarding three clusters of PTSD symptomatology.

#### ***Externalizing Behaviour Problems***

Moderation effects appeared twice in the twelve regression analyses when externalizing behaviour problems was the dependent variable, once for an immature defense style and once for a neurotic defense style. At high levels of an immature defense style, low levels of child sexual abuse were related to greater externalizing behaviour problems than at low levels of an immature defense style. However, at high levels of an immature defense style, high levels of child sexual abuse were related to

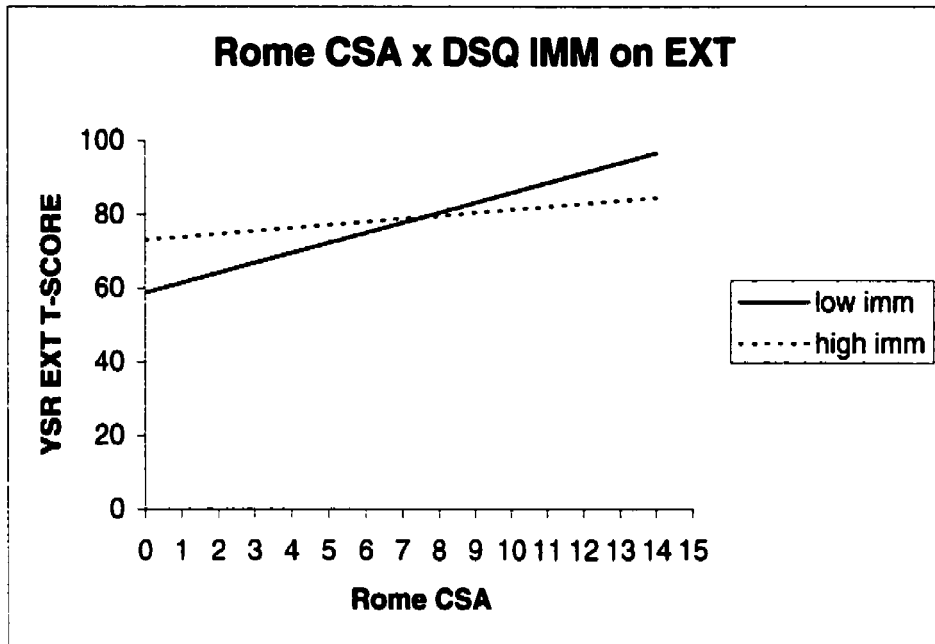
fewer externalizing behaviour problems than at low levels of an immature defense style,  $\Delta R^2 = .070$ ,  $\Delta p = .024$ , overall Adjusted  $R^2 = .494$ , overall  $p = .000$  (see Figure 1).

A marginally significant moderation effect appeared for neurotic defenses, which was the opposite from that of immature defenses. At high levels of a neurotic defense style, low levels of exposure to family violence were associated with fewer externalizing behaviour problems than at low levels of a neurotic defense style. However, at high levels of a neurotic defense style, high levels of family violence were associated with greater externalizing behaviour problems than at low levels of a neurotic defense style,  $\Delta R^2 = .042$ ,  $p = .100$ , overall Adjusted  $R^2 = .097$ , overall  $p = .032$  (see Figure 2).

Additional main effects were found in four of the twelve analyses with externalizing behaviour problems. Main effects were found for child physical abuse and child emotional abuse, suggesting that all forms of child maltreatment were positively related to adolescents' self-reported externalizing behaviour problems (see Appendix F). Main effects were also found for an immature defense style suggesting that, overall, an immature defense style is related to the externalizing behaviour problems that are reported by youth (see Appendix F).

**Figure 1:**

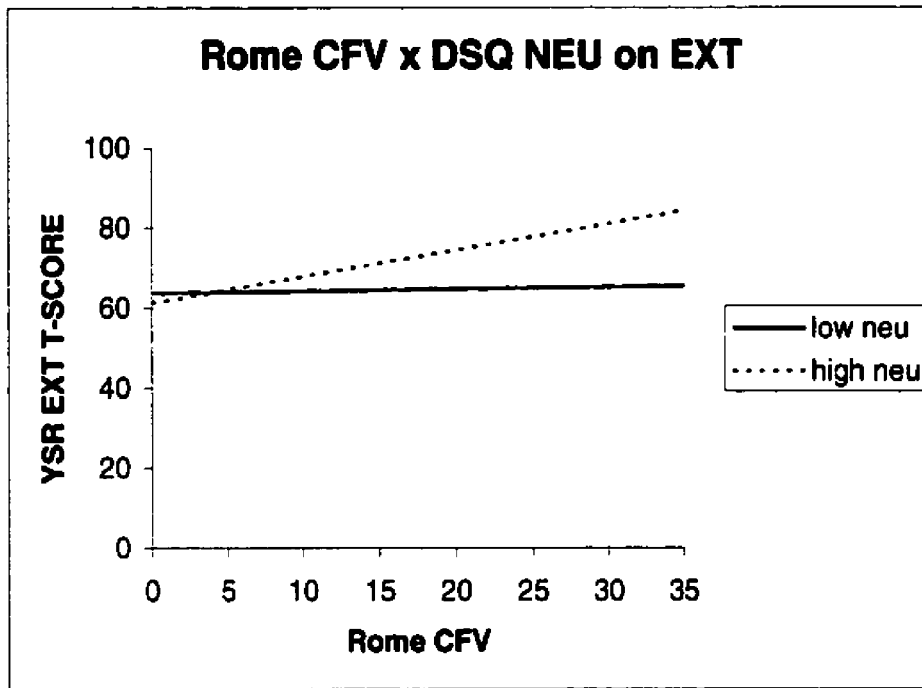
***The Moderating Effect of an Immature Defense Style on the Relationship between Child Sexual Abuse and Externalizing Behaviour Problems***



**Note:** Rome CSA = Rome child sexual abuse score; DSQ IMM = DSQ immature defense style score; YSR EXT T-SCORE = Youth Self-Report externalizing behaviour problems T-score; low imm = low IMM score (i.e., 3.0); high imm = high IMM score (i.e., 6.0). *N* = 41.

**Figure 2:**

**The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Exposure to Family Violence and Externalizing Behaviour Problems**



*Note:* Rome CFV = Rome child exposure to family violence score; DSQ NEU = DSQ neurotic defense style score; YSR EXT T-SCORE = Youth Self-Report externalizing behaviour problems T-score; low neu = low NEU score (i.e., 3.0); high neu = high NEU score (i.e., 6.0). *N* = 61.

### ***Internalizing Behaviour Problems***

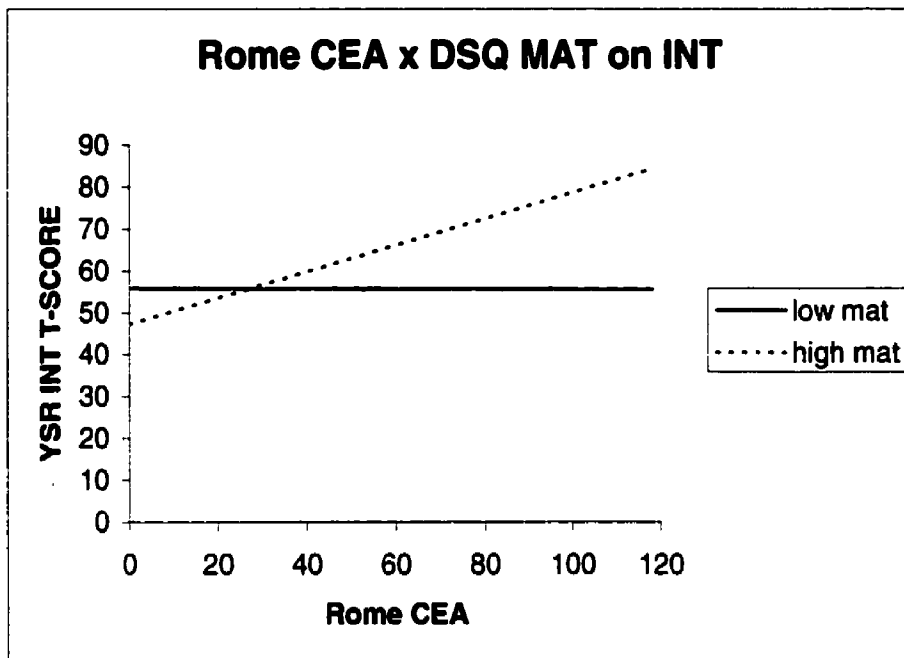
One of twelve regression analyses indicated moderation by a defense style when internalizing behaviour problems was the dependent variable in the analyses. At high levels of a mature defense style, low levels of emotional abuse were associated with fewer internalizing behaviour problems than at low levels of a mature defense style. However, at high levels of a mature defense style, high levels of emotional abuse were associated with greater internalizing behaviour problems than at low levels of mature defense style,  $\Delta R^2 = .056$ ,  $\Delta p = .058$ , overall Adjusted  $R^2 = .094$ , overall  $p = .035$  (see Figure 3).

No other moderation effects for defense styles on the relationship between types of child maltreatment and internalizing behaviour problems were observed. However, four main effects were detected. Main effects were found for all other forms of child maltreatment, including child sexual abuse, child physical abuse, and child exposure to family violence (see Appendix F), suggesting an overall positive relationship between maltreatment and internalizing behaviour problems. A main effect was also found for an immature defense style suggesting that it is positively related to internalizing behaviour problems.



**Figure 3:**

**The Moderating Effect of a Mature Defense Style on the Relationship between Child Emotional Abuse and Internalizing Behaviour Problems**



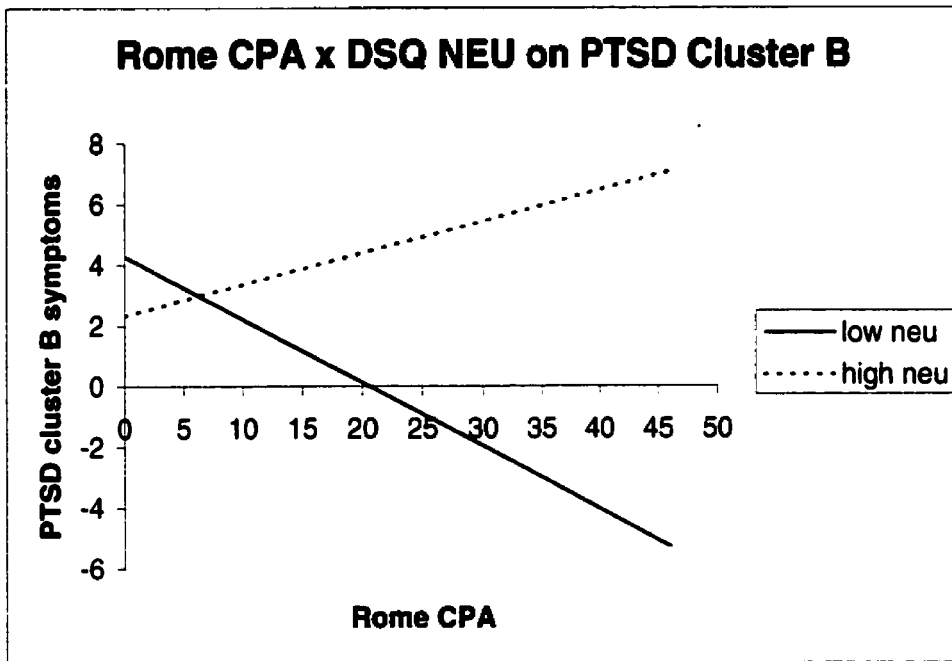
**Note:** Rome CEA = Rome child emotional abuse score; DSQ MAT = DSQ mature defense style score; YSR INT T-SCORE = Youth Self-Report internalizing behaviour problems T-score; low mat = low MAT score (i.e., 3.0); high mat = high MAT score (i.e., 6.0). *N* = 61.

**DSM-IV Criteria B PTSD Symptoms**

When the dependent variable was DSM-IV criteria B PTSD symptoms, the neurotic defense style moderated the effects of two forms of maltreatment. It did so for child physical abuse,  $\Delta R^2 = .104$ ,  $\Delta p = .009$ , overall Adjusted  $R^2 = .177$ , overall  $p = .003$ , and child exposure to family violence,  $\Delta R^2 = .058$ ,  $p = .047$ , overall Adjusted  $R^2 = .179$ , overall  $p = .003$ . At high levels of a neurotic defense style, low levels of both types of maltreatment were associated with fewer Criteria B PTSD symptoms than at low levels of a neurotic defense style. However, at high levels of a neurotic defense style, high levels of maltreatment were associated with greater Criteria B PTSD symptoms than at low levels of a neurotic defense style (see Figures 4 and 5). Main effects were also found child sexual abuse, and child emotional abuse and a neurotic defense style (see Appendix F).

**Figure 4:**

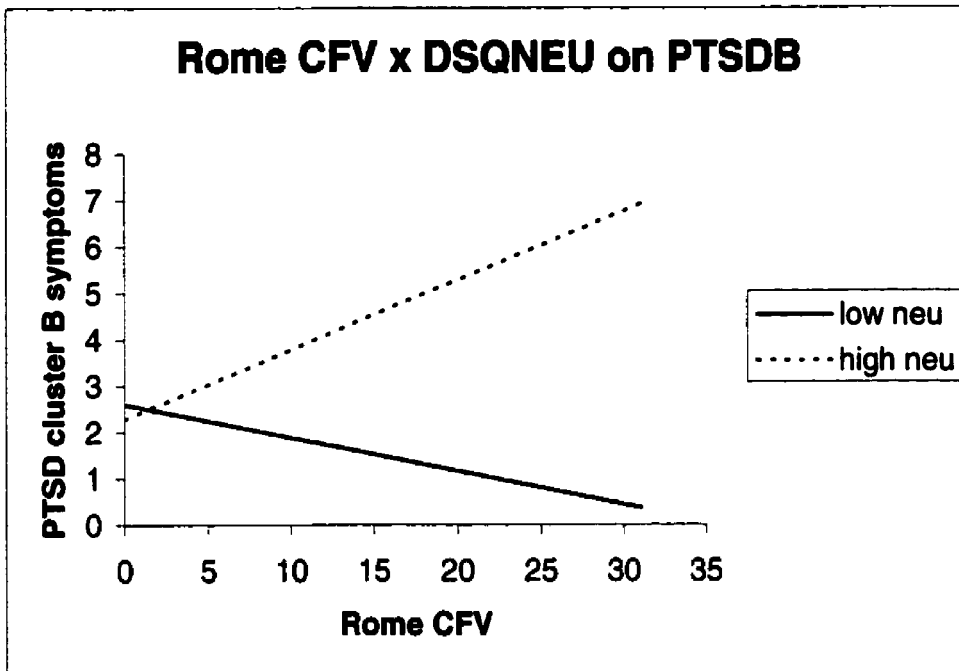
**The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Physical Abuse and DSM-IV Criteria B PTSD Symptoms**



Note: Rome CPA = Rome child physical abuse score; DSQ NEU = DSQ neurotic defense style score; low neu = low NEU score (i.e., 3.0); high neu = high NEU score (i.e., 6.0). N = 59.

**Figure 5:**

**The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Exposure to Family Violence and DSM-IV Criteria B PTSD Symptoms**



*Note:* Rome CFV = Rome child exposure to family violence score; DSQ NEU = DSQ neurotic defense style score; low neu = low NEU score (i.e., 3.0); high neu = high NEU score (i.e., 6.0). *N* = 59.

***DSM-IV Criteria C PTSD Symptoms***

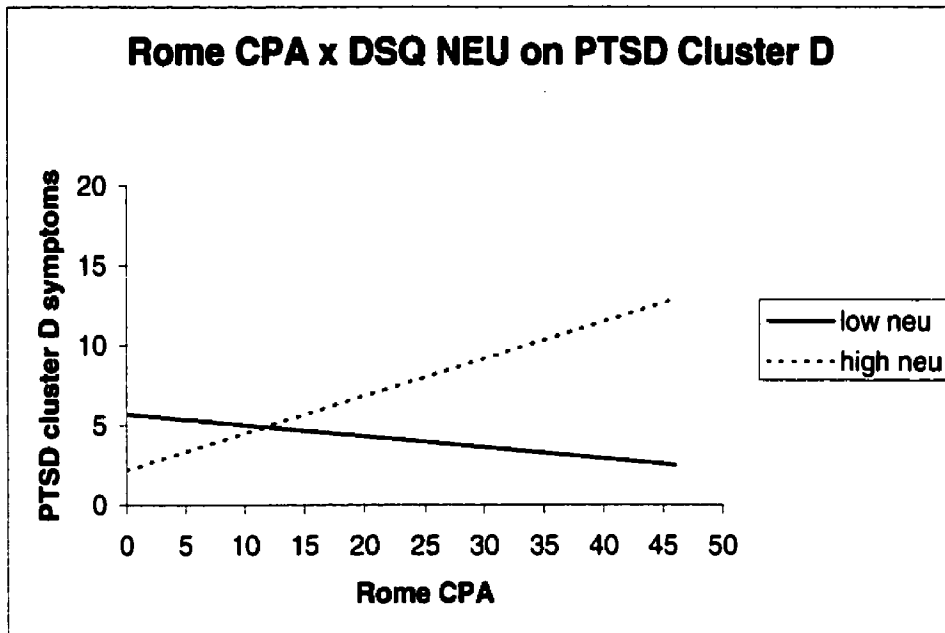
No moderation effects were found in the analyses with DSM-IV Criteria C PTSD symptoms as the dependent variable. However, five main effects appeared. Child sexual abuse, child physical abuse, child exposure to family violence, and child emotional abuse were all positively related to Criteria C PTSD symptoms. A neurotic defense style was found to be negatively related to Criteria C PTSD symptoms (see Appendix F).

***DSM-IV Criteria D PTSD Symptoms***

When DSM-IV Criteria D PTSD symptoms was the dependent variable, a marginal moderation effect appeared in one of twelve regression analyses. At high levels of a neurotic defense style, low levels of child physical abuse were related to fewer DSM-IV Criteria D PTSD symptoms than at low levels of a neurotic defense style. However, at high levels of a neurotic defense style, high levels of child physical abuse were related to greater Criteria D PTSD symptoms than at low levels of a neurotic defense style,  $\Delta R^2 = .047$ ,  $\Delta p = .100$ , overall Adjusted  $R^2 = .118$ , overall  $p = .026$  (see Figure 6). Main effects were also found for child sexual abuse, child exposure to family violence, and child emotional abuse, with all of these maltreatment variables being positively related to DSM-IV Criteria D PTSD symptoms (see Appendix F).

**Figure 6:**

**The Moderating Effect of a Neurotic Defense Style on the Relationship between Child Physical Abuse and DSM-IV Criteria D PTSD Symptoms**



*Note:* Rome CPA = Rome child physical abuse score; DSQ NEU = DSQ neurotic defense style score; low neu = low NEU score (i.e., 3.0); high neu = high NEU score (i.e., 6.0). *N* = 53.

### Exploratory Analyses

Because gender was significantly correlated with many of the key variables in this study, an additional set of regression analyses was conducted with interaction terms created for gender with all maltreatment and defense style variables. Few significant interaction effects were found. Only one significant three-way interaction effect emerged, for gender x child exposure to family violence x mature defense style, predicting DSM-IV Criteria D PTSD symptoms,  $\Delta R^2 = .057$ ,  $\Delta p = .045$ , overall  $\Delta R^2 = .290$ , overall  $\Delta p = .001$ . The overall pattern of results suggests that the moderating effects of defense styles were comparable for boys and girls, or that this study lacked sufficient statistical power to detect gender interactions. The latter case is a strong possibility given that the number of subjects that one needs to sufficiently test for three-way interaction effects increases exponentially from that necessary to test for two-way interaction effects (Cohen, 1992). Nonetheless, if gender were a robust factor in determining the extent to which defenses moderate the relationship between maltreatment and functioning, these effects would have been detected.

In addition to a three-way interaction effect, two analyses out of sixty suggested that there were two-way interactions between gender and the maltreatment variables. Specifically, gender interacted with child physical abuse in the analyses with DSM-IV Criteria B PTSD symptoms,  $\Delta R^2 = .066$ ,  $\Delta p = .025$ , overall Adjusted  $R^2 = .279$ , overall  $p = .000$ . Gender also interacted with child exposure to family violence in the analyses with DSM-IV Criteria C PTSD symptoms,  $\Delta R^2 = .070$ ,  $\Delta p = .027$ , overall Adjusted  $R^2 = .244$ , overall  $p = .001$ . In no cases was a significant interaction between gender and a defense style found.

## DISCUSSION

This study examined the rates of childhood maltreatment and psychopathology in a sample of adolescents held in an inpatient mental health setting. The relationships between childhood maltreatment and psychopathology were examined, as were the relationships between defense styles and psychopathology. The moderating effect of defense styles on the maltreatment-psychopathology relationship was also examined. This aspect of the study was crucial, as prior research had not explored the inter-relations between these three variables.

### Sample Characteristics

*In order to interpret the importance of the findings, it is helpful to know the degree to which this clinical sample is representative of others. This adolescent clinical sample was generally representative of other clinical samples, in that they reported higher rates of most maltreatment types than do community samples (Briere, 1997). However, this sample reported particularly high rates of physical abuse and low rates of sexual abuse. In a similarly sized sample of hospitalized adolescents, Lipschitz et al. (1999) found that 43.7% reported childhood physical abuse, as compared with 86.7% in this sample. However, 37.5% of the Lipschitz et al. (1999) sample reported childhood sexual abuse, while only 18.7% of the current sample did so. When interpreting the latter number, it is important to note that the primary diagnosis in this sample was Conduct Disorder. It was particularly challenging to establish rapport in a short amount of time with these youth.*



They may have felt uncomfortable disclosing sexual abuse experiences that appeared to be the more stigmatizing and less normative maltreatment experiences in their lives.

Regarding rates of psychopathology, 16% of participants having PTSD falls between rates given for community samples and hospitalized samples. In an American community sample of adolescents, current PTSD rates were 3% for females and 1% for males (Cuffe et al., 1998). Likewise, in a large-scale survey of Canadian adults, 3% of females and 0.3% of males met the DSM-IV criteria for PTSD (Stein, Walker, Hazen, & Forde, 1997). McCloskey and Walker (2000) found that PTSD rates in non-referred children who had experienced either single-event trauma or ongoing violence were both approximately 25%. When PTSD was examined in hospitalized children, the rate rose to 32% (Lipschitz et al., 1999), or twice the rate found in the current sample. The moderate rate of PTSD in the Maples youth is likely due to their being exposed to more traumatic maltreatment than community samples but having less severe psychiatric illness than hospitalized samples.

### **Support for the main hypotheses**

Within this clinical sample of adolescents, there appeared some support for the hypotheses that child maltreatment is related to psychopathology; defense styles are related to psychopathology; and defense styles moderate the maltreatment-psychopathology relationship. The main effects and interaction effects supporting these statements will be discussed together in the following sections. The main effects that were found for all maltreatment variables with all outcome variables provide further evidence that child maltreatment is related to the development of psychopathology and

PTSD, in particular. The main effects that were found for an immature defense style with the psychopathology variables support previous research that has found that immature defenses are also positively related to the development of symptoms (Apter et al., 1997; Feldman & Gowen, 1998; Steiner & Feldman, 1995).

The three defense styles were found to moderate the maltreatment-psychopathology relationship, at a significant or marginally significant level, in ten percent of the regression analyses conducted for this study. Taken alone, the percentage of significant interaction effects is not strong support for the model of moderation that was proposed. However, experts suggest that the detection of moderator effects is extremely difficult in clinical research for a number of reasons, particularly the non-optimal distribution of the independent and moderator variables in uncontrolled studies (McClelland & Judd, 1993). For this reason, any indication of moderation in clinical research should be examined carefully. When this was done through plotting the individual examples of significant interaction effects, support for the hypotheses was consistent. Most importantly, it was found that an immature defense style operated in an opposite fashion to that of a neurotic and a mature defense style.

An immature defense style was found to protect against the effects of increasing maltreatment, whereas neurotic and mature defense styles exacerbated the effects of maltreatment. However, these results did not appear across the analyses involving immature, neurotic, and mature defense styles. Rather, certain specific relationships appeared. To begin, the effects of each type of maltreatment were moderated by one defense style only. Specifically, the effects of child sexual abuse were moderated by an immature defense style; the effects of both child physical abuse and child exposure to family violence were moderated by a neurotic defense style; and the effects of child

emotional abuse were moderated by a mature defense style. This pattern of results suggests that different defense styles are relevant to the ways in which children interpret specific maltreatment experiences, and thus the impact of these experiences on psychological functioning. However, the different defense styles only moderated the development of specific types of psychopathology. Specifically, an immature defense style moderated the development of externalizing behaviour problems; a mature defense style moderated the development of internalizing behaviour problems; and a neurotic defense style moderated the development of PTSD symptoms. The specific moderating effects of each defense style will now be discussed.

#### ***Specific moderating effects of an immature defense style***

The defense mechanisms of projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization comprised the immature defense style. An immature defense style was particularly important for understanding the development of externalizing behaviour problems in response to child sexual abuse. A positive relationship between child sexual abuse and an immature defense style has been found in previous research with adult women (Romans, Martin, Morris, & Herbison, 1999). Sexual abuse in children has also been associated with the individual defense mechanisms of denial and dissociation (Adams-Tucker, 1983; MacFie et al., 1999).

A significant relationship between immature defenses and externalizing behaviour problems makes intuitive sense because the behavioural sequelae of many immature defensive processes is outwardly directed behaviour. For example, theory suggests that children who use displacement unconsciously recognize that it is unsafe to

retaliate against the true source of their anger and so they relinquish tension by verbally or physically attacking a safer object (e.g., a younger sibling) (A. Freud, 1966). Children engaged in this process might report themselves to be more aggressive than their peers. Likewise, children and adolescents who use projection, passive aggression, or acting out might display more oppositional or aggressive behaviours. Research conducted with adolescents found that an immature defense style predicted their delinquent and violent behaviours (Feldman & Gowan, 1998; Steiner & Feldman, 1995). Research conducted with adults suggests that immature defenses are positively related to adult personality disorders, such as Borderline Personality Disorder, for which diagnoses are partly based on the display of aggressive behaviours (Mulder et al., 1999; Sinha & Watson, 1999).

In all, studies suggest that child sexual abuse should be positively related to immature defenses, and other studies suggest that immature defenses should be positively related to externalizing behaviours. However, the relationship between all three of these variables had not been examined prior to this study. When it was, an immature defense style was found to exacerbate the negative effects of low levels of child sexual abuse on the development of externalizing behaviour problems. However, an immature defense style protected against the effects of high levels of child sexual abuse on externalizing behaviour problems. The reason for this observation may be that the immature defense style incorporates a range of defense strategies, from projection and displacement to splitting and dissociation. These latter defenses are frequently identified as necessary to guard against the most atrocious maltreatment experiences (Fischer & Ayoub, 1995). It may be that defenses such as splitting and dissociation account for the protective effect of immature defenses that was observed for the adolescents who experienced the highest levels of child sexual abuse. Sexual abuse,

itself, is often considered to be the most extreme type of interpersonal trauma.

### ***Specific moderating effects of a mature defense style***

In this study, the defense mechanisms of sublimation, humour, anticipation, and suppression comprised the mature defense style. A variety of researchers and clinicians have posited that these defenses work to keep negative emotions from consciousness without distorting reality, however, the emotions continue to influence psychological functioning (Bond et al., 1983; Vaillant, 1971). Some have argued that because mature defenses require less distortion than do immature defenses, individuals with a mature defense style are more reality-based and, under normal circumstances, more productive in work and love (Vaillant, 1971). However, under circumstances of extreme emotional abuse, individuals who would otherwise cope well with a mature defense style may then become overwhelmed by their negative emotional reactions that are not completely denied or externalized. This is exactly what was found in this study; the negative effects of higher levels of emotional abuse were exacerbated by a mature defense style, resulting in internalizing psychopathology. It appeared that emotional abuse, more so than the other forms of abuse, created negative emotions that, when maintained within the self because of a mature defense style, manifested as the self-focussed negative thoughts and feelings that are the hallmark symptoms of depression, anxiety, and other internalizing problems.

### ***Specific moderating effects of a neurotic defense style***

A neurotic defense style was comprised of the defense mechanisms of undoing, altruism, idealization, and reaction formation. There was no prior research on which to

base specific predictions about the relationships between maltreatment and neurotic defenses, or neurotic defenses and psychopathology. However, specific relationships did appear. Neurotic defenses moderated the effects of child physical abuse on the development of DSM-IV Criteria B and Criteria D PTSD symptoms. Neurotic defenses also moderated the effects of child exposure to family violence on the development of DSM-IV Criteria B PTSD symptoms. In addition, there was a significant relationship between neurotic defenses and DSM-IV Criteria C PTSD symptoms at the main effects level. Only in one instance did a neurotic defense style impact the development of symptomatology other than PTSD. A neurotic defense style moderated the development of externalizing behaviour problems in reaction to family violence. These results indicate two important patterns involving a neurotic defense style; it moderates the impact of two types of maltreatment, both of which involve physical violence, and it moderates the development of PTSD symptomatology.

The reason that a neurotic defense style is particularly germane to the effects of physical abuse and child exposure to family violence is not yet known. Research has not examined the role of a neurotic defense style in the reaction to violent, interpersonal trauma. Only the behaviours associated with one neurotic defense mechanism, altruism, have been associated with children's response to witnessing family violence (Wolfe & Jaffe, 1991).

PTSD was the specific form of psychopathology impacted by a neurotic defense style. The reason for this relationship is also uncertain, as this is the first time that it has been examined. However, the repetition of this finding in four different instances suggests that it is worthy of further investigation, in order to understand the psychological processes that produce trauma-specific symptomatology in reaction to

maltreatment.

In each case of moderation by a neurotic defense style, it exacerbated the effects of increasing maltreatment on trauma symptomatology. Similar to a mature defense style, it appears that this relatively advanced defense style is adaptive for adolescents dealing with low levels of maltreatment but is less effective for adolescents dealing with high levels of maltreatment. Again, it may be more beneficial to respond to severe abuse with defenses that deny or project the extreme emotions that the abuse creates, rather than defenses that keep the negative emotions within the self. In the case of neurotic defenses, changing the negative emotions into positive ones (i.e., reaction formation), the abusive agent into a good one (e.g., idealization), or the negative consequences of the abuse into neutral ones (i.e., undoing) may be ineffective reactions to extreme abuse.

### ***Summary***

The results of this study suggest that immature, mature, and neurotic defense styles moderate the relationships between child maltreatment and psychopathology in different ways. An immature defense style protects against the effects of increasing sexual abuse, while a mature defense style exacerbates the effects of increasing emotional abuse and a neurotic defense style exacerbates the effects of increasing physical abuse and exposure to family violence. These conclusions are based on a minority of regression analyses for which significant moderation effects were detected. The low percentage of significant moderation effects may be due to a number of factors, not the least of which are the restrictions placed upon a clinical study of adolescents.

### Limitations

The most significant limitation to this study is sample size. Adolescents admitted to the Maples program over an 18-month period were offered an opportunity to participate in this research project. Although the majority of residents initially agreed to participate, there was a moderately high attrition rate due to non-compliance (e.g., not keeping appointments with research assistants) or unexpected absences from the facility (e.g., AWOLs), both of which are to be expected from a sample of conduct-disordered adolescents. For these reasons, however, the sample size with completed data ( $N = 60$ ) was smaller than that which was originally planned ( $N = 80$ ). The smaller sample size may have reduced the ability to detect interactions with a smaller effect size.

Even if the projected sample size had been collected, the impact of gender differences on the moderating effects of defense styles could not have been sufficiently examined within this study. As outlined in the exploratory analyses, three-way interaction terms for gender, maltreatment, and defense variables were tested in regression analyses with each of the dependent variables. In only one case was a significant three-way interaction effect detected. This is not to suggest that gender does not impact maltreatment-defense-psychopathology relationships. Rather, the sample size required to sufficiently test the impact of gender on moderation by defense, through the creation of three-way interaction terms, would near 120 participants (Cohen, 1992). It was unfeasible to collect a sample this size from this clinical population, particularly when clinical interviews were being conducted with every participant. That said, recent research indicates that gender is an important consideration for understanding trauma impact. Studies have found that females are more likely than males to develop PTSD



symptoms in reaction to the same traumatic event (Maes et al., 1998b; Vila, Porche, & Mouren-Simeoni, 1999). Studies also suggest that among female adolescents PTSD is more likely to be co-morbid with other anxiety disorders (Vila et al., 1999), substance-abuse disorders (Clark et al., 1997), and criminal behaviours (Cauffman, Feldman, Waterman, & Steiner, 1998). These findings suggest a possible role for gender in the relationships between maltreatment, defense, and psychopathology; however, the maltreatment-defense-psychopathology relationship is complex and it is difficult to address the additional issue of gender in clinical studies.

With regard to this particular study, questions remain as to the necessity of analyzing the different types of maltreatment and their effects on the development of different PTSD symptom clusters. A large number of regression analyses were necessary to examine the impact of four types of maltreatment and three defense styles on three clusters of PTSD symptoms. An option would have been to collapse PTSD symptoms into a continuous total score, or to use PTSD diagnosis as a dichotomous dependent variable. Collapsing variables would have reduced the total number of regression analyses and increased statistical power. The finding that a neurotic defense style similarly impacted the development of different clusters of PTSD symptoms supports the use of a total symptom score in future. However, the decision to use continuous data still appears to be supported. Studies repeatedly suggest that continuous measures are necessary because individuals diagnosed with PTSD are quantitatively different, in terms of number of symptoms, rather than qualitatively different from those individuals who are not (Maes et al., 1998b; Schutzwohl & Maercker, 1999).

With regard to analyzing maltreatment types separately, research has

demonstrated that the effects of childhood sexual abuse and physical abuse, in particular, are different in terms of childhood PTSD rates (Ackerman et al., 1998) and the likelihood of adult re-victimization and PTSD (Schaff & McCanne, 1998). These findings support the original decision to individually examine the impact of each type of maltreatment. However, these studies have also found that when both types of maltreatment are present, psychological outcome is poorest. This latter finding implies that studying “pure” cases of each type of maltreatment, in addition to “combined” cases is important. Unfortunately, it was difficult to identify participants as having experienced only one type of maltreatment because of the preponderance of most types throughout the sample. Research conducted at facilities that serve individuals presenting mainly with one type of abuse, for example sexual assault crisis centres, might better address the effects of “pure” maltreatment experiences.

Another limitation on the measurement of maltreatment was that participants were not required to distinguish the developmental stages during which their abuse took place. Current trauma symptoms and current use of defense styles were measured; however, participants were asked to indicate the degree to which maltreatment occurred at any point in their childhood through to the present. Hence it is difficult to comment on the longitudinal impact of maltreatment on defenses and symptoms, as the maltreatment may have occurred in the distant past or very recently. Also, because the measures were collected at once in a cross-sectional design, it is inappropriate to say that one “caused” or “preceded” the other, as one is apt to do when giving developmental explanations. It may be more appropriate to discuss the relationships between current perceptions of lifetime maltreatment, current use of defense styles, and current symptomatology. Future investigators would be wise to collect specific information

about when maltreatment occurred or, if possible, to measure maltreatment, defenses, and psychological symptoms at different points in children's development, in order to make statements about trauma's developmental course.

Lastly, a major limitation on the ability to address moderation of the maltreatment-trauma relationship was the low degree of child sexual abuse and full-blown PTSD in this sample. The low degree of child sexual abuse reported by this conduct-disordered sample has already been addressed. The low number of male participants who endorsed having been sexually abused (i.e., one participant) also significantly limits the applicability of the findings to male sexual abuse victims. With regard to the relatively low rate of PTSD for a clinical sample, the youth were not at the Maples for the treatment of severe psychiatric disorders. Rather, they were in residence to facilitate assessment and community planning because of their behaviour problems. This may explain why the rate of PTSD was low, as compared to other clinical samples of adolescents who present for the treatment of major psychiatric disorders (Lipschitz et al., 1999b). Overall, the majority of adolescents experienced a great deal of maltreatment and their rate of PTSD was substantially higher than that of community samples (Cuffe et al., 1998; Stein, Walker, Hazen, & Forde, 1997) suggesting that the Maples population was an appropriate one within which to examine maltreatment and trauma. Adolescents at the Maples also represent a chronically abused population who would undoubtedly benefit from intervention directed at resolving their maltreatment experiences.

### **Clinical Implications**

The implications of this research are multifaceted for those working with clinical samples of adolescents. The findings of this study support those of previous studies that there is a high incidence of PTSD symptomatology in clinical samples, including hospitalized adolescents (Lipschitz et al., 1999b), criminally-involved adolescents (Cauuffman, Feldman, Waterman, & Steiner, 1998), and abused adolescents (Ackerman et al., 1998; Dubner & Motta, 1999; McLeer et al., 1998). Following the recommendations of McLeer et al. (1998, p. 1326), there is a “need for routine and systemic evaluation for these symptoms and PTSD” within these populations. The proper identification of individuals with trauma symptomatology is extremely important because there are effective ways to intervene with trauma survivors. The research cited above suggests that there are serious consequences if we do not.

Practice parameters for the treatment of children and adolescents with PTSD were recently published by the American Academy of Child and Adolescent Psychiatry (Cohen et al., 1998). The general guideline is “that most of the therapeutic interventions are trauma-focused and include some degree of direct discussion of the trauma” (p. 4S). Therapies ranging from cognitive-behavioural interventions to longer-term psychodynamic ones are advised to include these key elements. While this approach represents the standard for intervention with single-event trauma survivors (i.e., critical incident stress debriefing), this study raises some concerns about direct discussion of the trauma with individuals who have survived chronic trauma, including maltreatment.

Defense mechanisms may be the malleable variable in the maltreatment-defense-psychopathology relationship thus they may be the direct or indirect targets of

intervention. Chronically traumatized individuals may protect themselves through use of the more immature defenses (e.g., denial), while the more neurotic or mature defenses may be ineffective in dealing with chronic trauma. Challenging survivors' immature defenses prematurely may put them at risk of increased psychopathology, as they may not be emotionally prepared to deal directly with what they have learned to dissociate from or deny. Rather than deal with the trauma immediately, experts suggest fortifying survivors' sense of integrity in their bodies and their environments beforehand (Herman, 1997). Gradual exposure to the traumatic event may then be attempted within the safety of the therapeutic relationship.

When appropriate intervention is provided to child and adolescent survivors of both Type I and Type II traumas, the results appear to be positive. March, Amaya-Jackson, Murray, and Schulte (1998) reported that an 18-week CBT group therapy program significantly reduced PTSD symptoms on the CAPS-CA for children who suffered a single-incident trauma. Those results remained robust at six-month follow-up. Deblinger, Steer, & Lippmann (1999) reported on the development and implementation of a 12-week CBT program for sexually abused children in 1996. Two years later, children had maintained post-treatment improvements on measures of trauma-specific and trauma-related symptomatology. These results are further support for the necessity of accurate screening and treatment of child trauma victims.

When children who experience chronic child maltreatment are not successfully treated, the data suggest that there can be serious long-term consequences. Studies find high rates of childhood sexual and physical abuse in adolescent prison populations (Caffman, et al., 1998), adult prison populations (Zlotnick, 1997), and street persons who are involved in the sex trade (Farley & Barkan, 1998). Bresleau et al. (1999a) found

that previous childhood trauma of assaultive violence also predisposes individuals to developing PTSD in reaction to other events in adulthood. Research also suggests that PTSD mediates the development of other serious forms of psychopathology. For example, Mazza and Reynolds (1999) found that controlling for PTSD symptoms reduced the relationship between violence exposure and depression/suicidality from significant to non-significant in adolescents. Similarly, Epstein et al. (1998) discovered that PTSD was a mediator between child sexual abuse and adult alcoholism; if individuals no longer had trauma symptoms in relation to their abuse, they were unlikely to be alcoholic.

In conclusion, research suggests that intervention with child maltreatment victims is critical and may offset the development of significant psychopathology. Data from this study suggest that intervention should slowly shift the defensive structure of trauma survivors, from that of an immature defense style to a more mature defense style. Indeed, this shift in defense styles has been observed after the successful treatment of other forms of psychopathology, such as depression (Mullen et al., 1999). If treatment is not provided, and if this shift does not occur, the result may be adults who continue to rely on a primarily immature defense style after surviving childhood trauma (Romans et al., 1999). Although adaptive during or shortly after childhood maltreatment, an immature defense style in adulthood is associated with a wide range of Axis I psychopathology (Holi et al., 1999) and personality disorders (Sinha & Watson, 1999). These latter findings allude to the long-term consequences of an immature defense style that may have actually been beneficial earlier in the development of maltreated children. Although beyond the scope of this dissertation, the long-term consequences of immature, neurotic, and mature defenses appear to be an important area for future

research.

### **Directions for Future Research**

As maltreated children develop, a large number individual and environmental factors contribute to their changing trauma reactions (Pynoos et al., 1999). Consistent with the current study, researchers have had difficulty detecting the subtle influences on the maltreatment-psychopathology relationship, as there are many factors accounting for variance in this relationship (Kilpatrick & Williams, 1998). Strategies for coping with these challenges may be as follows.

Studies such as this one can be replicated with the same sample at a second point in time, preferably years later when participants have moved into the next developmental stage (i.e., adulthood). At the least, psychopathology measures should be collected at that point to allow researchers to make more definitive statements about the long-term effects of styles of defending against maltreatment. However, if defense styles could also be tracked at Time 1 and Time 2, it would elucidate the developmental path of defenses subsequent to child maltreatment. If researchers only have access to a maltreated sample at one point in time, devising a method for participants to grossly indicate when they were maltreated in childhood would increase our understanding of the developmental sequence of maltreatment, defense, and psychopathology.

Despite all of these efforts, however, it may still be difficult to determine which traumatic events are responsible for which psychological symptoms. For example, Widom (1999) used a prospective cohorts design but was still unable to get chronic trauma survivors to indicate which of their PTSD symptoms were tied to which of the

traumatic experiences that had been reported earlier. Although it is important to understand the relationships between specific traumatic events, psychological processes, and symptomatology, it is equally important to focus our energies on developing and disseminating empirically-validated treatments to the greatest number of trauma survivors possible.



## REFERENCES

- Achenbach, T. M. (1991). Manual for the Youth Self-Report and 1991 Profile. Burlington, CT: University of Vermont Department of Psychiatry.
- Achenbach, T., & Edelbrock, C. S. (1981). Behavioral problems and competencies by parents of normal and disturbed children aged four through sixteen. Monographs of the Society for Research in Child Development, 46, 1-78.
- Ackerman, P. T., Newton, J. E., McPherson, W. B. Jones, J. G., & Dykman, R. A. (1998). Prevalence of post traumatic stress disorder and other psychiatric diagnoses in three groups of abused children (sexual, physical, and both). Child Abuse and Neglect, 22 (8), 759-774.
- Adams, B. S., Everett, B. L., & O'Neal, E. (1992). PTSD in physically and sexually abused psychiatrically hospitalized children. Child Psychiatry and Human Development, 23, 3-8.
- Adams-Tucker, C. (1984). Defense mechanism use by sexually abused children. Children Today, 14, 8-12.
- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.
- Andrews, G., Pollock, C., & Stewart, G. (1989). The determination of defense style by questionnaire. Archives of General Psychiatry, 46, 455-460.
- Andrews, G., Singh, M., & Bond, M. (1993). The Defense Style Questionnaire. The Journal of Nervous and Mental Disease, 181 (4), 246-256.
- Apter, A., Gothelf, D., Offer, R., Ratzoni, G., Orbach, I., Tyano, S., & Pfeffer, C. R. (1997). Suicidal adolescents and ego defense mechanisms. Journal of the American Academy of Child and Adolescent Psychiatry, 36 (11), 1520-1527.
- Barnett, D., Manly, J. T., & Cicchetti, D. (1993). Defining child maltreatment: The interface between policy and research. In D. Cicchetti, S. L. Toth, & I. E. Sigel (Eds.), Child abuse, child development, and social policy: Advances in applied developmental psychology. (pp.7-73). Norwood, NJ: Ablex.

- Barron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.
- Blake, D. D., Weathers, F. W., Nagy, L. M., & Kaloupek, D. G. (1995). The development of a Clinician-Administered PTSD scale. Journal of Traumatic Stress, 8 (1), 75-90.
- Bond, M., Perry, J. C., Gautier, M., Goldenberg, H., Oppenheimer, J., & Simand, J. (1989). Validating the self-report of defense styles. Journal of Personality Disorders, 3, 101-112.
- Bond, M., Gardner, S. T., Christian, J., & Sigal, J. (1983). Empirical study of self-related defense styles. Archives of General Psychiatry, 40, 333-338.
- Bowlby, J. (1969). Attachment: Vol. I. Attachment and loss. New York: Basic Books.
- Breslau, N., Chilcoat, H. D., Kessler, R. C., Peterson, E. L., & Lucia, V. C. (1999). Vulnerability to assaultive violence: further specification of the sex difference in post-traumatic stress disorder. Psychological Medicine, 29 (4), 813-821.
- Breslau, N., Chilcoat, H. D., Kessler, R. C., & Davis, G. C. (1999). Previous exposure to trauma and PTSD effects of subsequent trauma: results from the Detroit Area Survey of Trauma. American Journal of Psychiatry, 156 (6), 902-907.
- Briere, J. (1996). Post-Traumatic Stress Disorder. Presentation to the Department of Psychology, Simon Fraser University.
- Briere, J. (1997). Psychological Assessment of Adult Posttraumatic Stress Disorder. Washington, DC: American Psychological Association.
- Briggs, L., & Joyce, P. R. (1997). What determines Post Traumatic Stress Disorder symptomatology for survivors of childhood sexual abuse. Child Abuse and Neglect, 21 (6), 575-582.
- Brody, L., R., Rozek, M. K., & Muten, E. O. (1985). Age, sex, and individual differences in children's defensive styles. Journal of Clinical Child Psychology, 14 (2), 132-138.
- Carlson, E., & Sroufe, L. A. (1995). Contribution of attachment theory to developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.) Developmental Psychopathology, Vol. I: Theory and Methods (pp. 581-617). New York: Wiley.

- Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. In N. A. Fox (Ed.) The development of emotion regulation: Biological and behavioral aspects. Monographs of the Society for Research in Child Development, 59, 228-249.
- Cauffman, E., Feldman, S. S., Waterman, J., & Steiner, H. (1998). Post-traumatic stress disorder among female juvenile offenders. Journal of the American Academy of Child and Adolescent Psychiatry, 37 (11), 1209-1216.
- Chu, J. A., & Dill, D. L. (1990). Dissociative symptoms in relation to childhood physical abuse and sexual abuse. American Journal of Psychiatry, 147 (7), 887-892.
- Cicchetti, D. (1990). Contributions from the study of high-risk populations to understanding the development of emotional regulation. In J. Garber & K. A. Dodge (Eds.) The development of emotional regulation and dysregulation (pp. 15-48). Cambridge: Cambridge University Press.
- Clark, D. B., Pollock, N., Bukstein, O. G., Mezzich, A. C., Bromberger, J. T., & Donovan, J. E. Gender and comorbid psychopathology in adolescents with alcohol dependence. Journal of the American Academy of Child and Adolescent Psychiatry, 36 (9), 1195-1203.
- Cohen, J. (1992). A power primer. Psychological Bulletin, 112 (1), 155-159.
- Cohen, J. A. (1998). Practise parameters for the assessment and treatment of children and adolescents with posttraumatic stress disorder. Journal of the American Academy of Child and Adolescent Psychiatry, 37 (10), 4S – 26S.
- Cole, P. M., Alexander, P. C., & Anderson, C. L. (1996). Dissociation in typical and atypical development: Examples from father-daughter incest survivors. In L. K. Michelson & W. J. Ray (Eds.) Handbook of dissociation: Theoretical, empirical, and clinical perspectives. (pp. 69-89). New York: Plenum Press.
- Cole, P. M., Michel, M. K., & Teti, L. O. (1994). The development of emotion regulation and dysregulation: A clinical perspective. Monographs of the Society for Research in Child Development, 59 (2-3), 73-100, 250-283.
- Cramer, P., & Block, J. (1998). Preschool antecedents of defense mechanism use in young adults: A longitudinal study. Journal of Personality and Social Psychology, 74 (1), 159-169.
- Cramer, P. (1997). Identity, personality, and defense mechanisms: An observer-based study. Journal of Research in Personality, 31 (1), 58-77.

- Cramer, P. (1991). The development of defense mechanisms: Theory, research, and assessment. New York: Springer-Verlag.
- Cramer, P. (1983). Children's use of defense mechanisms in reaction to displeasure caused by others. Journal of Personality 51 (1), 78-94.
- Cuffe, S. P., Addy, C. L., Garrison, C. Z., Waller, J. L., Jackson, K. L., McKeown, R. E., & Chilappagari, S. (1998). Prevalence of PTSD in a community sample of older adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 37 (2), 147-154.
- Deblinger, E., McLeer, S. V., Atkins, M. S., Ralphe, D., & Foa, E. (1989). Post-Traumatic Stress in sexually abused, physically abused, and nonabused children. Child Abuse & Neglect, 13, 403-408.
- Deblinger, E., Steer, R. A., & Lippman, J. (1999). Two-year follow-up study of cognitive behavioral therapy for sexually abused children suffering from post-traumatic stress symptoms. Child Abuse and Neglect, 23(12), 1371-1378.
- Diehi, M., Coyle, N., & Labouvie-Vief, G. (1996). Age and sex differences in strategies of coping and defense across the lifespan. Psychology and Aging, 11 (1), 127-139.
- Dubner, A. E., Motta, R. W. (1999). Sexually and physically abused foster care children and posttraumatic stress disorder. Journal of Clinical and Consulting Psychology, 67 (3), 367-373.
- Ekman, P. (1982). Emotion in the human face. New York: Cambridge University Press.
- Epstein, J. N., Saunders, B. E., Kilpatrick, D. G., & Resnick, H. S. (1998). PTSD as a mediator between childhood rape and alcohol use in adult women. Child Abuse and Neglect, 22 (3), 223-234.
- Farley, M. & Barkan, H. (1998). Prostitution, violence, and posttraumatic stress disorder. Women and Health, 27 (3), 37-49.
- Feldman, S. S., Araujo, K. B., & Steiner, H. (1996). Defense mechanisms in adolescents as a function of age, sex, and mental health status. Journal of the American Academy of Child and Adolescent Psychiatry, 35 (10), 1344-1354.
- Feldman, S. S., & Gowen, L. K. (1998). Conflict negotiation tactics in romantic relationships in high school students. Journal of Youth and Adolescence, 27 (6), 691-717.

- Finkelhor, D., & Browne, A. (1985). The traumatic impact of child sexual abuse: A conceptualization. American Journal of Orthopsychiatry, 55 (4), 530-541.
- Fischer, K. W., & Ayoub, C. (1995). Affective splitting and dissociation in normal and maltreated children: Developmental pathways for self in relationships. In D. Cicchetti & S. L. Toth (Eds.) Disorders and dysfunctions of the self (pp. 149-221). New York: University of Rochester Press.
- Foy, D. W., Madvig, B. T., Pynoos, R. S., & Camilleri, A. J. (1996). Etiologic factors in the development of Posttraumatic Stress Disorder in children and adolescents. Journal of School Psychology, 34(2), 133-145.
- Foy, D. W., Sipprelle, R. C., Rueger, D. G., & Carroll, E. M. (1984). Etiology of posttraumatic stress disorder in Vietnam veterans: Analysis of premilitary, military, and combat exposure influences. Journal of Consulting and Clinical Psychology, 52, 79-87.
- Frederick, C. J. (1985). Selected foci in the spectrum of posttraumatic stress disorders. In J. Laube & S. A. Murphy (Eds.) Perspectives on disaster recovery (pp. 110-130). East Norwalk, CT: Appleton-Century-Crofts.
- Freud, A. (1966). The ego and mechanisms of defense. New York: International Universities Press.
- Freud, S. (1938). The basic writings of Sigmund Freud. New York: Modern Library.
- Friedrich, W. N., Jaworski, T. M., Huxsahl, J. E., & Bengston, B. S. (1997). Dissociative and sexual behaviours in children and adolescents with sexual abuse and psychiatric histories. Journal of Interpersonal Violence, 12 (2), 155-171.
- Garbarino, J., Guttman, E., & Seely, J. W. (1986). The psychologically battered child: Strategies for identification, assessment, and intervention. San Francisco: Jossey-Bass.
- Garber, J., Braafladt, N., & Weiss, B. (1995). Affect regulation in depressed and nondepressed children and young adolescents. Development and Psychopathology, 7, 93-115.
- Haan, N. (1977). Coping and defending. San Francisco, CA: Jossey Bass.
- Herman, J. (1992). Trauma and Recovery. New York, NY: Basic Books.

- Holi, M. M., Sammallahti, P. R., & Aalberg, V. A. (1999). Defense styles explain psychiatric symptoms: an empirical study. Journal of Nervous and Mental Disease, 187 (11), 654-660.
- Hyer, L., Summers, M. N., Boyd, S. & Litaker, M. (1996). Assessment of older combat veterans with the Clinician-Administered PTSD Scale. Journal of Traumatic Stress, 9 (3), 587-594.
- Kendall-Tackett, K. A., Williams, L. M., & Finkelhor, D. (1993). Impact of sexual abuse on children: A review and synthesis of recent empirical studies. Psychological Bulletin, 113 (1), 164-180.
- Kilpatrick, K. L., & Williams, L. M. (1998). Potential mediators of post-traumatic stress disorder in child witnesses to domestic violence. Child Abuse and Neglect, 22 (4), 319-330.
- Kopp, C. B. (1989). Regulation of distress and negative emotions: A developmental view. Developmental Psychology, 25 (3), 343-354.
- Kovacs, M. (1985). The Children's Depression Inventory (CDI). Psychopharmacology Bulletin, 21, 995-998.
- Koverola, C. (1995). Post-traumatic Stress Disorder. In R. T. Ammerman & M. Hersen (Eds.), Handbook of child behavior therapy in the psychiatric setting (pp. 389-408). New York: John Wiley & Sons.
- Lipovsky, J. A. (1994). Assessment and treatment of Post-Traumatic Stress Disorder in child survivors of sexual assault. In D. W. Foy (Ed.) Treating PTSD: Cognitive-behavioral strategies (pp. 127-164). New York: Guilford Press.
- Lipschitz, D. S., Winegar, R. K., Hartnick, E., Foote, B., & Southwick, S. M. (1999). Posttraumatic stress disorder in hospitalized adolescents: psychiatric comorbidity and clinical correlates. Journal of the American Academy of Child and Adolescent Psychiatry, 38 (4), 385-392.
- MacFie, J., Toth, S. L., Rogosch, F. A., Robinson, J., Emde, R. N., & Cicchetti, D. (1999). Effect of maltreatment on preschooler's narrative representations of responses to relieve distress and of role reversal. Developmental Psychology, 35 (2), 460-465.
- Maes, M., Delmeire, L., Schotte, C., Janca, A., Creten, T., Mylle, J., Struyf, A., Pison, G., & Rousseeuw, P. J. (1998a). The two-factorial symptom structure of post-traumatic stress disorder: depression-avoidance and arousal-anxiety. Psychiatry Research, 81 (2), 195-210.

- Maes, M., Delmeire, L., Schotte, C., Janca, A., Creten, T., Mylle, J., Struyf, A., Pison, G., & Rousseeuw, P. J. (1998b). Epidemiologica and phenomenological aspects of post-traumatic stress disorder: DSM-III-R diagnosis and diagnostic criteria not validated. Psychiatry Research, *81* (2), 179-193.
- March, J. S., Amaya-Jackson, L., Murray, M. C., & Schulte, A. Cognitive-behavioral psychotherapy for children and adolescents with posttraumatic stress disorder after a single-incident stressor. Journal of the American Academy of Child and Adolescent Psychiatry, *37* (6), 585-593.
- Mazza, J. J., & Reynolds, W. M. (1999). Exposure to violence in young inner-city adolescents: relationships with suicidal ideation, depression, and PTSD symptomatology.
- McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. Psychological Bulletin, *114* (2), 376-390.
- McCloskey, L. A., & Walker, M. (2000). Post-traumatic stress in children exposed to family violence and single-event trauma. Journal of the American Academy of Child and Adolescent Psychiatry, *39* (1), 108-115.
- McGee, R. A., & Wolfe, D. A. (1991). Psychological maltreatment: Toward an operational definition. Development and Psychopathology, *3*, 3-18.
- McGee, R. A., Wolfe, D. A., & Wilson, S. K. (1997). Multiple maltreatment experiences and adolescent behaviour problems: Adolescents' perspectives. Development and Psychopathology, *9*, 131-150.
- McLeer, S. V., Deblinger, E., Henry, D., & Orvaschel, H. (1992). Sexually abused children at high risk for posttraumatic stress disorder. Journal of the American Academy of Child and Adolescent Psychiatry, *31*, 875-879.
- McLeer, S. V., Dixon, J. F., Henry, D., Ruggiero, K., Escovitz, K., Niedda, T., & Scholle, R. (1998). Psychopathology in non-clinically referred sexually abused children. Journal of the American Academy of Child and Adolescent Psychiatry, *37* (12), 1326-1333.
- Mulder, R. T., Joyce, P. R., Sullivan, P. F., Bulik, C. M., & Carter, F. A. (1999). The relationship among three models of personality psychopathology: DSM-III-R personality disorder, TCI scores, and DSQ defences. Psychological Medicine, *29* (4), 943-951.
- Mullen, L. S., Blanco, C., Vaughan, S. C., Vaughan, R., & Roose, S. P. (1999). Defense mechanisms and personality in depression. Depression and Anxiety, *10* (4), 168-174.

- Muris, P., & Merckelbach, H. (1997). Suppression and dissociation. Personality and Individual Differences, 23 (3), 523-525.
- Nader, K. O., Kriegler, J. A., Blake, D. D., Pynoos, R. S., Newman, E., & Weathers, F. W. (1996). Clinician-Administered PTSD Scale for Children and Adolescents for DSM-IV. Los Angeles: National Center for PTSD and UCLA Trauma Psychiatry Program, Department of Psychiatry, UCLA School of Medicine.
- Nasserbakht, A., Araujo, K., & Steiner, H. (1996). A comparison of adolescent and adult defense styles. Child Psychiatry and Human Development, 27 (1), 3-14.
- Parrens, H. (1991). A view of the development of hostility in early life. Journal of the American Psychoanalytic Association, 39, 75-108.
- Pynoos, R. S., & Eth, S. (1984). The child as witness to homicide. Journal of Social Issues, 40 (2), 87-108.
- Pynoos, R. S., Frederick, C., Nader, K., Arroyo, W., Steinberg, A., Eth, S., Nunex, F., & Fairbanks L. (1987). Life threat and posttraumatic stress in school-age children. Archives of General Psychiatry, 44, 1057-1063.
- Pynoos, R. S., Steinberg, A. M., & Wraith, R. (1995). A developmental model of childhood traumatic stress. In D. Cicchetti & D. J. Cohen (Eds.) Manual of developmental psychopathology (pp. 72-95). New York: Wiley.
- Pynoos, R. S., Steinberg, A. M., & Piacentini, J. C. A developmental psychopathology model of childhood traumatic stress and intersection with anxiety disorders. Biological Psychiatry, 46 (11), 1542-1554.
- Romans, S. E., Martin, J. L., Morris, E., & Herbison, G. P. (1999). Psychological defense styles in women who report childhood sexual abuse: a controlled community sample. American Journal of Psychiatry, 156 (7), 1080-1085.
- Rossman, B. B. R., Bingham, R. D., & Emde, R. N. (1997). Symptomatology and adaptive functioning for children exposed to normative stressors, dog attack, and parental violence. Journal of the American Academy of Child and Adolescent Psychiatry, 36 (8), 1089-1097.
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M. W. Kent & J. E. Rolf (Eds.) Primary prevention of psychopathology, Vol. 3: Competence in children. Hanover, NH: University Press of New England.



- 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.
- Schutzwohl, M., & Maercker, A. (1999). Effects of varying diagnostic criteria for posttraumatic stress disorder are endorsing the concept of partial PTSD. Journal of Traumatic Stress, 12 (1), 155-165.
- Shaw, R. J., Ryst, E., & Steiner, H. (1996). Temperament as a correlate of adolescent defense mechanisms. Child Psychiatry and Human Development, 27 (2), 105-114.
- Sinha, B. K., & Watson, D. C. (1999). Predicting personality disorder traits with the Defense Style Questionnaire in a normal sample. Journal of Personality Disorders, 13 (3), 281-286.
- Steketee, G., & Foa, E. B. (1987). Rape victims: PTSD responses and their treatment: A review of the literature. Journal of Anxiety Disorders, 1, 69-86.
- Stein, M. B., Walker, J. R., Hazen, A. L., & Forde, D. R. (1997). Full and partial posttraumatic stress disorder: findings from a community survey. American Journal of Psychiatry, 154(8), 1114-1119.
- Steiner, H., & Feldman, S. S. (1995). Two approaches to the measurement of adaptive style: Comparison of normal, psychosomatically ill, and delinquent adolescents. Journal of the American Academy of Child and Adolescent Psychiatry, 34 (2), 180-190.
- Terr, L. C. (1991). Childhood traumas: An outline and overview. American Journal of Psychiatry, 148, 10-20.
- Terr, L. C. (1985). Psychic trauma in children and adolescents. Psychiatric Clinics of North America, 8, 815-835.
- Thompson, R. A., & Calkins, S. D. (1996). The double-edged sword: Emotional regulation for children at risk. Development and Psychopathology, 8, 163-182.
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. In N. A. Fox (Ed.) The development of emotion regulation: Biological and behavioral aspects. Monographs of the Society for Research in Child Development, 59, 25-52.

- Trickett, P. K., & McBride-Chang, C. (1995). The developmental impact of different forms of child abuse and neglect. Developmental Review, 15 (3), 311-337.
- Tuulio-Henriksson, A., Poikolainen, K., Aalto-Setälä, T., & Lonnqvist, J. (1997). Psychological defense styles in late adolescence and young adulthood: A follow-up study. Journal of the American Academy of Child and Adolescent Psychiatry, 36(8), 1148-1153.
- Vaillant, G. E. (1971). Theoretical hierarchy of adaptive ego mechanisms. Archives of General Psychiatry, 24, 107-118.
- Vernberg, E. M., La Greca, A. M., Silverman, W. K., & Prinstein, M. J. (1996). Prediction of posttraumatic stress symptoms in children after Hurricane Andrew. Journal of Abnormal Psychology, 195(2), 237-248.
- Vila, G., Porche, L. M., & Mouren-Simeoni, M. C. (1999). An 18-month longitudinal study of post-traumatic disorders in children who were taken hostage in their school. Psychosomatic Medicine, 61(6), 746-754.
- Warren, M. (1996). Defense mechanisms as moderators of the effects of exposure to interparental conflict on child adjustment. Unpublished Master's thesis. Simon Fraser University.
- Warren, M., Shercliffe, R., & Moretti, M. (1998). Child maltreatment and assessment of Post-Traumatic Stress Disorder. Poster presented at the International Society for Traumatic Stress Studies meeting in Washington, DC.
- Welner, Z., Reich, W., Herjanic, B., & Jung, K. G. (1987). Reliability, validity, and parent-child agreement studies of the Diagnostic Interview for Children and Adolescents (DICA). Journal of American Academy of Child and Adolescent Psychiatry, 26 (5), 649-653.
- Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. American Journal of Psychiatry, 156 (8), 1223-1228.
- Wolfe, D. A., & Jaffe, P. (1991). Child abuse and family violence as determinants of child psychopathology. Canadian Journal of Behavioural Sciences, 23 (3), 282-299.
- Wolfe, D. A., & McGee, R. (1994). Dimensions of child maltreatment and their relationship to adolescent adjustment. Development and Psychopathology, 6, 165-181.

- Wolfe, D. A., Sas, L., & Wekerle, C. (1994). Factors associated with the development of Posttraumatic Stress Disorder among child victims of sexual abuse. Child Abuse & Neglect, *18*, 37-50.
- Wolfe, V. V., Gentile, C., Michienzi, T., Sas, L., & Wolfe, D. A. (1991). The Children's Impact of Traumatic Events Scale: A measure of post sexual-abuse PTSD symptoms. Behavioral Assessment, *13*, 359-383.
- Wolfe, V. V., Gentile, C., & Wolfe, D. A. (1989). The impact of sexual abuse on children: A PTSD formulation. Behavior Therapy, *20*, 215-228.
- Zlotnick, C. (1997). Posttraumatic stress disorder (PTSD), PTSD comorbidity, and childhood abuse among incarcerated women. Journal of Nervous and Mental Disease, *185* (12), 761-763.

**Appendix A:  
Social History Coding Criteria**

**Definition of terms:**

*Child sexual abuse:* any sexual contact between the target child and an adult; any sexual contact between the child and another child five or more years older; any unwanted sexual contact between the child and another child.

*Child physical abuse:* any physical aggression from an adult towards the child.

*Child exposure to family violence:* any exposure to violence between adults in the child's family.

*Child emotional abuse:* any emotional aggression from an adult towards the child or extreme emotional neglect.

*Mother figure:* any female adult who took primary caretaking responsibilities for the child at any stage in his/her life.

*Father figure:* any male adult who took primary caretaking responsibilities for the child at any stage in his/her life.

*Other adult:* any other adults, including strangers, who committed any acts of child maltreatment against the child.

*Note:* total scores were tabulated across perpetrators for the purposes of this study.

**Severity codings:**

0 = never happened

1 = mild form of child maltreatment

2 = moderate form of child maltreatment

3 = severe form of child maltreatment

*Note:* Chronicity ratings were also compiled but were not used in data analysis because the scores were not comparable with ROME scale scores which are based on severity.

**Examples of child sexual abuse:**

**Mild:** shown pornographic material; exposed to adults' genitals or adults engaging in sexual acts; invited to engage in sexual behaviour.

**Moderate:** fondled over or under clothes or forced to fondle adult; open-mouth kissing.

**Severe:** forced to have oral sex or intercourse; participated in pornography; violent sexual assault (e.g., rape).

**Examples of child physical abuse:**

**Mild:** slapped, spanked, or pushed so that he/she got minor bruises or marks.

**Moderate:** hit or kicked so that serious marks or cuts were left; abuse caused lacerations or burns that required some medical attention (e.g., bruises).

**Severe:** abuse caused broken bones or internal injuries; hospitalization required.

**Examples of exposure to family violence:**

**Mild:** parent slapped or pushed other parent.

**Moderate:** parent hit other parent with something; parent caused injuries to either parent that required some medical attention (see child physical abuse).

**Severe:** parent attacked other parent with a knife or gun; parent caused injuries to other parent that required hospitalization; parent violently sexually assaulted other parent.

**Examples of child emotional abuse**

**Mild:** child told he/she was stupid or a burden; ignored for a long period of time.

**Moderate:** child exposed to extreme or frightening behaviour; kept from other parent.

**Severe:** child made to do humiliating things; threatened to be hurt or killed.

## Appendix B:

Pearson *R* for Age, Gender, and Key Variables

Variable	Age	Gender
ROME CSA	.073	.526**
ROME CPA	.232*	.278*
ROME CFV	.150	.173
ROME CEA	.146	.257*
DSQ IMM	.047	.194
DSQ NEU	.006	.369**
DSQ MAT	-.222	-.133
YSR EXT T	.298*	.422**
YSR INT T	.403*	.283*
CAPS-CA DSM-IV Criteria B	.163	.505**
CAPS-CA DSM-IV Criteria C	.174	.340**
CAPS-CA DSM-IV Criteria D	.061	.339*

Note: \*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed). Boys were coded low (i.e., 1) and girls coded high (i.e., 2).

**Appendix C:**

**Pearson *R* for Social History Severity Ratings and ROME Scales**

Scales	Social Hx CSA	Social Hx CPA	Social Hx CFV	Social Hx CEA
ROME CSA	.600**	.156	.346*	.167
ROME CPA	.249*	.138	.237	.147
ROME CFV	.323**	.112	.447**	.264*
ROME CEA	.113	.084	.081	.057

*Note:* \*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed).

**Appendix D:**

**Pearson *R* for CAPS-CA Scales, YSR Scales, and DICA Total Number of Diagnoses**

Outcome Measure	CAPS-CA Criteria B	CAPS-CA Criteria C	CAPS-CA Criteria D	YSR EXT T	YSR INT T	DICA Total Diagnoses
CAPS-CA Criteria B	---	.668**	.661**	.398**	.362*	.146
CAPS-CA Criteria C	---	---	.693**	.362*	.523**	.037
CAPS-CA Criteria D	---	---	---	.495**	.601**	.324*
YSR EXT T	---	---	---	---	.545**	.606**
YSR INT T	---	---	---	---	---	.449**
DICA Total Diagnoses	---	---	---	---	---	---

*Note:* \*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed).



**Appendix E:**

**Pearson *R* for ROME Scales and DSQ Defense Style Scales**

Scales	Child Sexual Abuse	Child Physical Abuse	Child Exposure to Family Violence	Child Emotional Abuse
DSQ Immature	.363**	.345**	.096	.489**
DSQ Neurotic	.412**	.174	.218	.006
DSQ Mature	.230	.049	.025	.017

*Note:* \*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed).

**Appendix F:  
Significant Main Effects**

**The Impact of Child Physical Abuse and an Immature Defense Style on Externalizing Behaviour Problems**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CPA	.507	.419	.000	.298	.000	.286
IMM	4.172	.387	.000	.133	.000	.412

Note: CPA = child physical abuse; IMM = immature defense style.  $N = 61$ .

**The Impact of Child Exposure to Family Violence and an Immature Defense Style on Externalizing Behaviour Problems**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CFV	.316	.229	.026	.081	.026	.065
IMM	5.379	.499	.000	.245	.000	.303

Note: CFV = child exposure to family violence; IMM = immature defense style.  $N = 61$ .

**The Impact of Child Emotional Abuse and an Immature Defense Style on Externalizing Behaviour Problems**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CEA	.125	.270	.000	.200	.000	.186
IMM	4.388	.407	.001	.334	.000	.311

Note: CEA = child emotional abuse; IMM = immature defense style.  $N = 61$ .

**The Impact of Child Sexual Abuse and an Immature Defense Style on Internalizing Behaviour Problems**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall <i>p</i>	Overall Adj. $R^2$
CSA	.725	.215	.021	.129	.021	.129
IMM	4.059	.362	.024	.110	.000	.239

Note: CSA = child sexual abuse; IMM = immature defense style. *N* = 41.

**The Impact of Child Physical Abuse on Internalizing Behaviour Problems**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall <i>p</i>	Overall Adj. $R^2$
CPA	.475	.368	.003	.136	.003	.136

Note: CPA = child physical abuse. *N* = 61.

**The Impact of Child Exposure to Family Violence and an Immature Defense Style on Internalizing Behaviour Problems**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall <i>p</i>	Overall Adj. $R^2$
CFV	.535	.364	.002	.153	.002	.139
IMM	2.867	.249	.037	.061	.001	.188

Note: CFV = child exposure to family violence; IMM = immature defense style. *N* = 61.

**The Impact of Child Sexual Abuse on DSM-IV Criteria B PTSD Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall <i>p</i>	Overall Adj. $R^2$
CSA	.536	.569	.000	.324	.000	.304

Note: CSA = child sexual abuse. *N* = 37.

**The Impact of Child Emotional Abuse and a Neurotic Defense Style on DSM-IV**

**Criteria B PTSD Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall <i>p</i>	Overall Adj. $R^2$
CEA	.030	.188	.124	.041	.124	.024
NEU	.940	.302	.018	.091	.019	.101

Note: CEA = child emotional abuse; NEU = neurotic defense style. *N* = 59.

**The Impact of Child Sexual Abuse and a Neurotic Defense Style on DSM-IV Criteria**

**C PTSD Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall <i>p</i>	Overall Adj. $R^2$
CSA	1.082	.672	.000	.318	.000	.298
NEU	-1.794	-.313	.036	.086	.000	.368

Note: CSA = child sexual abuse; NEU = neurotic defense style. *N* = 36.

**The Impact of Child Physical Abuse on DSM-IV Criteria C PTSD Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall <i>p</i>	Overall Adj. $R^2$
CPA	.175	.277	.037	.077	.037	.060

Note: CPA = child physical abuse. *N* = 57.

**The Impact of Child Exposure to Family Violence on DSM-IV Criteria C PTSD**

**Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CFV	.252	.361	.006	.130	.006	.130

Note: CFV = child exposure to family violence.  $N = 57$ .

**The Impact of Child Emotional Abuse on DSM-IV Criteria C PTSD Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CEA	.093	.364	.005	.133	.005	.133

Note: CEA = child emotional abuse.  $N = 57$ .

**The Impact of Child Sexual Abuse on DSM-IV Criteria D PTSD Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CSA	.806	.577	.000	.333	.000	.312

Note: CSA = child sexual abuse.  $N = 35$ .

**The Impact of Child Exposure to Family Violence on DSM-IV Criteria D PTSD**

**Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CFV	.201	.320	.015	.121	.015	.104

Note: CFV = child exposure to family violence; IMM = immature defense style.  $N = 53$ .

**The Impact of Child Emotional Abuse on DSM-IV Criteria D PTSD Symptoms**

Scales	b	B	$\Delta p$	$\Delta R^2$	Overall $p$	Overall Adj. $R^2$
CEA	.067	.288	.035	.083	.035	.065

*Note:* CEA = child emotional abuse.  $N = 53$ .