

EMOTION REGULATION AND BEHAVIOUR PROBLEMS IN YOUNG CHILDREN
EXPOSED TO DOMESTIC VIOLENCE

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By

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Abstract

Although the effects of witnessing domestic violence on young children were long believed to be non-existent, current research indicates that young children do suffer negative consequences as a result of witnessing violence (e.g., Zeanah, et al., 1999). From research with older children it is known that exposure to violence is associated with emotional dysregulation, behaviour problems, and difficulties in school (e.g., Wolfe et al., 2003). Risk factors (e.g., maternal depression) and protective factors (e.g., secure attachment relationship) have been implicated in both emotional regulatory abilities and the effects of exposure to domestic violence.

The present research endeavoured to use a developmental psychopathology perspective to understand the experiences of young children exposed to domestic violence, specifically their emotion regulation abilities and behaviour problems. Study 1 explored the application and reliability of an emotion regulation coding scheme for use with young children during the Face-to-Face Still Face scenario. Study 2 examined the relationship between previous exposure to domestic violence and behaviour problems and emotion regulation, while considering possible moderating variables. The coding system from Study 1 served as the measure of emotion regulation in Study 2.

Findings indicated that young children in this study who had been exposed to increased levels of domestic violence also displayed increased internalizing behaviour problems. No relationship was found between exposure to domestic violence and emotion regulation or externalizing problems or sleep problems. Child temperament, attachment security and maternal psychological symptomology were associated with behaviour problems in these children. Maternal psychological symptomology was marginally related to emotion regulation, however

temperament and attachment security were not. The relationship between exposure to physical aggression and externalizing behaviour problems was moderated by child temperament and attachment security. The relationship between physical aggression and internalizing behaviour problems was moderated by attachment security. The implications of these findings for future research and clinical practice are discussed. Taken together, these two studies expanded the existing literature on the adjustment outcomes associated with exposure to domestic violence in young children.

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For Dr. Margaret McKim

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Emotion Regulation and Behaviour Problems in Young Children Exposed to Domestic Violence

Living in a turbulent family environment affects all family members including infants and children. Witnessing domestic violence has been found to result in both emotional and behavioural problems for children (Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003).

Although most of this research has been conducted with school age children or adolescents, the Canadian Incidence Study of Reported Child Abuse and Neglect (Trocmé et al., 2005) indicates that young children (birth through three years) are more likely than any other age group to be exposed to domestic violence and this exposure is more common at this age than any other form of abuse. Case studies indicate that infants and young children develop post-traumatic stress disorder (PTSD) in response to trauma and that the severity and pervasiveness of PTSD symptoms is greatest for those who witness violence directed toward their primary caregiver (e.g., Scheeringa & Zeanah, 1995). It is surprising then that so few empirical studies have systematically examined the impact of witnessing violence on young children.

One important outcome associated with witnessing domestic violence as a young child may well be emotional development. Indeed, research has shown that emotion regulation in infants is related to the emotional availability of the caregiver (Little & Carter, 2005) and it is well established that young children learn to regulate their emotions through early human relationships (Bowlby, 1988). It can be argued, that in situations of domestic violence, young children learn to deal with strong emotions in ways that are disruptive, certainly dysregulatory and potentially pathological or dangerous, placing them at greater risk for subsequent psychological and behavioural problems. Moreover, behaviour problems arguably constitute a second important outcome with research highlighting a connection between exposure to domestic violence and internalizing and externalizing behaviour problems in childhood (e.g.,

Fantuzzo & Mohr, 1999). While exposure to domestic violence may be a risk factor for negative outcomes, many children exposed to violence are not experiencing emotional and behavioural difficulties. Developmental psychopathology provides a framework in which to understand the different influences on children's outcomes with attention to risk and protective factors.

Due to the extreme dependence of young children on their caregivers, it is expected that their family relationships and home environment play a key role the development of typical emotional and behavioural pathways. Of central interest to the present research was the nature of these pathways when young children were exposed to domestic violence. Child, parent, and family, risk and protective factors (i.e., the attachment relationship, maternal psychological symptomology, and temperament) were examined in an attempt to better understand this relationship.

The following literature review was intended to provide an overview of exposure to domestic violence with an emphasis on emotion regulation and behaviour problems as outcome variables. The relationship between exposure to domestic violence and the outcome variables was examined in the context of possible moderating variables: child temperament, maternal psychological symptomology, and attachment security. As the experiences of young children exposed to domestic violence will be conceptualized using developmental psychopathology, the review will begin with a description of this framework.

Developmental Psychopathology

Developmental psychopathology is a field of study and a theoretical framework for understanding and studying human development over the lifespan, though it is primarily used with children (e.g., Davies & Cicchetti, 2004). The name itself has historical roots and does not imply that it promotes the pathologizing of individuals. In fact one of the major tenets of the

theory is that maladaptation is the result of development, not a disease unto itself. It is an integrative paradigm which postulates that the processes underlying human development and maladaptive functioning are influenced by many sources and thus require the inclusion of numerous perspectives to understand the whole picture (e.g., Rutter & Sroufe, 2000).

Developmental psychopathology seeks to understand the development and maintenance of individual adaptation and maladaptation. It is proposed that an individual's current functioning is predicted by the present situation and his or her prior adaptation. Maladaptation is conceptualized as an outcome of development and not a disease, with a focus on explaining how or why the maladaptation occurs (Cummings et al., 2000). Thus maladaptation is thought of as a process that evolves over time (Cummings et al., 2000). Developmental psychopathology postulates that disorders do not necessarily lie within the person, sometimes the disorder can be due to the interaction between the individual and the environment. At times the disorder can be thought of, at least in part, as being due to the social context, for instance, a family as a whole may be dysfunctional. As domestic violence disrupts typical familial relationships, it is important to understand how this experience affects the development of young children. Specifically children's abilities to regulate and manage their emotions and behaviours derive from the context of their relationship with their caregivers in the early years (e.g., Bowlby, 1944). Thus when a dysfunctional family environment exists and relationship are disrupted, the pathway of a child's emotional and behavioral development is likely altered. In these cases the "disorder" may actually reflect a successful adaptation to difficult circumstances. For instance in the context of domestic violence, withdrawal behaviour may prevent the child from becoming a direct victim of the violence, however when this strategy of withdrawing is used indiscriminately across situations it becomes maladaptive. Thus, a behaviour that was adaptive in one situation can

become maladaptive if used inflexibly in other settings. It is because of the complexity of this connection between adaptive and maladaptive behaviours that a broad range of influences on a child must be considered.

Developmental psychopathology can be used as a framework to consider a broad range of developmental influences and outcomes including, for instance, positive and negative factors (and the interplay between them) (Cummings, Davies, & Campbell, 2000). Within this lies the notion of individual pathways, in that numerous circumstances can lead to similar outcomes (equifinality), and that similar circumstances can lead to numerous outcomes (multifinality; e.g., Davies & Cicchetti, 2004). The processes of equifinality and multifinality are thought to occur because of the numerous factors that influence development. Within a developmental psychopathology framework, risk and protective factors are conceptualized as some of these intervening variables which affect the path of development. In order to understand the experiences of young children exposed to domestic violence it becomes important, then, to consider both the behaviours that are currently displayed as well as other factors known to be associated with development. For instance, if a child is displaying aggressive behaviours it is important to understand their temperament, family environment, etc. It is for this reason that the present study endeavored to understand the behavioural and emotional factors associated with exposure to domestic violence in the context of risk and protective factors.

To this end, the remainder of the present review consists of describing literature on exposure to domestic violence followed by research focused on the behavioural and emotional outcomes for children exposed to domestic violence. The review concludes with a discussion of risk and protective factors potentially implicated in the developmental course of children growing up in violent homes.

Exposure to Domestic Violence

Infants

Exposure to domestic violence in children aged 0 through 3 is the most common type of maltreatment of any age group with annual incidence in Canada estimated at 18 per 1000 (Trocmé et al., 2005). Few empirical studies have examined the effects of infants witnessing domestic violence. In fact, a search of the psychological literature yielded just over 20 articles ever published on infants' exposure to domestic violence with only a fraction of these actually focusing on the effects of infants witnessing domestic violence. Those studies that have explored the effects of witnessing domestic violence for infants have found that infants are at increased risk to have disorganized attachment relationships (Zeanah, Danis, Hirshberg, Benoit, Miller, & Heller, 1999), show more distress to simulated conflict situations (Dejonghe, Bogat, Levendosky, von Eye, & Davidson, 2005) and are more likely to develop post-traumatic stress disorder (PTSD; Drell, Siegel, & Gaensbauer, 1993; Osofsky, Cohen, & Drell, 1995; Zeanah, 1994 as reported in Osofsky, 1995). Studies exploring the effects on infants of exposure to marital conflict have found that infants who live in families with high rates of conflict have greater disorganized attachment (Owen and Cox, 1997), greater internalizing and externalizing problems in kindergarten (Essex, Klein, Cho, & Kraemer, 2003), as well as an increased risk of anxiety-depression symptoms in adolescence (Spence, Najman, Bor, O'Callaghan, & Williams, 2002). Due to the high number of young children being exposed to domestic violence, it is imperative that the factors associated with this exposure are understood.

Children

The literature examining the effects of exposure to domestic violence for children is more complete than that for infants. Recent reviews and meta-analyses have examined approximately

30 - 40 studies on this topic and have found a small effect size for poor emotional and behavioural outcomes in children exposed to domestic violence (e.g., Sox, 2004; Wolfe, et al., 2003). For children (ages four and up), findings show that exposure to domestic violence is significantly related to behavioural and emotional problems as well as social dysfunction, cognitive delays and poor general health functioning (Kolbo, Blakely, & Engleman, 1996; Sox, 2004; Wolfe et al., 2003). Children who have been exposed to domestic violence show more externalizing (aggressive behaviour, temper tantrums) and internalizing (anxiety, depression, poor self-esteem) behavioural difficulties than those children who come from non-violent homes (Fantuzzo & Mohr, 1999). Accordingly, it is believed that exposure to domestic violence disrupts normal development in children leading to negative short- and long-term consequences (Wolfe, et al., 2003). Preschoolers (ages three to five) who have been exposed to domestic violence have increased rates of behaviour problems (Lieberman, Van Horn, & Ozer, 2005; Martin & Clements, 2002; Stagg, Wills, & Howell, 1989), greater social competence difficulties (Stagg, et al., 1989), suffer from PTSD symptoms (Levendosky, Huth-Bocks, Semel, & Shapiro, 2002), and respond to simulated conflict with emotional dysregulation (Martin & Clements, 2002). For children, the associations with domestic violence and conflict are better understood than for infants.

Summary

Taken together, research findings from the literature on exposure to conflict and violence for older children (beyond three years of age) indicate that exposure is related to negative outcomes including behavioural, emotional and social problems. While the present review of the effects of exposure to violence revealed a substantial dearth in research pertaining to young children (three years and younger), existing studies indicate that infants are at increased risk of

developing PTSD and insecure attachment relationships. It is yet unknown whether young children exposed to domestic violence will exhibit behaviour problems similar to older children, or if young children's ability to regulate their emotions is disrupted by exposure to violence in a similar fashion to what has been observed with older children exposed to conflict.

Although consistent support is emerging for the relationship between domestic violence and negative outcomes for children, recent research is moving beyond describing these relationships to look for factors that may help explain the relationships (e.g., Davies & Cummings, 1994). One way to understand this new area of research is to consider the risk or protective role a third variable may play in understanding the link between domestic violence and child adjustment. Examining the present state of the literature leads to the conclusion that research with younger children may well advance the field of research on exposure to domestic violence by focussing on a variety of factors that all play a role in understanding how exposure to domestic violence impacts developmental pathways.

The possible links between exposure to domestic violence on behaviour and emotion regulation in young children are discussed next. This is followed by a review of risk and protective factors that may help advance the understanding of exposure to violence in early childhood.

Correlates of Exposure to Domestic Violence

Behaviour Problems

The development of behaviour occurs within the context of the family, with children looking to their parents for guidance in regulating their behaviours. In the clinical-developmental literature, behaviour problems are often described in terms of internalizing and externalizing problems. Internalizing problems commonly include anxiety and depression, while externalizing

behaviour problems describe acting out behaviours like aggressive behaviour, and attentional difficulties (e.g., Achenbach & Edelbrock, 1983). In Canada approximately 18% of children and youth have anxiety problems, 17% have hyperactivity/inattention, 14% have conduct problems, and 25% of children and youth exhibit problematic behaviour in general (The Well Being of Canada's Young Children: Government of Canada Report, 2003).

In young children behaviour problems present in a variety of ways, but commonly include sleep problems, feeding difficulties, depressive symptomology, temper tantrums, or aggressive behaviour (e.g., Briggs-Gowan, Carter, Moye Skuban, & McCue Horwitz, 2001). Rates of social-emotional and behaviour problems in 2-year-old children have been found to be 12-16% (Briggs-Gowan et al., 2001) indicating that they are common. Factors associated with these problems in early childhood include disrupted attachment with the caregiver, disturbed family environment, and early socialization difficulties. Looking forward, behaviour problems in early childhood are associated with later problems including hyperactivity, aggressiveness, internalizing and externalizing disorders, and difficulties in school (e.g., Sanson, Smart, Prior, & Oberklaid, 1993; Zero to Three, 2005). The research on behaviour problems in young children is comprehensive and has highlighted the needs of young children. In clinical work, behaviour problems are frequently the reason for referral.

In terms of understanding the development of behaviour problems, research has highlighted a variety of risk factors, including poor maternal health, low APGAR (Appearance, Pulse, Grimace, Activity, and Respiration) scores, and difficulty during pregnancy (Uljas, Rautava, Helenius, & Sillanpaa, 1999). Risk factors associated within the context of the family have also been found. For example, children living in dysfunctional families are 35% more likely to display aggressive behaviours than children living in healthy family environments (Racine &

Boyle, 2002, as cited in *The Well Being of Canada's Young Children*: Government of Canada, Report 2003). In fact, in a recent review of the literature numerous pathways for the development of aggressive behaviour were discussed including individual factors, parental characteristics, family environment and the attachment relationship (Reebye, 2005). These findings directs attention to the importance of a broad range of influences and the need to understand the association between exposure to violence and behaviour problems in young children within a developmental psychopathology framework.

Summary

Early problems are common for young children and typically present as difficulty sleeping, aggressive behaviours, and social-emotional problems. They cause disturbances in the home and disrupt the parent-child relationship. Behaviour problems in early childhood are associated with school difficulties, emotional problems and development of conduct disorder. Although the manifestation of different kinds of behaviour problems in young children is fairly well understood, more research is needed to understand these problems within the context of domestic violence and risk and protective factors.

Emotion Regulation

Emotion regulation refers to the child's ability to regulate his or her behaviours in response to changing emotions (e.g., self-soothing when distressed). It is these changing emotions that indicate the emotional responsiveness of the child. Emotion regulation is a developmental process that is affected by numerous factors including child temperament and parent-child interactions (e.g., Bowlby, 1944). Emotional development begins at birth and is centrally influenced by the child's immediate social milieu (Malatesta-Magai, 1991) with emotion regulation developing in the context of early relationships and environment. While

children eventually learn to self soothe and regulate emotion on their own, this occurs more quickly if a caring consistent adult is available to model appropriate behaviour and guide them through this process. Due to the disruptive nature of domestic violence on family functioning, the process of successful emotion regulation is also thought to be disrupted.

Recent research examining the development of emotional responsiveness in young children has found that infants as young as six months have well-organized emotional expressions which are related to events in their surroundings (Weinberg & Tronick, 1994). A functionalist theory of emotion regulation has postulated that infants monitor their emotions and continue with goal oriented behaviours until attainment of that goal, suggesting intentionality (Weinberg & Tronick 1994). For instance, infants are able to communicate their desire to continue an interaction by using eye contact, and controlling negative facial expressions and vocalizations. This theory has allowed researchers to systemically examine the emotional expressive abilities of infants and young children.

In the spectrum of emotional development, young children first develop emotional expression, perception, regulation and understanding (Young, 2005). This developmental process is affected by factors such as socialization and temperament, as well as prematurity. For example, preterm infants are found to have a wide range of difficulties including delays in emotional development (Malatesta-Magai, 1991). Whereas emotion regulation has been conceptualized as a developmentally higher order process than emotional expression and perception, and has been thought to include an understanding of emotional knowledge, Southam-Gerow and Kendall (2002) reviewed literature indicating that young children use emotion regulation strategies without understanding them. It has therefore been suggested that a separation exists between emotional understanding and emotion regulation (Young, 2005). The

present study focuses exclusively on existing research in the area of emotion regulation, specifically emotion regulation during a stressful event. As it is hypothesized that domestic violence will be associated with disruptions in emotion regulation, the present review focuses on situations that are known to provide opportunities to observe emotion regulation.

Emotion Regulation during Stressful Events

A stressful event is often considered to be the ideal method for creating a situation whereby emotional responses and parent-child attachment can be assessed (Davies & Cummings, 1994). Although there have been many different methods of creating stressful situations, two main bodies of literature are pertinent to the present research: (1) Tronick's Face-to-Face Still-Face scenario and (2) simulated conflict situations. The Face-to-Face Still-Face scenario (Tronick, Als, Adamson, Wise, & Brazelton, 1978) has been used to assess emotion development, emotion regulation and various aspects of infant social development in the past (e.g., Adamson & Frick, 2003). Research involving simulated conflict situations has examined children's emotional and behavioural reactions to stressful situations (e.g., Cummings, 1987; Maughan & Cicchetti, 2002). Emotion regulation is often measured through observation in a laboratory setting, and both the Still Face procedure and simulated conflict situations have provided methods for doing this with infants and older children. This body of literature represents the first steps at examining the relationship between exposure to domestic violence and emotion regulation in young children.

Face-to-Face Still Face paradigm. The Face-to-Face Still Face Paradigm is a series of three interactive segments between the child and caregiver. The first phase is a free play segment and represents a typical interaction between the child and caregiver. Immediately following the free play segment, the caregiver is instructed to begin the Still Face segment. This

involves exhibiting a 'still face' (i.e., a neutral facial expression). During this stage the caregiver is told not to respond to the child either verbally or physically. The final stage of this paradigm is the reunion stage where the caregiver again responds typically to the child. The stressful nature of the 'still face' segment and the subsequent reunion segment provide an ideal situation in which to observe the emotion regulation of young children.

Research using the Face-to-Face Still Face Paradigm has demonstrated that infants exhibit facial expressions which correspond to their internal functioning (Weinberg & Tronick, 1994), change their emotional reactions in response to their caregiver's behaviour (Kisilevsky et al., 1998), and discriminate emotions by responding differently to different facial emotions displayed by their caregivers (D'entremont & Muir, 1999). Research using the Still Face has also demonstrated that mother's responsiveness (Haley & Stansbury, 2003) is associated with regulatory abilities such that young children with more responsive mothers show better emotion regulation abilities. Maternal depression has been linked to infant dysregulation with infants who have depressed mothers exhibiting disorganized and anxious responses during the Still Face procedure (Field, 1995). Additionally, Kisilevsky and colleagues (1998) illustrated that infants in Canada and in China responded similarly to the Face-to-Face Still Face scenario providing evidence for cross-cultural validity. The Still Face scenario has been widely used and researched across a variety of studies.

As Adamson and Frick (2003) point out, the Still Face has had a central role in the process of understanding infants' emotional regulatory abilities. The Face-to-Face Still Face paradigm has been primarily used with infants less than one year of age. While it is clear that the Face-to-Face Still Face scenario is an effective way to study infants' (less than one year of age) emotions and emotion regulation abilities, less is known about its usefulness with older infants

and children. Recently, the precedent has been set to expand the use of the Still Face procedure to older populations and in a commentary on future directions for the Still Face Procedure, Tronick (2003) points to the procedure's use across the lifespan. In a study examining the understanding of social behaviour in children with autism, a modified Still Face procedure was employed (Nadel et al., 2000). In this study the children's chronological ages ranged from 5 years to 13 years, with their mental age ranging from 14 months to 48 months (Nadel et al., 2000). One study even used the Still Face scenario with a 79 year old participant suffering from dementia (Astell & Ellis, 2006), suggesting that the procedure may have utility with participants across the lifespan. While the procedure itself may be useful for toddlers and older children, the analysis of the interaction would require developmentally appropriate coding procedures. In the two studies described above where the Still Face procedure was used with older participants, coding schemes were designed to measure the variable of interest and take into account the age of the participants (Nadel et al., 2000; Astell & Ellis, 2006). For instance, Nadel and colleagues (2000) noted that they required codes which could accommodate movement of the child, a factor which does not occur during the Still Face procedure with infants. Thus, while the Still Face has been widely used with infants, recent research has begun to recognize the utility of the paradigm and examine it's usefulness with older populations.

Simulated conflict situations. Research has examined emotion regulation in the context of exposure to a contrived conflict situation (Adamson & Thompson, 1998; Martin & Clements, 2002; Maughan, Cicchetti, Toth, & Rogosch, 2007). In this situation, the child is witness to a staged conflict situation between two individuals. The child's emotional responses during and after the conflict are observed, providing researchers with an opportunity to examine how children react in simulated conflict situations and to assess emotion regulation abilities during a

stressful situation. Recently, some researchers have specifically examined the role of previous exposure to domestic violence in emotion regulation during a simulated conflict situation in children (e.g., Maughan & Cicchetti, 2002). Maughan and Cicchetti (2002) studied 139 children between the ages of 4 and 6 to better understand the role of child maltreatment and exposure to violence on children's developing emotion regulation abilities and behaviours.

Other research supports the notion that children who have been exposed to domestic violence respond to the simulated conflict with emotional dysregulation (Martin & Clements, 2002). For instance, when exposed to the staged conflict children (aged four) with more exposure to violence may react with anger, whining, or sadness to the conflict whereas children with appropriate regulatory abilities (and less previous exposure to violence) more typically engage in self-soothing or comfort seeking behaviours. This simulated conflict paradigm provides an opportunity to observe and code children's emotion regulation abilities under stress, which can then be evaluated in the context of previous exposure to domestic violence while considering risk and protective factors.

In 1987, Cummings developed a coding system for measuring emotion regulation during a simulated conflict situation. This coding system continues to be adapted and used in research on marital relations and child adjustment (e.g., Davies, 1995; Davies & Cummings, 1998), with some researchers using the system to examine the childhood effects of exposure to violence (e.g., Maughan & Cicchetti, 2002). Cummings' (1987) work revealed that 4- and 5-year-olds typically reacted to background inter-adult anger (two experimenters arguing) with one of three different coping styles. The first, termed Ambivalent responders, were children who exhibited both negative (e.g., freezing) and positive (e.g., smiling) emotions. The second group was the Concerned responders who exhibited only negative emotions. The third group was the

Unresponsive children who exhibited no emotional response during the anger simulation.

Approximately 35% of the children were Ambivalent responders, 46% were Concerned responders, 15% were Unresponsive responders, and 4% were unclassifiable. Children with Ambivalent responses displayed the most emotional responding to the background anger, but lacked a focused goal (such as wanting to make the situation better), which Cummings argued showed an undercontrol of behaviour. These children often reported that they were happy during the conflict. The Concerned children acted as though they were aware of the importance of the situation, felt badly about it and reported wanting to make it better. The unresponsive children reported feeling angry during the conflict, but also wanting to ignore it.

A subsample of the 4-and 5-year-olds ($n = 43$) used by Cummings (1987) had been previously assessed by the researcher when they were toddlers (2 years old) in a similar situation. Cummings (1987) compared the 4-to 5-year olds reactions to those of the same children in toddlerhood and found toddlers lacked the positive emotional response that is necessary for the classification of ambivalent responding. However, children classified as having an Ambivalent style at age 4 to 5 were found to have shown the most anger and behaviour responsiveness to background anger when they were 2 years old. The Concerned children at age 4 to 5 were the children who showed the least post-anger aggression (e.g., hitting) years earlier when they were toddlers. The Unresponsive children at age 4 to 5 were also the children who showed the least emotional responding to the inter-adult anger when they were toddlers. Thus, the response patterns at age 2 are similar to those seen in the same groups of children at age 4 to 5. The work of Cummings is important because it provides evidence of distinguishable emotional response patterns in young children and hints at the presence of identifiable response patterns in toddlers.

Maughan and Cicchetti (2002) extended the work of Cummings (1987) by renaming the

response styles and by using a high risk sample of children aged four to six (i.e., children from families accessing social services where there was evidence of direct maltreatment of the child as well as domestic violence). In addition, Maughan and Cicchetti changed the conflict situation by using the caregiver as one of the people involved in the conflict. Maughan and Cicchetti found that 50% of maltreated children and 23.5% of non-maltreated children responded in what they termed an undercontrolled/ambivalent (U/A) person-oriented emotion regulation pattern (EMRPs). This U/A pattern is based on Cummings (1987) Ambivalent responders and is characterized by increased rates of both positive and negative emotions in the child during and following the conflict simulation. Following Cummings model, there were also overcontrolled/unresponsive (O/U) types corresponding to the original Unresponsive responders who showed low levels of emotional or behavioural reactivity in response to the conflict. Maughan and Cicchetti found that 29.5% of maltreated children, and 13.7% of non-maltreated children exhibited an O/U EMRP. Finally, there were adaptively concerned (AC) types, who corresponded to Cummings (1987) Concerned responders and appeared to respond with moderate reactivity during the conflict simulation. Maughan and Cicchetti found that 20.5% of maltreated children and 62.7% of non-maltreated children displayed an AC EMRP.

Maughan and Cicchetti (2002) found that inter-adult violence in the home was not significantly related to children's emotion regulation, however maltreatment was. Similarly, inter-adult violence in the home was not significantly related to the child's behaviour problems (measured using the Child Behaviour Checklist; Achenbach, 1991), however maltreatment was connected to behaviour problems. These findings contrast with those of Davies and Cummings (1998), where children exposed to destructive marital conflict (e.g., intense disagreement and hostility) exhibited increased rates of both internalizing and externalizing problems. In

attempting to understand their findings, Maughan and Cicchetti note that their results were unexpected and suggest that in their high risk sample, inter-adult violence may be indirectly related to child adjustment and children's emotion regulation, and may be explained through the effects of maltreatment. They posit that violence may interfere with parenting behaviour and the parent-child relationship, and it is through this breakdown that the effects of exposure are seen. Once again there is speculation that the connection between exposure and outcome is best understood by highlighting a risk factor, which in this case would be maltreatment (e.g., the extreme breakdown of parenting behaviour and/or the parent-child relationship). This finding provides support for the complex and multi-faceted nature of children's development and the need to understand the associations of domestic violence within a framework of risk and protective factors. Maughan and Cicchetti (2002) also found that based on responses to the Child Behaviour Checklist (CBCL) children who exhibited a U/A response pattern were rated by their mothers as having more anxious/depressed symptoms than those children classified as AC or O/U. Additionally, children with U/A patterns were also rated as having more social problems than the AC children. Maughan and Cicchetti were able to document a link between emotional responses and patterns of behaviour in early childhood, thus advancing the field of emotion regulation and exposure to violence. Due to some of the unexpected findings of their research in light of well documented evidence to the contrary, more studies are needed with clinical samples to understand the association between exposure to domestic violence and child adjustment,

In this research conducted by Maughan and Cicchetti (2002), the Conflict Tactics Scales (CTS; Straus, 1979) were used to evaluate the inter-adult violence in the children's homes. The CTS measures the level of violence in the home and is used as a proxy measure for children's exposure to violence. Other research has found a significant positive correlation between marital

violence and children's exposure to marital violence (Lieberman et al., 2005) as well as concordance between parent and child reports of marital conflict in the home (El-Sheikh & Elmore-Staton, 2004). This suggests that children are aware of the marital conflict/violence that happens in a home making the scores on the CTS a reasonable proxy for exposure.

Given that emotional responsiveness and emotion regulation were key constructs in the present research, of additional interest here was the way in which emotional responsiveness and regulation have been operationalized and coded in this literature. To code emotion regulation during the conflict simulation, Maughan and Cicchetti (2002) adapted the coding system previously used by Cummings (1987). The first step in the coding system was to divide the taped simulations into 30 second intervals and code for the presence or absence of 16 discrete emotional behavioural responses. The 16 coded responses were: sadness, crying, whining, freezing, anxiety, anger, physical aggression, verbal aggression, object-related aggression, dysregulated aggression, preoccupation, smiling/laughing, verbal concern, inquiries about the mother's feeling, helping the mother, and comforting the mother. Due to the low frequency of certain codes, the 16 coded responses were grouped into five composite scores.

The distress/fear composite was made up of sadness, crying, whining, freezing and anxiety. The hostility composite was defined by anger, physical aggression, verbal aggression, object-related aggression and dysregulated aggression. The vigilance composite was defined solely by preoccupation. Smiling/laughing formed the Smiling/Laughing composite and verbal concern, inquiries about the mother's feeling, helping the mother, and comforting the mother formed the Concern composite. The second step of coding categorized the children into one of three emotion regulation pattern categories described above (i.e., adaptively concerned, undercontrolled and overcontrolled). In order to categorize children based on their emotion

regulation patterns, the tapes were viewed a second time and the coders considered the children's amount of reactivity, the intensity and duration of the reactivity, the appropriateness of the reactivity to the event, and the nature of the reactivity.

For reliability purposes, Maughan and Cicchetti (2002) had 22% of the sample coded by two coders to assess inter-rater reliability. Intraclass correlations were reported for the 16 emotional behavioural responses and Cohen's Kappa was reported for each of the three emotion regulation pattern categories. Intraclass correlations for the 16 emotional behavioural responses ranged from .70 to .93, and Cohen's Kappa was .78 for the adaptively concerned category, .88 for the undercontrolled category, and .74 for the overcontrolled category. In general then, Maughan and Cicchetti's adaptation of the Cummings (1987) coding system with a sample of four- to six-year olds was successful and resulted in good inter-coding reliability.

Summary

Our understanding of how emotion regulation may be affected by exposure to domestic violence in early childhood (under four years of age) is limited. Those studies examining emotion regulation in young children focus on using the Face-to-Face Still Face paradigm and have not to date, considered previous experiences of exposure to domestic violence. The literature on emotion regulation that has considered previous exposure to domestic violence has been done with older children and has involved using a simulated conflict situation. Although this research has been important for the purpose of documenting discernable categories of emotional response and connecting these categories to behaviour, further research is required to understand whether young children who are exposed to domestic violence show difficulties with emotion regulation and behaviour problems. However, as Maughan and Cicchetti (2002) point out, it may be that the relationship between exposure to violence and the development of emotion

is not always straightforward but rather complicated by risk and protective factors. Specifically, domestic violence may disrupt parenting behaviour and the parent-child relationship, which, in turn may place children at greater risk of developing problem behaviours and/or difficulties in regulating their emotions. In contrast, it is possible that certain parenting experiences (e.g., positive parenting relationship) may protect against the otherwise negative connection between exposure to domestic violence and difficulties with emotion and behaviour. One of the primary goals of the present project was to extend the existing work on exposure to domestic violence by understanding child adjustment in the context of risk and protective factors.

Risk and Protective Factors

In research using developmental psychopathology as a framework, risk and protective factors as well as the child, parent-child interactions, and the family have been studied to better understand the context in which the child develops (Campbell, 2006). When trying to understand the experiences of young children exposed to domestic violence, it is important to highlight that young children (under four years of age) are almost entirely dependent upon their caregivers. Accordingly, it is possible that the developmental paths for young children exposed to domestic violence may be even more disrupted than those for older children. Young children spend more time with their parents and rely more on their parents to meet their needs. It is these early experiences that help children learn adaptive behaviours and emotion regulation abilities. When domestic violence disrupts the family environment the associated potential disruption to these developmental processes is unknown. Proponents of a developmental psychopathology framework would hypothesize that similar experiences (e.g., exposure to domestic violence) can result in different outcomes through risk and protective factors. Within the context of families experiencing domestic violence, risk and protective factors related to the child, the parent, and

the parent-child relationship are relevant.

Of particular interest in the present research was whether attachment security, maternal psychological symptomology and child temperament would act as risk or protective factors and moderate any connections between exposure and adjustment. These constructs were chosen because they measure aspects of: (1) individual child characteristics (temperament), (2) individual maternal characteristics (psychological symptomology), and (3) the context of the parent-child relationship (attachment). A brief description of each variable is presented next, followed by a review of research in each area that helps to illuminate the possible role of each variable as a moderator of the link between exposure to domestic violence and outcome. Although the literature surrounding each of these variables is vast, the focus is on the role of the risk or protective variable in the link between witnessing domestic violence, behaviour problems and emotion regulation in order to examine the possibility that temperament, maternal psychological symptomology, and/or attachment serve as moderators. In each case, research involving behaviour problems is presented first followed by relevant background information involving emotion regulation.

Temperament

When considering individual characteristics of young children, temperament is one of the key aspects to explore. Temperament refers to the response patterns of the child that influence how he or she interacts with the world and children can be described based on their temperament. Emotionality is central to all conceptualizations of temperament and especially so for those with more difficult temperaments (Thompson, 1999). Some examples of other aspects of temperament are activity level, distractibility, moodiness, fear, and sociability (e.g., Thompson, 1999). In clinical research, the focus is often on those children classified as having a

difficult temperament, indicating they are more irritable, less adaptable and more challenging to settle. It is thought that children function best when they are in an environment where there is a “goodness-of-fit” with their temperament. Children with difficult temperaments manage best with parents who are directive and consistent with them, whereas children with easier temperaments are able to manage their emotions and behaviours with less direction (e.g., Mangelsdorf, Gunnar, Kestenbaum, Lang, & Andreas, 1990). If this idea is extended to families experiencing domestic violence, it is possible that children may develop in different ways based on their temperament. For instance, children with less difficult easier temperament may be better able to manage their emotions and behaviour, and cope when parents may be too preoccupied to be directive and consistent. Thus it is possible that family violence disrupts parenting behaviour which may be related to more disruptions in children with more difficult temperaments. In this way, a more difficult temperament would place a young child at greater risk when it comes to being exposed to domestic violence. The role of temperament in families with domestic violence and the potential for difficult temperament to exacerbate an already difficult situation requires consideration.

Temperament and behaviour. The link between difficult temperament and behaviour problems (e.g., externalizing problems) has been well established in the literature (e.g., Guerin, Gottfried & Thomas, 1997). For example, it appears that young children described as having a difficult temperament experience significantly more behaviour problems throughout childhood (e.g., Guerin et al., 1997). At age 3 ½, children who were considered to have a fussy temperament as infants were found to have increased scores on the Child Behavior Checklist (Scher, Zuckerman & Epstein, 2005). In young children there is a relationship between temperament and sleep problems, with more difficult temperaments being associated with

increased sleep problems (Morrell & Steele, 2003; Keener, Zeanah & Anders, 1988). Studies examining behaviour problems in older children found that hyperactive-aggressive 8-year-olds had more difficult temperaments in infancy (Sanson et al., 1993) and that during the first 8 years of life, temperamental inflexibility was related to behavioural maladjustment (Prior, Smart, Sanson, & Oberklaid, 1993). Furthermore, a difficult temperament at 18 months was found to be a risk factor for behaviour problems at home and at school throughout the childhood years (Guerin et al., 1997). Other research indicates that the combination of temperamental difficulty with poor attachment security is associated with poorer outcomes. For example, it was found that the combination of uninhibited temperament with an anxious attachment relationship was predictive of a higher incidence of externalizing problems (Burgess, Marshall, Rubin, & Fox, 2003).

Although the relationship between externalizing behaviour problems and temperament is well established, less is known about the role that temperament might play in moderating the connection between exposure to violence and behaviour problems. It is known that children growing up in dysfunctional families are at a 35% greater risk for having difficult temperaments than those children growing up in healthy family units (Racine & Boyle, 2002, as cited in *The Well Being of Canada's Young Children: Government of Canada Report*, 2003). Families with domestic violence could certainly be described as dysfunctional. Due to the correlational nature of this finding it is unclear whether dysfunctional environments create more difficult temperaments, or whether families who have children with difficult temperaments are more likely to end up dysfunctional.

There is some evidence that temperament may serve as a moderating variable in certain relationships. For instance, in families with marital conflict, temperament has been found to

moderate the relationship between conflict and later externalizing problems such that for children with difficult temperaments, marital conflict significantly predicted later externalizing problems, but not for the children with easy temperaments (Ramos, Guerin, Gottfried, Bathurst, & Oliver, 2005). Temperament has also been found to moderate the relationship between first grade stress and externalizing behaviour problems (but not internalizing behaviour problems), where children with more difficult temperaments displayed more externalizing behaviour problems with higher first grade stress compared to children with easier temperaments (Rende & Plomin, 1992). Taken together, these findings emphasize the possibility that temperament may play a moderating role in different stressful contexts making it clear that temperament should be considered when trying to understand children's behaviour problems (at least externalizing behaviour problems). Within the context of the present study, it is possible that children with more difficult temperaments would have increased difficulty dealing with domestic violence. Of additional interest in the present study was whether young children who showed an easier temperament would show a different connection between exposure and behaviour thereby providing evidence that an easy temperament might buffer difficulties tied to exposure to domestic violence.

Temperament and emotion regulation. Temperament is related to distress in response to a stressful situation for young children from non-violent families, with more difficult temperaments associated with more distressed responses to a stressful situation (Dejonghe et al., 2005). Although the relationship between temperament and emotion regulation has been established, less is known about what happens to the link between exposure and emotion regulation when temperament is factored in. Interestingly, one study found that infants who had been exposed to domestic violence showed distress to a simulated conflict situation regardless of temperament (Dejonghe et al., 2005). If Dejonghe and colleagues are correct, all infants may be

at risk of developing poor emotion regulation when exposed to domestic violence, not only those with difficult (or more reactive) temperaments. Clearly more research is needed to explore the moderating role of temperament in the relationship between exposure to violence in early childhood and emotion regulation in order to examine whether the connection between exposure and problem behaviours is stronger for those children with a difficult temperament (as compared to those with an easier temperament).

Maternal Psychological Symptomology

In order to understand the effects of exposure to violence for young children it is important to consider maternal functioning as a possible risk or protective factor. There has been much research examining mental health in adulthood and great interest in the topic of psychological functioning following a negative life event. One study found that depressive disorders in adulthood are often correlated with a stressor or adverse life event (Rutter & Sroufe, 2000). Experiencing domestic violence could certainly be considered a stressful life event. Researchers have examined the link between domestic violence and mental health concerns and have found that increased domestic violence was associated with increased mental health concerns for mothers (Levendosky, Leahy, Bogat, Davidson, & von Eye, 2006). Similarly, adults who have experienced domestic violence in their relationship have increased suicidal ideation and depression (Fergusson, Horwood, & Ridder, 2005). Thus, it seems quite possible that infants living in families with domestic violence are more likely to have parents with mental health concerns. Furthermore, mental health diagnoses in parents have been associated with poorer outcomes for children from birth onwards (e.g., Grace, Evindar, & Stewart, 2003; Misri, Oberlander, Fairbrother, Carter, Ryan, Kuan, et al., 2004). Results from the Canadian Incidence Study of Reported Child Abuse and Neglect (Trocmé et al., 2005) indicate that fathers are three

times more likely than mothers to be the perpetrators of domestic violence. For this reason, maternal mental health issues were the focus of this study. In the present study no maternal mental health diagnoses were made, rather symptoms of mental health were assessed and are referred to as maternal psychological symptomology.

In a review of the literature, parental and familial functioning was consistently found to be associated with child functioning after a traumatic event (Scheeringa & Zeanah, 2001). In their review, Scheeringa and Zeanah (2001) reported that child outcomes across studies included increased PTSD symptoms and behaviour problems, while parental functioning included increased PTSD symptoms and mental health symptoms. It has been suggested that the connection between child functioning and parental functioning may be especially important for young children due to their increased reliance on their parents (Scheeringa & Zeanah, 2001). Maternal psychological symptomology may result in decreased ability to effectively parent the child. This may be problematic as it has been suggested that the effects of exposure to domestic violence may result from this disruption in normal parenting behaviour (Maughan & Cicchetti, 2002). In fact, research has highlighted maternal psychopathology as a risk factor for behavioural and emotional problems.

Maternal psychological symptomology and behaviour. Maternal depression has been linked to behaviour problems in children up to five years of age (Grace et al., 2003). Children with mothers experiencing postpartum depression are more likely to exhibit signs of distractibility, antisocial and neurotic behaviour both in the home and school environments. This relationship appears to dissipate after age 5 with more severe problems associated with chronic, as opposed to postpartum maternal depression (Grace et al., 2003). Infants with sleep problems have been associated with mothers with poorer mental health (e.g., maternal anxiety and

depressions; Bayer, Hiscock, Hampton, & Wake, 2007; Morrell & Steele, 2003). While the relationship between maternal and child functioning has been well researched, the purpose of the present study was to question whether maternal psychological symptomology might help explain whether the link between domestic violence and difficult behaviour becomes stronger when maternal symptomology is introduced as a risk factor.

For adolescents, maternal psychological functioning has been found to moderate the relationship between domestic violence and adolescent (aged 14 to 16) internalizing behaviours, where the link between high levels of exposure to violence and increased adolescent internalizing behaviours is stronger when mothers are experiencing poor psychological functioning (Levendosky, Huth-Bocks, Semel, 2002). When this relationship was examined with children aged 4 to 14, support was not found for the moderating role of maternal depression in the relationship between exposure to domestic violence and behaviour problems (Hazen, Connelly, Kelleher, Barth, & Landsverk, 2006). Based on these findings, it is unclear if maternal psychological symptomology will play a moderating role in the relationship between exposure to domestic violence and behaviour problems in younger children (under four years of age).

Maternal psychological symptomology and emotion regulation. Maternal depression and anxiety have also been linked to young children's abilities to regulate and express emotions and their social functioning (e.g., Weinberg & Tronick, 1998). Field (1994) suggested that the emotional unavailability of the mother results in her being unable to effectively regulate the child's emotions. Specifically, mothers suffering from postpartum depression exhibit fewer positive affective expressions and have an impaired ability to regulate their infants' emotions (Reck et al., 2004). Given that the mother serves as the model for future self-regulatory abilities, it can be assumed that children without adequate modelling will be much more likely to exhibit

emotional impairments. This has been demonstrated with infants of depressed mothers who exhibit reduced emotional expressions in response to surprise-eliciting situations (Reissland & Shepherd, 2006). The results of early maternal depression can be seen through age 4 when children who had mothers with a clinical diagnosis of depression were found to display dysregulated emotion patterns (Maughan et al., 2007). The moderating role of maternal psychological functioning in the relationship between exposure to domestic violence and emotion regulation has not been investigated.

Research suggests that maternal psychological symptomology is related to domestic violence, behaviour problems and emotion regulation. However, much less is known about the moderating role of maternal psychological functioning in the relationship between exposure to domestic violence and child adjustment (i.e., behaviour problems and emotion regulation). To further understand its potential role to exposure to domestic violence, maternal psychological symptomology was considered as a risk or protective factor in this study.

Attachment Security

Attachment Theory

Attachment theory, originally developed by Bowlby (1988) describes the special relationship between the young child and primary caregiver. Despite the fact that all humans require relationships, the term “attachment relationship” has been used exclusively to describe the affiliation between infant and primary caregiver(s). Initially, an attachment relationship meets the basic needs of the child and continues to serve as the template for future relationships (Bowlby, 1988).

All children will develop an attachment relationship if a primary caregiver is present. This arises from a biological drive whereby infants instinctually develop attachment behaviours.

Attachment behaviours include signaling behaviours such as laughing, interacting, and smiling; aversive behaviours such as crying to cause the parent to approach; and active behaviours such as following the parent in order to remain in close proximity to them (Bowlby, 1973, 1988).

These attachment behaviours help ensure that the child's needs will be met.

The quality of attachment relationships can be classified based on the security of the relationship. Sensitivity of the caregiver is important in determining the security of the relationship (Ainsworth, 1963). Relationships are classified into two broad categories; secure and insecure. Secure attachment relationships are characterized by consistent parenting that meets the needs of the child. Through this type of parenting, children learn they can depend on their caregiver. Insecure attachment relationships are characterized by inconsistent parenting that fails to meet the needs of the child and can be expressed in three ways. With an avoidant attachment relationship, the parent is consistently unresponsive to the child's attachment behaviours and the child learns the parent does not meet his or her basic needs. Thus, in situations of distress the child avoids the caregiver. In ambivalent attachment relationships, the parent is inconsistent in responding to the child's needs and the child learns they cannot reliably depend on the caregiver. Disorganized attachment relationships typically occur when either the parent or child has experienced abuse or neglect and are characterized by disoriented and disorganized behaviour (e.g., freezing) in the child (Main, 1996).

A secure attachment relationship is often conceptualized as a protective factor (e.g., El-Sheikh & Elmore-Staton, 2004) and consistent responses from a sensitive attachment figure have been shown to have many positive benefits. For instance, consistent responding will meet the child's basic physical and emotional needs. Meeting the child's emotional needs will, in turn, help the child develop emotion regulation abilities (Zeanah, Boris, & Sheeringa, 1997). In this

process the parent is initially responsible for regulating the child's emotions (e.g., providing coping strategies such as rocking the child), but gradually the child begins to perform this function on his or her own (i.e., develops self-regulatory abilities). A secure attachment relationship assists the child in coping during stressful situations and provides some resilience when under stress (Scheeringa & Zeanah, 2001). Finally, a secure attachment relationship provides the child with a secure base from which to explore the world (e.g., Ainsworth, 1967; Bowlby, 1969; Hesse & Main, 1999).

Attachment Security as a Moderator

It is through early relationships that children learn to regulate their emotions and behaviours which speaks to the importance of the attachment relationship. It is known that infants exposed to domestic violence are at increased risk of developing an insecure (disorganized) attachment relationship with their caregiver (Zeanah et al., 1999). Witnessing domestic violence interferes with the attachment relationship by placing stress on the mother-child dyad. The mother may well be less emotionally available, requiring time to deal with her own problems. This lack of availability results in less time spent with the child and negatively affects the relationship. It has been suggested that it is through the breakdown of this relationship that the effects of violence are seen (Maughan & Cicchetti, 2002). One possible outcome associated with exposure to domestic violence is the development of an insecure attachment relationship. Research suggests that having an insecure relationship interferes with a child's healthy development resulting in behaviour problems and difficulties with emotion regulation (e.g., Main, 1996). In this way, the poor quality of attachment serves as a risk factor.

Attachment and behaviour. For infants in high risk families, avoidant attachment relationships are a risk factor for later externalizing behaviour problems (Main, 1996). Avoidant

attachment relationships combined with uninhibited temperament have also been found to be predictive of increased externalizing behaviour problems (Burgess, et al., 2003). In one study, ambivalent attachment relationships were found to be predictive of sleep problems in young children (Morrell & Steele, 2003).

On the other hand, a secure attachment relationship with the mother has been found to act as a protective factor as it moderates the relationship between marital conflict and child adjustment (El-Sheikh & Elmore-Staton, 2004). For children with insecure attachment relationships, the positive association between marital conflict and externalizing behaviour problems was exacerbated compared to children with more secure attachment relationships. Children with lower attachment security displayed moderately high levels of internalizing problems regardless of level of marital conflict, while children with secure attachment relationships displayed a positive relation between internalizing problems and marital conflict (El-Sheikh & Elmore-Staton, 2004). In another study the quality of the attachment relationship was found to have an effect on behaviour problems exhibited by children exposed to violence, with children having more secure attachments showing fewer behaviour problems than children having less secure attachments (Schaffer, 2001). This research was limited, however, to a study of older children (aged four to eleven). Furthermore, there is evidence for the moderating role of attachment security in the relationship between a traumatic event and adjustment, where disruption of the attachment relationship is associated with worse child outcome for those children who have experienced trauma (Scheeringa & Zeanah, 2001). Although the present research is concerned with the quality or valence of attachment relationships (high versus low security) as opposed to the categorical approach detailed by Main (1996; e.g., secure, avoidant, etc), it was nevertheless important to consider attachment security as a moderator in the

relationship between exposure to violence and behaviour problems.

Attachment and emotion regulation. Attachment theory teaches that consistent sensitive parenting helps the child gradually develop self-regulatory abilities, and it is through this relationship that emotions are understood (e.g., Bowlby 1944; Scheeringa, Zeanah, Drell, & Larrieu, 1995). Infants have been found to regulate their behaviour based on emotional expressions from their parents (Klennert, 1984). For instance, infants will approach their mother when she expresses fear through her facial expression (Klennert, 1984). Infants with more responsive mothers have a greater ability to regulate their emotions during a stressful situation than infants with less responsive mothers (Haley & Stansbury, 2003). It is suggested that infants without this consistent parenting will develop emotion regulation difficulties (e.g., inability to self-soothe) as they are expected to begin to self-regulate at an earlier point in their development.

It is clear that exposure to domestic violence negatively affects the attachment relationship, and that an insecure attachment relationship negatively affects later developmental outcomes. Accordingly, it becomes important to consider the role of attachment security when examining the relationship between exposure to domestic violence and emotion regulation. Of particular interest here was the question of whether higher quality (i.e., more secure) attachments can protect young children from behavioural difficulties and/or emotion dysregulation that are linked to exposure to domestic violence.

Present Research

The effects of domestic violence for younger children are still unclear. For children (ages three and up), findings show that exposure to domestic violence is significantly related to behavioural, emotional and social problems (Kolbo et al., 1996; Sox, 2004; Wolfe et al. 2003). While most of the research in this area has focused on older children (aged four and older),

existing studies indicate that young children are at increased risk of developing PTSD and insecure attachment relationships. It is still unclear whether younger children exposed to domestic violence will display similar behaviour problems as older children, and whether their ability to regulate emotions is disrupted by exposure to violence in a similar fashion to what has been observed with older children exposed to conflict. In order to understand the development of children exposed to domestic violence, a model of risk and protective factors is considered examining child, parent and parent-child interaction variables.

Although emotion regulation and behaviour problems were of equal interest in the present research, measurement considerations dictated that additional attention be given to how emotion regulation was assessed. Specifically, whereas behaviour can be measured in a fairly non-controversial fashion using parent-report measures, the measurement of emotion regulation has to date involved observational paradigms. Previous research in the area of emotion regulation abilities has encompassed older children who have been exposed to domestic violence, but has not been expanded to assess emotion regulation abilities in early childhood. The Face-to-Face Still-Face scenario (Tronick, et al., 1978) has been used to assess emotion development, emotion regulation and various aspects of infant social development in the past. Study 1 of the present research represented an attempt to apply the emotion regulation coding system (used in the simulated conflict scenarios with children) to the Face-to-Face Still-Face scenario with young children. To this end, the emotion regulation coding system was adapted and implemented. Of specific concern was whether it could be used reliably to understand the emotion regulation abilities of young children during a stressful situation.

Modifications to the Still Face procedure and coding system for analysis of specific hypotheses are common in the literature (Tronick, 2003). Accordingly, in the present research

the Face-to-Face Still Face scenario was used with an extended age range (i.e., 10 months to 48 months) to provide a situation in which children would be faced with an unexpected response from their mother. The Face-to-Face Still Face was not employed for the purpose of comparing the responses of infants to children but rather served as a methodological paradigm within which to explore the connection between exposure to domestic violence and the development of emotion regulation.

The reliability of the coding system adapted from Maughan and Cichetti (2002) was examined using a sample of young children who had behaviour problems and who may or may not have been exposed to domestic violence. The applicability and reliability of this coding scheme for young children during the Face-to-Face Still Face scenario was assessed during Study 1 and once adequate reliability had been achieved this coding system was used as the measure of emotion regulation in Study 2. Study 1 did not require the generation of specific hypotheses.

Study 2 was designed to understand the impact of domestic violence on young children. Based on the age of the sample (one to four years), and typical clinical presenting problems at this age (i.e., behaviour problems) both behaviour problems and emotion regulation were studied. While families often present with complaints of behaviour problems, this can be a behavioural sign of underlying emotional dysregulation. Given that the sample involved young children, sleep problems were included with internalizing and externalizing behaviours as part of the cluster of behaviour problems. As behavioural and emotional regulation processes develop in the context of the environment and early relationships', understanding these pathways which are potentially disrupted by domestic violence becomes important.

In order to investigate the pathways to adaptive and maladaptive behaviours and emotion

regulation, risk and protective factors were examined. As stated earlier, risk and protective factors are variables that can be expected to exacerbate or buffer the relationship between domestic violence and child adjustment. To investigate this, the moderating role of attachment security, temperament and psychological symptomology in the relationship between previous exposure and child adjustment (i.e., emotion regulation and behaviour problems), was considered. It was anticipated that findings obtained in this study would provide a more complete picture of the relationship between exposure to domestic violence and emotion regulation and behaviour problems, as well as provide important clinical information about the specific risk and protective factors involved with exposure to domestic violence. This knowledge will help in understanding the pathways of early development for the purpose of developing appropriate interventions for these young children and their families.

Following from the literature, it was predicted that the amount of previous exposure to domestic violence would be positively correlated with child behaviour problems. It was similarly predicted that exposure to domestic violence and behaviour problems would be linked to difficult temperament, higher psychological symptomology, and poor attachment security. Emotion regulation was expected to be related to exposure to domestic violence, psychological symptomology, attachment security and temperament. That is, children with poor emotion regulation abilities were expected to come from families with increased levels of violence and more psychological symptomology, and have more difficult temperaments and poorer attachment security. As behaviour problems can be considered behavioural indications of underlying dysregulation, a positive correlation between emotion regulation and behaviour problems was predicted.

Based on previous research, it was predicted that temperament would moderate the

relationship between witnessing domestic violence and behaviour problems, with a stronger relationship seen between exposure to violence and increased behaviour problems for children with more difficult temperaments (as compared to children with easier temperaments). The role of child temperament in the relationship between exposure to violence and emotion regulation is not yet clear. Accordingly, the following question was posed: Does temperament moderate the relationship between previous exposure to domestic violence and emotional regulation during a stressful situation, with a stronger relationship seen between exposure to violence and emotion regulation for children with more difficult temperaments (as opposed to easier temperaments)?

Increased maternal psychological symptomology is more likely to exist when there is violence in the home, and there are links between maternal depression and a child's emotional abilities. However, while it was important to consider maternal psychological symptomology as a moderating variable when examining the relationship between exposure to violence and emotion regulation and behaviour problems, the nature of this relationship is not yet understood. This research posed the following question: Does maternal psychological symptomology moderate the relationship between exposure to domestic violence and emotion regulation and behaviour problems in young children?

Finally, attachment security was expected to moderate the relationship between previous exposure to domestic violence and behaviour problems with a stronger relationship seen between exposure to violence and behaviour problems with less securely attached children (as compared to securely attached children). A corresponding question was asked with respect to emotion regulation: Would a similar result be found for the connection between domestic violence and emotion regulation, where emotion regulation in younger children exposed to domestic violence would be more dysregulated with poorer attachment security?

The methods and results for Study 1 will be presented first, followed by a brief summary. Next, the methods, results and summary for Study 2 will be presented, followed by a general discussion.

Study 1: Methods

Participants

The young children and mothers in this study were a subset of participants used in other research. Participants were 21 mother-child dyads recruited from two sources: (1) 13 participants were identified by a prenatal public health program as being at high risk for abuse; and (2) 8 participants were clients at a clinic for child behaviour problems primarily related to trauma. Child participants ranged from 23 to 46 months ($M = 29.15$, $SD = 7.79$), and 29 % of the sample was female. The age range was extended upwards past infancy (0-36 months) to include more children seen at the clinic for behaviour problems. In terms of the distribution of ethnic background, 48% of the sample was Caucasian, 24% was metis, 19% was First Nations, and 5% were 'other' and 1 participant's mother did not identify his or her background. Consent to participate in the research was obtained from all mothers before the start of the study.

Measures

Emotion regulation. The Face-to-Face Still Face procedure (Tronick et al., 1978) measures the interaction style between a young child and his or her primary caregiver. The Still Face procedure was used to provide an experimental condition in which the child was faced with an unexpected interaction with his or her mother. For infants the Still Face is considered a mildly stressful event (Toda & Fogel, 1993; Weinberg & Tronick, 1994). During the Still Face, the caregiver and child interact in a three part sequence consisting of a free play phase, a still face phase, and finally, a reunion phase. In Phase one (3 minutes), the mother responds normally to the child during a free play session. During Phase two (1.5 minutes) the mother presents a neutral still face that involves an unresponsive facial expression. In Phase three (2 minutes) the mother again engages with her child during a free play session, termed the reunion portion of the Still

Face. This 3-phased interaction was used to measure emotion regulation in the child (see Appendix A for instructions).

The original coding system for emotion regulation was used by Cummings (1987), modified by Davies (1995) and Davies & Cummings (1998) and most recently modified by Maughan and Cicchetti (2002). The 2002 coding system modifications were the basis for the present study. The first step of this study was to examine the changes that Maughan and Cicchetti (2002) had made to the original coding system. As their population was most similar to the population being used in Study 1, Maughan and Cicchetti's (2002) adaptations were considered appropriate. It was necessary, however, to examine whether the coding system would need to be further modified for the current sample. Two major differences between the previous studies and the current study needed to be addressed. First, the current study utilized a Still Face paradigm rather than a simulated conflict experience and as such the language of the coding system was changed to reflect this difference in scenario. For instance, original language of the coding system read "...in response to the conflict" and was changed to "...in response to the still face" to reflect the current scenario.

Second, the participants in this study were younger than the participants used in previous studies. Thus, the coding system had to be adapted to reflect this age difference. In order to reflect the age of the participants in this study, an expert in early child development (child psychologist) examined the protocol to determine age appropriateness. To this end, some codes were modified to reflect the lack of language. For example, one code initially required that the child ask about the mother's well being. This was changed to also include a rise in the inflection of the verbal response as counting towards this item. This was done to reflect the potential lack of understandable words that the young child may use, but to keep the intention of the code.

Maughan and Cicchetti (2002) had a code that required the child to make inquiries about the mother's feelings. This was deleted from the current study as it was felt that many participants would not have the language level necessary to verbalize such questions. The other modification based on expressive language level of the participants involved deleting a section of Maughan and Cicchetti's procedure. Specifically, Maughan and Cicchetti use a child interview portion following the conflict situation but in the present study not all participants were able to participate in an interview and as such this element was not included. No other aspects of the Maughan and Cicchetti coding system and protocol were modified. See Appendix B for the modified coding system used in this study. The first part represents the coding of the discrete variables and the second part are the guidelines from Maughan and colleagues' 2007 article explaining the classification of emotion regulation.

The coding system was applied in two steps. The first step assessed emotional responsiveness while the second step assessed emotion regulation. Emotional responsiveness referred to the specific observable responses to the Still Face procedure, while emotion regulation referred to the overall ability of the participant to appropriately moderate his or her responsiveness to the Still Face procedure. Therefore, emotional responsiveness can be conceptualized as the frequency of observable behaviours during the Still Face while emotion regulation refers to the overall pattern of those responses and assesses their appropriateness to the situation.

Following Maughan and Cicchetti (2002), the first step involved an assessment of the presence or absence of 15 discrete emotional responsiveness codes during each 30 second segment of the Still Face procedure. The 15 coded responses were: sadness, crying, whining, freezing, anxiety, anger, physical aggression, verbal aggression, object-related aggression,

dysregulated aggression, preoccupation, smiling/laughing, verbal concern, helping the mother, and comforting the mother. Due to the low frequency of certain codes, the 15 coded responses were grouped into five composite scores. The distress/fear composite was made up of sadness, crying, whining, freezing and anxiety. The hostility composite was defined by anger, physical aggression, verbal aggression, object-related aggression and dysregulated aggression. The vigilance composite was defined solely by preoccupation. Smiling/laughing formed the smiling/laughing composite and verbal concern, helping the mother, and comforting the mother formed the concern composite. For the duration of the Still Face there were 13 possible coding periods (30 second intervals) and thus scores for each of the 15 codes could potentially range from 0 to 13. These scores were added to form the five composites. The distress/ fear and hostility composites both included 5 discrete codes with maximum possible scores of 65, the concern composite included 3 discrete codes with a maximum possible score of 39, and the vigilance and smiling/laughing composite each included 1 discrete code with possible maximum scores of 13. Each of the 15 discrete emotional responses and the five composites scores were measured as continuous variables.

The second step of coding categorized the children into one of three emotion regulation pattern categories described above (i.e., adaptively concerned, undercontrolled and overcontrolled). In order to categorize children based on their emotion regulation patterns, the tapes were viewed a second time and the coders considered the children's amount of reactivity, the intensity and duration of the reactivity, the appropriateness of the reactivity to the event, and the nature of the reactivity. Coding was completed by the principal investigator with inter-rater reliability checks completed by a senior undergraduate psychology student. This student had a background in the fundamentals of developmental psychology and was trained in the use of the

coding scheme. Emotion regulation was measured as a categorical variable.

Procedure

Data collection. The procedure differed for the two groups of participants. Mothers from a prenatal public health program were recruited to participate in a mental health intervention consisting of weekly telephone calls or home visits. During these contacts (telephone or in person) the mothers received prenatal support (i.e., discussion about realistic expectations for motherhood) and postnatal support (i.e., discussions of positive mother-infant interactions). When the child was two years of age the mothers were invited to attend the University of Saskatchewan to participate in structured play sessions with their child. Mothers provided consent to videotape the play sessions. One of these play sessions was the Face-to-Face Still Face Procedure, where mothers were instructed about how to interact with their child during the three phases.

Recruitment for the Infant and Preschool clinic was in the form of brochures, which were provided to professionals and organizations in the city that regularly deal with young children and their families. Additionally, members of the clinic made presentations to community organizations to inform them about the clinic and explain the purpose and procedures followed at the clinic. Referrals to the Infant and Preschool Clinic came from family physicians, community health workers or by self-referral. Bus tickets and/or taxi fare was available to all participants if transportation was a barrier to service. At the first appointment families provided their consent to obtain an assessment at the clinic and had the opportunity to provide consent to have their data used for research purposes (see Appendix C for the consent form). Families were informed that they would receive clinical services regardless of whether they chose to participate in the research. Families were also given the option to provide consent for videotaping of the sessions.

If consent was obtained, all subsequent sessions were videotaped. During the second assessment session the child engaged in the Face-to-Face Still Face paradigm with his or her caregivers. For the Still Face, the caregiver was given a microphone to wear in her ear. Caregivers were told to play as they typically would with the child until they were told to stop. At that time they were told to make a “still face”, which involved making a neutral expression and refraining from engaging with the child. The successful presentation of a Still Face was verified through a one-way mirror by a member of the clinic team. After 1.5 minutes of the “still face”, caregivers were told to resume engaging with the child and play normally.

Assessing reliability of the coding system. Two aspects of the coding system were assessed for inter-rater reliability. Emotional responsiveness (i.e., 15 discrete emotional behavioural codes) and emotion regulation (i.e., overcontrolled, adaptively concerned or undercontrolled) were each coded and assessed for inter-rater reliability. In order to do this, a senior undergraduate psychology student was used as the reliability coder along with the principal investigator of this study. The coders initially reviewed and discussed the coding system, and watched a Still Face scenario to familiarize themselves with the procedure. This was an example of the Still Face that was not included in either Study 1 or Study 2. Two practice cases were then viewed and coded together. Following that, each coder viewed and coded eight videotapes independently. Eight separate videos were viewed in order for the coders to have experience observing each code in the coding system. The ratings were then compared and discussed. Videos were re-watched with attention paid to areas which were (a) challenging to code or (b) where coders disagreed. In cases of disagreement, coders came to a mutual agreement through discussion. This represented the end of the training portion for videotape analysis.

To assess inter-rater reliability, the two coders coded a set of 11 previously unseen videotapes. The first subset of five videos was independently coded and then reliability analyses were run. At this point, the coders had a final discussion about the coding system. Then the second subset of six videos was coded and reliability analyses were run on the 11 cases.

Study 1: Results

Descriptive Statistics

Analyses were run on 11 (of 21) cases randomly chosen to be the reliability cases for this study. These 11 reliability cases were not the same ones used for training purposes. For the 11 reliability cases, frequencies and tallies (scores totalled across participants) of the 15 coded emotional responses and five composites for both the primary coder and the reliability coder can be seen in Table 1. The first two columns reflect the number of participants (out of 11) who displayed the response. The second two columns reflect a tally of the number of instances each response was observed across the 11 participants.

For the three levels of emotion regulation, the primary coder categorized 3/11 (27%) participants as undercontrolled, 5/11 (45%) participants as adaptively concerned and 3/11 (27%) participants as overcontrolled. The reliability coder categorized 2/11 (18%) participants as undercontrolled, 5/11 (45%) participants as adaptively concerned and 4/11 (36%) participants as overcontrolled. Both coders categorized 9/11 (82%) participants the same way, disagreeing on two cases.

Reliability

To assess the reliability of the coding system adapted from Maughan and Cicchetti (2002), intraclass correlations and kappa analyses were run. These analyses are standard procedures for assessing inter-rater reliability and were used by Maughan and Cicchetti (2002).

Table 1. Frequency and Tally of Emotional Responses by Coder

Emotional Responses	Frequency		Tally	
	Primary Coder ^a	Reliability Coder ^a	Primary Coder ^b	Reliability Coder ^b
Sadness	2	0	2	0
Crying	0	0	0	0
Whining	9	8	33	24
Freezing	7	2	12	5
Anxiety	9	10	20	46
Anger	5	3	13	7
Physical Aggression	2	1	2	2
Verbal/Nonverbal Aggression	2	1	3	3
Object Related Aggression	8	4	20	11
Dysregulated Aggression	1	0	1	0
Preoccupation	7	8	14	16
Smiling/Laughing	4	3	6	5
Verbal Concern	0	0	0	0
Helping Mother	1	1	2	2
Comforting Mother	1	0	3	0
Composites				
Distress/Fear Composite	10	11	67	75
Hostility Composite	9	5	39	23
Vigilance Composite	7	8	14	16
Smiling/Laughing Composite	4	3	6	5
Concern Composite	2	1	5	2

^aValues represent the number of participants (out of 11) who received each code at least once across the time periods

^bValues represent the number of times each response was observed across participants and time periods

Following Maughan and Cicchetti (2002), the 15 discrete emotional responses were clustered into five composite scores.

It is commonly known that inter-rater reliability is a measure of consistency between two (or more) individuals applying the same coding system. Depending on the nature of the data, different statistics can be used to measure inter-rater reliability. Intraclass correlations can be used to measure inter-rater reliability with continuous data (Howell, 2002), like emotional responsiveness. Intraclass correlations differ from Pearson's correlations in that they take into account not only the rank order of the data, but also the magnitude of the differences/similarities in actual values assigned by the raters. Consider a data set where both raters assigned identical rank orders to the participants, but rater one consistently gave scores that were higher than the other rater. Pearson's correlation coefficient would be extremely high, whereas the intraclass correlation would take into account the fact that one rater rated participants higher than the other rater, and would thus adjust the correlation coefficient downwards. It is for this reason that intraclass correlations are used when measuring inter-rater reliability with continuous data. For categorical coding (e.g., emotion regulation), it is common for researchers to use percent-agreement, looking at the extent to which two independent raters agree on the presence of a certain code (i.e., agree/agree + disagree; Bakeman and Gottman, 1997). The difficulty with using percent-agreement as an index of inter-rater reliability is that it does not take into consideration the number of times that raters might agree in their coding purely on the basis of chance. Thus, researchers often utilize Cohen's Kappa as an index of inter-rater reliability because it controls for chance agreement (Bakeman & Gottman, 1997; Howell, 2002). Cohen's Kappa creates a matrix and compares the cases where both raters assigned the same category to participants, to cases where the raters assigned different categories to participants. Cohen's

Kappa provides an overall statistic for the categories (e.g., emotion regulation), but can also be used for each individual category (e.g., adaptively concerned; Bakeman & Gottman, 1997).

Intraclass correlations for the 15 discrete emotional codes can be seen in Table 2.

Intraclass correlation coefficients on these discrete variables range from $r(9) = -.22$ to $r(9) = .97$. The 15 discrete emotional responses did not all reach a level of inter-rater reliability that would be considered acceptable. It should be noted however, that codes with an intraclass correlation of $r(9) = .00$ had no variability. While a correlation of $r = .00$ indicates no relation between the coders, in this case it fails to capture the cases where both coders rated a 0. For instance, the comforting mother code was used only on one case by the primary coder. This means that for 10 out of 11 cases, the two coders agreed that this behavioural emotional response was not observed. While an intraclass correlation interprets this situation as a case of poor reliability it fails to capture the 10/11 cases where there was perfect agreement.

For the five composite scores, intraclass correlations were $r(9) = .80, p = .008$ for the distress/fear composite, $r(9) = .82, p = .006$ for the hostility composite, $r(9) = .60, p = .082$ for the vigilance composite, $r(9) = .97, p < .001$ for the smiling/laughing composite, and $r(9) = .83, p = .005$ for the concern composite. All composite correlations reached an acceptable to very good level of inter-rater reliability.

Cohen's Kappa analyses were run to assess inter-rater reliability of the emotion regulation profile. The overall kappa for the 11 cases was $k = .718, p = .001$, indicating adequate reliability. During the process of obtaining inter-rater reliability, the kappa analysis was run at the midway point (with five cases coded). At this time the overall kappa was $k = .412, p = .160$. Due to this low score, the primary and secondary coders reviewed the coding system around this profile element. For the final 6 cases, the inter-rater reliability was $k = 1.00, p = .001$, indicating

Table 2. Intraclass Correlations for the Emotional Responses

Emotional Responses	Intraclass correlation (r)
Sadness	.00*
Crying	**
Whining	.85
Freezing	.92
Anxiety	.24
Anger	.59
Physical Aggression	.77
Verbal/Nonverbal Aggression	.91
Object Related Aggression	.78
Dysregulated Aggression	.00*
Preoccupation	.60
Smiling/Laughing	.97
Verbal Concern	**
Helping Mother	-.22
Comforting Mother	.00*

*Scale has zero variance items

**No correlation computed as all scores are 0

that both coders rated each participants emotional regulation profile in the same way. This suggests that the overall kappa score reported above ($k = .718$) reflects a conservative estimate of the inter-rater reliability that *could* be achieved for the emotion regulation profile.

Kappa analyses were also run on the three individual emotion regulation codes (undercontrolled, adaptively concerned, and overcontrolled) within the scheme. In all three cases, reliability was observed to be adequate with the undercontrolled code, $k = .744$, $p = .011$, the adaptively concerned code, $k = .633$, $p = .036$, and the overcontrolled code, $k = .792$, $p = .007$.

Study 1: Summary

The main goal of this study was to find a way to measure emotion regulation in an age-appropriate way while using conceptualizations of emotion regulation from the literature on children who have been exposed to domestic violence. Results suggested that in this sample of 11 participants each of the three levels of emotion regulation (i.e., overcontrolled, undercontrolled and adaptively concerned) could be reliably coded. Thus, the present coding scheme of emotion regulation can be considered reliable enough for use in future research with young children.

Although the coding of emotion regulation was the primary goal of this research, emotional responsiveness of young children was also measured. The reliability of the 15 discrete codes varied. For some codes it was easier to achieve higher reliability ratings than for others. For instance, more easily observable behaviour such as freezing were easier to reliably code than more subtle behaviours such as anxiety (which often required observation of facial expressions which were less clear). Considering a multi-trait approach to understanding behaviour and a method to compensate for lower reliability on certain codes, the discrete emotional

responsiveness codes were combined to form five composites as was done in previous research (Maughan & Cicchetti, 2002). The idea of measuring a construct using more than one trait supports the idea of using composite scores in future analyses. The reliability ratings increased to an acceptable level when the composite codes were assessed and thus the composites could be used in future research. This increase in reliability ratings likely speaks to the broader nature of the composites and allows for compensation of differences in coding of individual codes. For instance, the same situation coded as anxiety and whining by two different coders both fall within the distress/fear composite and thus the differences in specific codes are not apparent when measuring reliability of the composites. A thorough treatment of the coding system can be found in the general discussion.

Results of Study 1 provide a reliable method for assessing emotion regulation in young children making it possible to examine the connection to previous exposure to violence. The procedures outlined in this study for coding the emotional responsiveness composites and emotion regulation will be used in the second study.

Study 2: Methods

Participants

Participants were 44 mother-child dyads recruited from two sources: (1) 18 participants were identified by a prenatal public health program as being at high risk for abuse; and (2) 26 participants were clients at a clinic for young children with behaviour problems primarily related to trauma. These 26 participants represent all clients seen at the clinic over a two and a half year period who consented to research and completed the assessment process. In total, 42 families were referred to the clinic over this period. Of those 42 families, 9 families did not attend any assessment sessions, 5 families attended 1 assessment session and 2 families attended 2 assessment sessions. As the complete assessment protocol took four sessions, any participants completing less than three sessions could not be included in this research as they had not completed enough of the measures.

Child participants ranged from 10 to 67 months ($M = 31.16$, $SD = 11.21$), and 73% of the sample was male. See Table 3 for a more detailed description of participant ages. Forty-two of the forty-four participants were 48 months old or younger (one participant was 54 months old and the other participant was 67 months old). It should be noted that the inclusion of these two older participants did not skew the findings in any way. The age range was extended upwards to include all children seen at the clinic for behaviour problems. See Table 3 for the distribution of ethnic background. The 18 child participants from the prenatal public health program were all first born children and the majority of mothers were on social assistance (the exact percentage is not known). Of the other 26 participants, 50% are first born, 27% are second born, 12% are third born, 4% are fifth born and 8% did not answer this question. In terms of yearly income for the 26 families, 27% made less than \$19,999, 16% made between \$20,000-\$34,999, 19% made between

Table 3. Demographic Information

Age	Number of Participants	Ethnic Background	Percentage of Participants
< 12 months	1	Caucasian	55%
12-18 months	0	Metis	21%
18-24 months	4	First Nations	18%
24-30 months	19	Other	5%
30-36 months	7	No response	1%
36-42 months	2		
42-48 months	7		
> 48 months	2		

\$35,000-\$54,999, 24% made over \$55,000, and 12% did not answer. Consent to participate in the research was obtained from all mothers before the start of the study.

To compare the two groups of participants to ensure that they were similar, independent samples t-tests were run on all variables. The scores for the Attachment Q-Sort were significantly different, $t(42) = 2.64, p = .01$ with participants from the prenatal health program having higher scores ($M = .423, SD = .26$) than those from the clinic for young children ($M = .219, SD = .25$). The children's ages were also significantly different, $t(42) = -4.51, p < .001$, with participants from the prenatal health program being younger ($M = 24.56$ months, $SD = 1.50$) than those from the clinic for young children ($M = 37.42$ months, $SD = 12.00$).

Measures

Emotion regulation. As previously described, the Face-to-Face Still Face Procedure (Tronick et al., 1978) measures the interaction style between a young child and his or her primary caregiver and was used in the present research to provide an experimental condition in which the child is faced with an unexpected interaction with his or her mother. For young infants the Still Face is considered a mildly stressful event (Toda & Fogel, 1993; Weinberg & Tronick, 1994). A more detailed description of this paradigm was presented in Study 1. This interaction was the context within which emotional responsiveness and regulation were assessed. Children's reactions to the Still Face were coded for 15 discrete emotional responses (e.g., crying, anger, verbal concern; see Appendix B), which were classified into five composites: distress/fear, concern, hostility, smiling/laughing, and preoccupation (adapted from Maughan & Cicchetti, 2002). Emotion regulation pattern categories were coded for each child with each child being categorized into one of three possible categories: adaptively concerned, overcontrolled, or undercontrolled. Coding was completed by the principal investigator. Inter-rater reliability

checks (on 25% of video tapes of the Still Face) were completed by a senior undergraduate psychology student, with a background in developmental psychology. The five composite scores and the emotion regulation pattern categories were all found to have adequate inter-rater reliability (see Study 1).

Domestic violence. The Conflict Tactics Scale (CTS; Straus, 1979; Straus, Hamby, Boney-McCoy & Sugarman, 1996) was used to assess spouse-to-spouse psychological and physical aggression. Participants from the prenatal program completed the original CTS (see Appendix D), whereas participants from the clinic for children with behaviour problems completed the CTS-2 (see Appendix E). In order to form scores that would be comparable across measures, only similar items present on the CTS and CTS-2 were used. This was the method reported in Lieberman and colleagues (2005) following a conversation they had with one of the original CTS authors. Eight items formed the psychological aggression scale and fourteen items formed the physical aggression subscales. See Appendix F for the list of items from the CTS and CTS-2 which formed that physical and psychological aggression scales. The CTS can be used as an indicator of the presence of violence in the home, which in turn, is likely witnessed by young children. The CTS and CTS-2 has previously been used in studies examining exposure to domestic violence in the home (e.g., Maughan & Cicchetti, 2002) and the CTS-2 alone has been cited in over 600 articles since its development. The CTS and CTS-2 was used as proxy measures of domestic violence witnessed by the children, but will be referred to as exposure to domestic violence throughout the remainder of the document. Caregivers rated items with regard to how often (never to more than 20 times) they perpetrated an event in the past year (i.e., I hit my partner; I insulted or swore at my partner), and items in terms of how often their partner perpetrated an event in the past year (i.e., my partner hit me; my partner insulted or swore at me).

Items rated as “more than 20 times” are given a score of 25 as suggested by the authors. For the respondent and her partner, scores on the psychological subscale can range from 0 to 200, and scores on the physical assault subscale can range from 0 to 350. Higher scores are indicative of greater conflict. There is evidence of adequate reliability and validity (Straus et al., 1996). In the present investigation, the internal consistency values for the CTS total scale ($\alpha=.90$), the CTS psychological aggression subscale ($\alpha=.88$), and the CTS physical aggression subscale ($\alpha=.89$) were observed to be very good.

Behaviour problems. The Child Behaviour Checklist (1½ to 5 CBCL; Achenbach, 1991; Achenbach & Edelbrock, 1983; Achenbach & Rescorla, 2000) was included to assess child behaviour problems. This is a 100 item parent-report questionnaire that has been standardized to measure children’s behaviour and emotional problems. Example items include “Demands must be met immediately”, “Too fearful or anxious”, and “Can’t sit still, restless, or hyperactive”. Parents respond using a 3-point response scale where 0 = “Not true”, 1 = “Somewhat or sometimes true” and 2 = “Very true or often true”. The total score ranges from 0 to 200, with higher scores representing more behaviour problems. Two scale scores can be derived indicating internalizing (composed of the emotionally reactive, anxious/depressed, somatic complaints and withdrawn subscales) and externalizing behaviour problems (composed of the attention problems and aggressive behaviour subscales). Raw scores on the internalizing scale can range from 0 to 72, with scores above 17 indicating clinically significant problems. For the externalizing scale, the score can range from 0 to 48, with scores above 24 indicating clinically significant problems. The sleep problems subscale is not encapsulated by either the internalizing or externalizing problems scales and was assessed separately. Scores on the sleep problems subscale can range from 0 to 14 with scores above 8 indicating clinically significant problems. The CBCL has been

found to have good reliability and validity (Dutra, Campbell, & Westen, 2004). In the present investigation, the internal consistency values for the CBCL total scale ($\alpha=.97$), the CBCL internalizing problems scale ($\alpha=.93$), CBCL externalizing problems scale ($\alpha=.95$), and the CBCL sleep problems subscale ($\alpha=.85$) were observed to be very good. For the two children in the present study who were out of the age range for the CBCL (10 months and 48 months) the CBCL was administered for research purposes and data were reviewed to identify outliers. Scores from these two participants fell within the range of scores of the other participants and were thus included in analyses.

Attachment security. The Attachment Q-Sort (AQS; Waters, 1987) measures the quality of an attachment relationship between a young child and his or her caregiver. The parent is asked to read through 90 cards, describing different child behaviours (e.g., “Child enjoys relaxing in caregiver’s lap”, “Runs to caregiver with a shy smile when new people visit the home”, and “When something upsets the child, he stays where he is and cries”, see Appendix G for a complete list of items). The parent sorts these cards into 9 piles of 10 cards each, from “most like child” to “least like child”. These behaviours are then compared to a criterion sort done by experts that represent the ideal attachment relationship. Parental reports are correlated with the criterion sort where the resulting score is a correlation ranging from -1.00 to 1.00 with higher scores indicating a more secure attachment relationship. The Attachment Q-Sort has regularly been used for research and clinical purposes (Caldera & Lindsey, 2006). Waters and Deane (1985) originally reported strong reliability between maternal and observer classifications using the Q-Sort. Since then others have argued that observer ratings more closely map onto the construct of secure attachment used in the strange situation (e.g., Tarabulsky et al., 2008). However, the maternal Q-Sort continues to be widely used (e.g., Tarabulsky et al., 2008).

Child temperament. The Parenting Stress Index (PSI; Abidin, 1990) is a parent-report questionnaire that measures the amount of stress in the parent-child system. The PSI provides information about both the child's temperament and also about the level and types of stress the parent is experiencing. Parents complete 101 items on a five point likert scale ranging from (1) strongly agree to (5) strongly disagree. The questions on the PSI represent two domains; the child domain and the parent domain. The PSI-Short Form has been developed which includes a Difficult Child Subscale, which is used to measure temperament. The 12 items from this subscale are all contained in the child domain of the long version. It is these 12 items that were used to create a measure of temperament in the current study. Possible scores range from 12 to 60, with higher scores indicating a more difficult temperament. The PSI has been used extensively for both clinical and research purposes (Goldberg, Janus, Washington, Simmons, MacLusky, & Fowler, 1997). The PSI-short form (which contains the Difficult Child Subscale) has been found to have good reliability and validity (Reitman, Currier, & Stickle, 2002). In Study 2, only the 12-items on the child domain (temperament) were included for analysis. An inspection of reliability revealed an alpha = .83, suggesting very good internal consistency.

Maternal psychological symptomology. The Brief Symptom Inventory (BSI; Derogatis, 1993) was used to assess maternal psychological symptoms. Fifty-three items were rated on a five-point scale of distress, ranging from "not at all" (0) to "extremely" (4). The BSI has nine subscales reflecting different psychological symptom dimensions (i.e., Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychoticism). The measure of symptomology used in the main analyses for Study 2 was the Global Severity Index. This scale ranged from 0 to 4 and was an average of the score on each item of the BSI. The higher the index, the greater the psychological distress experienced

by the mother. The BSI has been shown to have good reliability and validity, and has been used in clinical as well as research settings (Derogatis & Melisaratos, 1983). In the present sample the internal consistency for the Global Severity Index was found to be very good ($\alpha = .97$).

Procedure

Participant recruitment procedures were outlined in detail in Study 1. The data collection procedure differed for the two groups of participants. Mothers from the prenatal public health program participated in a mental health intervention consisting of weekly telephone calls or home visits. During these contacts (telephone or in person) the mothers received prenatal support (i.e., discussion about realistic expectations for motherhood) and postnatal support (i.e., discussions of positive mother-child interactions). When the child was two years of age the mothers were invited to attend the University of Saskatchewan to complete some structured play sessions with their child. Mothers gave consent for the use of videotaping the play sessions. One of these play sessions was the Face-to-Face Still Face procedure, where mothers were instructed about how to interact with their child during the three phases. At this time, mothers completed the Attachment Q-Sort and the CTS. For these participants data was only collected for the Still Face, the CTS and the Attachment Q-Sort.

The participants from the clinic for children with behaviour problems participated in a comprehensive assessment. Measures used in Study 2 were part of a larger research protocol being conducted at that clinic. For the sake of being comprehensive, each of the sessions in the extended protocol is described below.

At the first appointment families provided their consent to obtain an assessment at the clinic and had the opportunity to provide consent to have their data used for research purposes. Families were informed that they would receive clinical services regardless of whether they

chose to participate in the research. Families were also given the option to provide consent for videotaping of the sessions. If consent was given, all subsequent sessions were videotaped. During the first assessment session, an intake interview was completed and the families engaged in a structured play session. During the second assessment session the child completed a developmental assessment and engaged in the Face-to-Face Still Face paradigm with his or her caregivers. For the Still Face, the parents were given a microphone to wear in their ear. They were told to play as they typically would with the child until they were told to stop. At that time they engaged in the Still Face until they were told to resume engaging with the child. The third and fourth sessions occurred with just the clinician and the parents and consisted of the Attachment Q-Sort, the PSI, and a semi-structured interview with the parents about their early childhood experiences. Between sessions, families completed questionnaires which they returned the following session (e.g., CTS-2). After the four assessment sessions, caregivers attended a feedback session with their clinician and the director of the clinic. At this time treatment options were discussed with the family. Following the feedback session they were mailed an assessment report.

Study 2: Results

Data Cleaning

Due to the two different data collection procedures for the two sets of participants, the sample size varied across measures. For all participants, measures of exposure to domestic violence (CTS or CTS-2), attachment security (Attachment Q-Sort) and emotion regulation (Still Face paradigm) were collected. Thus analyses with these variables include 44 participants. All other measures were only collected for the 26 participants recruited from the clinic for young children with behaviour problems. Thus, any analyses using other variables (e.g., temperament,

behaviour problems, etc) only include data for 26 participants.

In order to preserve as many cases as possible, missing data for all variables was dealt with in the same fashion. Due to the small sample size and the scattering of missing data, deletion of cases with missing data would have greatly decreased the sample size. With the exception of the CTS, no measure was missing data for more than 3 cases and thus a mean substitution strategy was used. The CBCL had no missing values, the PSI had one missing value, the BSI had three missing values, and the Attachment Q-Sort had one missing value. The variables associated with emotion regulation had three missing values. Mean substitution was used for the five composite scores and missing data for emotion regulation was replaced with the adaptively concerned code. The CTS was missing considerably more data, but because of the relevancy of this variable to the study, mean substitution was also employed. Mean substitution is one of the most conservative missing data replacement methods (Tabachnick & Fidell, 2001). The variable with the most data cases missing was the CTS which required 10/44 cases to be replaced with the mean. Analyses were run with and without these 10 participants in order to ensure that the pattern of results remained the same after mean substitution was used.

In order to assess the normality of each variable, skewness and kurtosis values were examined and appropriate data transformations were made (see Tables 4 and 5 for more information). For the analyses with 44 participants, square root transformations were made for the following variables: CTS psychological aggression, CTS total score, the hostility composite, the concern composite and the smiling/laughing composite. The CTS physical aggression scale required a log transformation to meet the necessary assumptions (e.g., normality). For the analyses with 26 participants, square root transformations were made for the following variables: CTS psychological aggression, CTS total score, the smiling/laughing composite, the concern

Table 4. Description of Data and Data Transformations for the Analyses with 44 Participants.

	Original Skewness* Kurtosis*	Type of transformation performed	Skewness* and kurtosis* following transformation
CTS- psychological aggression	4.17 4.33	Square root	0.14 -0.22
CTS-physical aggression	11.18 22.64	Log	1.63 -0.59
CTS-total	6.87 11.09	Square root	1.52 1.32
Q-Sort	0.82 -1.21	N/A	N/A
Distress/Fear Composite	2.22 0.60	N/A	N/A
Hostility Composite	4.62 3.22	Square root	1.26 -1.01
Vigilance Composite	3.03 1.01	N/A	N/A
Smiling/Laughing Composite	3.98 1.35	Square root	2.41 -1.37
Concern Composite	6.68 8.45	Square root	3.67 0.68

*Skewness and kurtosis are the skewness and kurtosis values divided by their standard error values.

Table 5. Description of Data and Data Transformations for the Analyses with 26 Participants.

	Original Skewness* Kurtosis*	Type of transformation performed	Skewness* and kurtosis* following transformation
CTS- psychological aggression	3.95 5.95	Square root	-0.15 0.68
CTS-physical aggression	7.11 10.79	Log	1.35 -0.26
CTS-total	5.81 9.10	Square root	1.51 2.07
Distress/Fear Composite	1.71 0.45	N/A	N/A
Hostility Composite	2.88 0.68	N/A	N/A
Vigilance Composite	1.63 -1.25	N/A	N/A
Smiling/Laughing Composite	4.46 3.80	Square root	2.85 0.26
Concern Composite	4.35 3.65	Square root	2.76 0.12
CBCL sleep	-0.26 -1.44	N/A	N/A
CBCL internalizing	2.62 1.37	N/A	N/A
CBCL externalizing	0.61 -1.01	N/A	N/A
CBCL Total	1.94 1.13	N/A	N/A
BSI	3.82 2.95	Square root	1.94 0.61
PSI	-0.74 0.21	N/A	N/A
Q-Sort	0.71 -1.08	N/A	N/A

*Skewness and kurtosis are the skewness and kurtosis values divided by their standard error values.

composite and psychological symptomology. Again, the CTS physical aggression scale required a log transformation to meet the necessary assumptions.

Once transformations were complete the standardized values of the transformed variables were examined to check for outliers. No scores exceeded the 3.29 cutoff, meaning the transformations “fixed” any existing univariate outliers. Multivariate outliers were assessed by examining the Mahalanobis distance. All values were $p < .001$ indicating there were no multivariate outliers.

Multicollinearity was assessed and found to be a problem with the CTS and the CBCL. The physical aggression and psychological aggression scales of the CTS were highly correlated ($r > .70$) with the CTS total score. The same pattern of results was found with the CBCL with respect to internalizing, externalizing, and sleep subscales. For both the CTS and the CBCL, it was decided that the total score would not be used as differences were expected based on the scales that formed the total score. Thus, analyses examining exposure to domestic violence used the CTS psychological aggression score and the CTS physical aggression score. Similarly, analyses examining behaviour problems used the CBCL externalizing behaviour scale, the CBCL internalizing behaviour scale, and the CBCL sleep problems subscale.

All subsequent analyses were conducted with missing data replaced and the transformations as described above.

Preliminary analyses

Age. Although age was not a variable of interest in the current study, it was considered as a possible covariate. Age was initially correlated with each variable of interest (i.e., exposure to domestic violence, emotion regulation, emotional responsiveness composites, behaviour problems, attachment, temperament, and maternal psychological symptomology). None of the

correlations (i.e., between age and each variable of interest) were statistically significant (all r 's $< .31$) indicating no systematic relationships between the variables of interest and age. For this reason age was not covaried out of any of the subsequent analyses.

Primary Analyses Involving Emotion Regulation

Exposure to Domestic Violence and Emotion Regulation

For all 44 participants, the range for the transformed psychological aggression scale was 0 to 14.14 ($M = 6.04$, $SD = 3.28$) where the possible range for this transformed variable was also 0 to 14.14. Fourteen percent of children obtained scores higher than one standard deviation above the mean and of those 5% of children obtained scores greater than two standard deviations above the mean. For the transformed physical aggression scale, the observed range was 0 to 2.14 ($M = 0.64$, $SD = 0.61$), with a possible range of 0 to 2.55. Fourteen percent of children obtained scores higher than 1 standard deviation above the mean and of those 5% of children obtained scores greater than 2 standard deviations above the mean. Emotion regulation was described by three categories: undercontrolled, adaptively concerned and overcontrolled. For the 44 participants, 27% ($n = 12$) were categorized as undercontrolled, 55% ($n = 24$) as adaptively concerned, and 18% ($n = 8$) as overcontrolled.

Prior to assessing the relationship between exposure to domestic violence and emotion regulation, emotion regulation was transformed into a dichotomous variable. This was due to the small sample size and for ease of analysis and interpretation. Children initially coded as adaptively concerned were classified as “regulated” (coded as a 0) and children initially coded as overcontrolled or undercontrolled were classified as “dysregulated” (coded as a 1). Bivariate correlations were run to assess the relationship between exposure to domestic violence and emotion regulation. As an a priori hypothesis had been made about the direction of this

relationship (i.e., less violence would be related to better regulation and more violence would be related to more dysregulation) a one-tailed analysis was used. The relationship between psychological aggression and emotion regulation was not significant $r(42) = -.06, p = .356$. The relationship between physical aggression and emotion regulation was not significant $r(42) = -.06, p = .343$.

One part of emotion regulation is the individual emotional responses. For this study the 15 emotional responses were categorized into five composite scores and the ranges, means and standard deviations are reported for the non-transformed variables for ease of interpretation. The range of scores for the distress/fear composite was 0 to 13 ($M = 4.5, SD = 3.0$) out of a possible score of 65. The range of scores for the concern composite was 0 to 4 ($M = .46, SD = .89$) out of a possible score of 39. The range of scores for the smiling/laughing composite was 0 to 2 ($M = .41, SD = .65$) out of a possible score of 13. The range of scores for the hostility composite was 0 to 13 ($M = 2.46, SD = 3.16$) out of a possible score of 65. The range of scores for the vigilance composite was 0 to 4 ($M = .83, SD = 1.01$) out of a possible score of 13. The relations between each of the composites and the two measures of exposure to domestic violence were analysed by computing correlations. In this case, the analyses are exploratory in nature as no directional predictions were made, and thus the correlations were run as two-tailed tests. As can be seen on Table 6, only the correlation between psychological aggression and the Distress/Fear composite was significant, indicating that those children who were exposed to more psychological aggression were more likely to display fearful responses during the Still Face. Post hoc analyses revealed that this sample may not have had enough power to achieve significance for all of the analyses. For instance, the correlation between physical aggression and smiling/laughing would require 212 participants to reach significance (Faul, Erdfelder, Lang, & Buchner, 2007).

Table 6. Correlations between the Composite Scores and Domestic Violence

Composites	Psychological Aggression	Physical Aggression
Distress/Fear	.30*	.06
Hostility	.08	.13
Vigilance	.09	-.02
Smiling/Laughing	.12	.19
Concern	.03	-.16

Note: * $p < .05$ (2-tailed); Degrees of freedom = 42

Direct Relations between the Risk and Protective Variables, Exposure to Violence and Emotion Regulation.

Attachment security. Attachment security was explored as a risk/protective factor in the present study. The range of scores for attachment security was -.189 to .835 ($M = .302$, $SD = .269$), with higher scores indicating a stronger attachment relationship. Eighteen percent of participant's scores were more than one standard deviation below the mean. Bivariate correlations were used to examine the relationship between attachment security and exposure to violence. In this case a one-tailed test was used as there was the directional prediction of a negative relationship between exposure to domestic violence and attachment security. The relationship between attachment security and psychological aggression was significant at $r(42) = -.30$, $p = .024$, indicating that as psychological aggression in the home increased attachment security decreased. The relationship between attachment security and physical aggression was significant at $r(42) = -.26$, $p = .042$, indicating that as physical aggression in the home increased attachment security decreased.

To examine the relationship between attachment security and emotion regulation (regulated, dysregulated) a bivariate correlation was run. Contrary to expectations, the relationship between attachment security and emotion regulation was not significant $r(42) = -.11$, $p = .244$, one-tailed.

Temperament. Child temperament was also considered as a risk/protective factor in Study 2. The range of scores for temperament was 19 to 55 ($M = 38.64$, $SD = 8.24$), with higher scores indicating a more difficult temperament. Nineteen percent of participants had scores greater than one standard deviation above the mean. Bivariate correlations were used to examine the relations between temperament and exposure to violence. The link between temperament and

psychological aggression was not significant at $r(24) = .11, p = .306$, with a one-tailed test.

Similarly, the connection between temperament and physical aggression was not significant at $r(24) = .20, p = .168$, using a one-tailed test. These results are not consistent with the hypothesis that children in a home with more violence would have a more difficult temperament.

To examine the relationship between temperament and emotion regulation (regulated, dysregulated), a bivariate correlation was run. The relationship between temperament and emotion regulation was not significant $r(24) = .20, p = .178$, one-tailed, however it was in the predicted direction and if the relationship stayed the same with a larger sample size (150 participants) it would reach statistical significance (Faul et al., 2007).

Maternal psychological symptomology. Maternal psychological symptomology was explored as a risk/protective factor in the present study. The possible range of scores for transformed maternal psychological symptomology was 0 to 2, with the observed scores ranging from .24 to 1.62 ($M = .77, SD = .35$), where higher scores indicated more symptoms. Twelve percent of mothers had scores greater than one standard deviation above the mean with 8 percent of those mothers falling higher than 2 standard deviations above the mean. Bivariate correlations were used to examine the relation between maternal psychological symptomology and exposure to violence. The relation between maternal psychological symptomology and psychological aggression was significant at $r(24) = .55, p = .002$, one-tailed. The connection between maternal psychological symptomology and physical aggression was significant at $r(24) = .35, p = .038$, one-tailed. These results indicate that maternal psychological symptomology is greater when there is more psychological and physical violence in the home.

To examine the relationship between maternal psychological symptomology and emotion regulation (regulated, dysregulated), a bivariate correlation was run. The relationship between

maternal psychological symptomology and emotion regulation was marginally significant $r(24) = .31, p = .065$, one-tailed, indicating a trend for mothers with more symptomology to also have children with more dysregulation, and mothers with fewer psychological symptoms to have children with better regulated emotions. In order for this relationship to reach significance, 60 participants would be needed (Faul et al., 2007).

Moderators in the Relationship between Exposure to Domestic Violence and Emotion Regulation

In order to assess the moderating role of attachment security, psychological symptomology and temperament in the relationship between exposure to domestic violence and emotion regulation, a series of logistic regressions were conducted. For moderator analyses, the relationship between the predictor variable (e.g., exposure to domestic violence) and the criterion variable (e.g., emotion regulation) is tantamount to a main effect. Similarly, the relationship between the moderator variables (e.g., attachment) and the criterion variable is another main effect. The interaction between the predictor variable and the moderator variable is the test for moderation. An interaction effect can exist with no significant main effects, one main effect or two main effects. An interaction effect indicates that the relationship between the predictor variable (i.e., exposure to domestic violence) and the criterion (i.e., emotion regulation) variable changes as a function of the level of the moderator (e.g., attachment: more secure versus less secure attachment).

Given that emotion regulation was coded as a dichotomous variable (regulated versus dysregulated) a logistic regression was required. Given that logistic regression has different assumptions than multiple regression, raw data were used rather than transformed variables. However, as in multiple regression, predictors, moderators and interaction terms were centered. Logistic regression has the assumption that there is a linear relationship between the predictor

variables and the logit (log of the odds) of the DV. To test this assumption the interaction of each predictor variable with its log transformation was entered into the regression equation. Non-significant results indicated that this assumption had not been violated and thus the analyses were run.

For each regression, exposure to domestic violence (psychological or physical aggression) and the moderator were entered in the first step, and the interaction between exposure to domestic violence and the moderator was entered in the second step. To test the significance of individual predictor variables, the Wald statistic was examined. The Wald statistic was calculated by dividing each coefficient by its standard error and significance is achieved when $p < .05$ (Tabachnick & Fidell, 2001). As can be seen in Tables 7 through 12, none of the individual predictors was significant. The Nagelkerle R Square value is similar to the R^2 value computed in multiple regression and it provides a measure of the strength of association for a model (Tabachnick and Fidell, 2001). Finally, to test the significance of the model a goodness of fit test was performed which produced a chi-square value. The model is significant when the significance of chi-square is $p < .05$, which was not the case for any of the models in Tables 7 through 12. However, in Table 9, there was a trend towards significance for the model with the interaction term for the relationship between psychological aggression and emotion regulation moderated by psychological symptomology. However, as can be seen from the table, the interaction term itself is not statistically significant.

To further investigate this discrepancy, post hoc analyses were run. The file was split into two groups based on scores above or below the mean for psychological symptomology (with a larger sample the data file would be split into three groups for more accurate comparisons, Aiken & West, 1991). The correlation between psychological aggression and emotion regulation was

Table 7. Logistic Regression of Emotion Regulation on to Exposure to Psychological Aggression and Attachment Security

Variables	Wald	Nagelkerle R Square	Chi-Square	<i>df</i>
Block 1		.042	1.409	2
Psychological Aggression	.845			
Q-Sort	.949			
Block 2		.043	.044	1
Interaction	.044			

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed); Nagelkerle R Square, Chi-Square and *df* are only applicable statistics at the level of a Block; the Wald statistic is only applicable at the individual variable level.

Table 8. Logistic Regression of Emotion Regulation on to Exposure to Physical Aggression and Attachment Security

Variables	Wald	Nagelkerle R Square	Chi-Square	<i>df</i>
Block 1		.016	.518	2
Physical Aggression	.007			
Q-Sort	.492			
Block 2		.082	2.270	1
Interaction	1.236			

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed); Nagelkerle R Square, Chi-Square and *df* are only applicable statistics at the level of a Block; the Wald statistic is only applicable at the individual variable level.

Table 9. Logistic Regression of Emotion Regulation on to Exposure to Psychological Aggression and Psychological Symptomology

Variables	Wald	Nagelkerle R Square	Chi-Square	<i>df</i>
Block 1		.149	3.053	2
Psychological Aggression	1.301			
Psychological Symptomology	1.987			
Block 2		.300	3.522 ^t	1
Interaction	1.287			

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed); Nagelkerle R Square, Chi-Square and *df* are only applicable statistics at the level of a Block; the Wald statistic is only applicable at the individual variable level.

Table 10. Logistic Regression of Emotion Regulation on to Exposure to Physical Aggression and Psychological Symptomology

Variables	Wald	Nagelkerle R Square	Chi-Square	<i>df</i>
Block 1		.112	2.271	2
Physical Aggression	.764			
Psychological Symptomology	1.763			
Block 2		.226	2.511	1
Interaction	2.073			

Note: [†] p<.10, *p<.05, **p<.01 (2-tailed); Nagelkerle R Square, Chi-Square and *df* are only applicable statistics at the level of a Block; the Wald statistic is only applicable at the individual variable level.

Table 11. Logistic Regression of Emotion Regulation on to Exposure to Physical Aggression and Temperament

Variables	Wald	Nagelkerle R Square	Chi-Square	<i>df</i>
Block 1		.049	.960	2
Physical Aggression	.009			
Temperament	.874			
Block 2		.087	.790	1
Interaction	.743			

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed); Nagelkerle R Square, Chi-Square and *df* are only applicable statistics at the level of a Block; the Wald statistic is only applicable at the individual variable level.

Table 12. Logistic Regression of Emotion Regulation on to Exposure to Psychological Aggression and Temperament

Variables	Wald	Nagelkerle R Square	Chi-Square	<i>df</i>
Block 1		.052	1.033	2
Psychological Aggression	.081			
Temperament	.966			
Block 2		.120	1.388	1
Interaction	1.266			

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed); Nagelkerle R Square, Chi-Square and *df* are only applicable statistics at the level of a Block; the Wald statistic is only applicable at the individual variable level.

examined for both groups separately. For the participants with psychological symptomology values above the mean, the relationship between psychological aggression and emotion regulation was not significant, $r(4) = -.36, p = .484$. For the participants with psychological symptomology values below the mean, the relationship between psychological aggression and emotion regulation was not significant, $r(18) = -.11, p = .631$. While inclusion of the interaction term provides a stronger prediction model, there was no moderating role of psychological symptomology.

Contrary to expectations, there were no significant moderating effects of attachment, psychological symptoms, or temperament between exposure to domestic violence and emotion regulation (see Tables 7 through 12). Post hoc power considerations revealed that for an effect size of .3 with 1 or 2 degrees of freedom, between 88 to 100 participants would be needed to reach significance (Faul et al., 2007).

Primary Analyses Involving Behaviour Problems

Exposure to Violence and Behaviour Problems

Behaviour problems were categorized by internalizing problems, externalizing problems, and sleep problems. In all cases, higher scores are indicative of greater problem behaviour. For internalizing problems, the scores ranged from 2 to 52 ($M = 16.52, SD = 12.41, N = 26$) with 38% of the sample above the cut-off score for clinical significance. For externalizing problems, the scores ranged from 7 to 48 ($M = 24.35, SD = 11.77, N = 26$) with 46% of the sample above the cut-off score for clinical significance. For sleep problems, the scores ranged from 0 to 14 ($M = 6.96, SD = 4.13, N = 26$), with 42% of the sample above the cut-off score for clinical significance. Internalizing and externalizing problems were significantly positively correlated, $r(24) = .70, p < .001$. Internalizing and sleep problems were significantly positively correlated,

$r(24)=.51, p=.007$. Sleep and externalizing problems were significantly positively correlated, $r(24)=.39, p=.047$.

The relationship between exposure to violence and behaviour problems was assessed by bivariate correlations making use of a one-tailed test of significance. As can be seen on Table 13, the correlation between domestic violence and internalizing problems was significant, indicating that those children who were exposed to more physical and psychological aggression were reported to have more internalizing problems. The correlations involving externalizing and sleep problems did not reach statistical significance. Post hoc analyses indicate that if the relationship between physical aggression and externalizing problems stayed the same with more participants, significance could be reached with approximately 120 participants (Faul et al., 2007).

Behaviour Problems and Emotion Regulation

The relationship between behaviour problems and emotion regulation was assessed through bivariate correlation. The relationship between internalizing behaviours and emotion regulation was significant $r(24) = .41, p = .019$, one-tailed, indicating children who are better regulated showed fewer internalizing behaviour problems and children who were more dysregulated showed more internalizing behaviour problems. The relationship between sleep problems and emotion regulation was marginally significant $r(24) = .30, p = .071$, one-tailed, indicating children who are better regulated showed a trend towards fewer sleep problems and children who were more dysregulated showed a trend towards more sleep problems. The relationship between externalizing behaviours and emotion regulation was not statistically significant $r(24) = .25, p = .108$.

Links between Risk/Protective Factors, Exposure to Domestic Violence and Behaviour Problems

Attachment security, temperament and maternal psychological symptomology were

Table 13. Correlations between Behaviour Problems, Domestic Violence and the Moderators.

Behaviour Problems	Psychological Aggression	Physical Aggression	Attachment Security	Temperament	Psychological Symptomology
Internalizing Problems	.35*	.39*	-.57**	.52**	.62**
Externalizing Problems	.15	.22	-.71**	.64**	.53**
Sleep Problems	-.01	.13	-.45*	.27 ^t	.23

Note: ^t p<.10, * p<.05, ** p<.01 (1-tailed); Degrees of freedom = 24

variables hypothesized as risk/protective factors involved in the link between exposure to violence and behaviour problems. Direct relations between the three possible risk/protective factors and behaviour problems were assessed using one-tailed bivariate correlations. As can be seen in Table 13, internalizing problems, externalizing problems and sleep problems were tied to lower levels of attachment security. This is consistent with hypotheses. Internalizing problems and externalizing problems were also higher in the presence of more maternal psychological symptomology and more difficult child temperament. This is also consistent with the hypotheses. Sleep problems was marginally related to child temperament. Post hoc analyses indicate that for sleep problems to be significant for the magnitude of the observed correlations, the sample size would need to be between 80 to 113 (Faul et al., 2007).

Moderators in the Relationship between Exposure to Domestic Violence and Behaviour

Problems

All of the following moderator analyses were assessed using a series of hierarchical regressions with internalizing problems, externalizing problems and sleep problems serving as separate criterion variables. Domestic violence (physical or psychological aggression) and the moderator (attachment security, temperament, or psychological symptomology) were entered in Step 1. In Step 2 the interaction between domestic violence and the moderator was entered. All predictors, moderators, and interactions were centered. Results of these analyses can be seen in Tables 14 through 19.

Maternal psychological symptomology. As can be seen in Tables 14 and 15, maternal psychological symptomology did not moderate the relationship between exposure to domestic violence and behaviour problems. This is contrary to predicted results. However, the regression analyses reveal that maternal psychological symptomology adds unique variance to the

Table 14. Psychological Symptomology as a Moderator between Exposure to Psychological Aggression and Problem Behaviours

<i>Sleep Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	Df
Block 1		.081	.081	1.019	2, 23
Psychological Aggression	-.201				
Psychological Symptomology	.341				
Block 2		.092	.011	.258	1, 22
Interaction	-.112				
<i>Internalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.388	.388	7.279**	2, 23
Psychological Aggression	.010				
Psychological Symptomology	.617**				
Block 2		.388	.000	.009	1, 22
Interaction	.018				
<i>Externalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.309	.309	5.147*	2, 23
Psychological Aggression	-.200				
Psychological Symptomology	.640**				
Block 2		.368	.059	2.052	1, 22
Interaction	.263				

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed)

Table 15. Psychological Symptomology as a Moderator between Exposure to Physical Aggression and Problem Behaviours

<i>Sleep Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.056	.056	.683	2, 23
Physical Aggression	.058				
Psychological Symptomology	.210				
Block 2		.056	.000	.000	1, 22
Interaction	.001				
<i>Internalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.420	.420	8.342**	2, 23
Physical Aggression	.194				
Psychological Symptomology	.554**				
Block 2		.424	.003	.126	1, 22
Interaction	.067				
<i>Externalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.282	.282	4.525*	2, 23
Physical Aggression	.038				
Psychological Symptomology	.517*				
Block 2		.366	.083	2.883	1, 22
Interaction	.337				

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed)

Table 16. Temperament as a Moderator between Exposure to Psychological Aggression and Problem Behaviours

<i>Sleep Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.072	.072	.897	2, 23
Psychological Aggression	-.043				
Temperament	.270				
Block 2		.077	.005	.112	1, 22
Interaction	.081				
<i>Internalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.361	.361	6.500**	2, 23
Psychological Aggression	.297 ^t				
Temperament	.492**				
Block 2		.404	.043	1.576	1, 22
Interaction	.245				
<i>Externalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.413	.413	8.077**	2, 23
Psychological Aggression	.085				
Temperament	.628**				
Block 2		.461	.049	1.991	1, 22
Interaction	.262				

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed)

Table 17. Temperament as a Moderator between Exposure to Physical Aggression and Problem Behaviours

<i>Sleep Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.077	.077	.962	2, 23
Physical Aggression	.083				
Temperament	.249				
Block 2		.077	.000	.005	1, 22
Interaction	.016				
<i>Internalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.359	.359	6.453**	2, 23
Physical Aggression	.298 ^t				
Temperament	.465*				
Block 2		.427	.067	2.580	1, 22
Interaction	.279				
<i>Externalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.415	.415	8.154**	2, 23
Physical Aggression	.099				
Temperament	.617**				
Block 2		.557	.142	7.064*	1, 22
Interaction	.406*				

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed)

Table 18. Attachment Security as a Moderator between Exposure to Psychological Aggression and Problem Behaviours

<i>Sleep Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.210	.210	3.064 ^t	2, 23
Psychological Aggression	-.093				
Attachment Security	-.465*				
Block 2		.251	.041	1.196	1, 22
Interaction	-.219				
<i>Internalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.387	.387	7.266**	2, 23
Psychological Aggression	.260				
Attachment Security	-.523**				
Block 2		.439	.051	2.012	1, 22
Interaction	-.246				
<i>Externalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.509	.509	11.921**	2, 23
Psychological Aggression	.030				
Attachment Security	-.708**				
Block 2		.546	.037	1.782	1, 22
Interaction	-.208				

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed)

Table 19. Attachment Security as a Moderator between Exposure to Physical Aggression and Problem Behaviours

<i>Sleep Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.203	.203	2.936 ^t	2, 23
Physical Aggression	.038				
Attachment Security	-.441*				
Block 2		.244	.040	1.176	1, 22
Interaction	-.216				
<i>Internalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.398	.398	7.596*	2, 23
Physical Aggression	.282				
Attachment Security	-.508**				
Block 2		.514	.116	5.255**	1, 22
Interaction	-.366*				
<i>Externalizing Problems</i>					
Variables	B	R ²	R ² _{Change}	F _{Change}	df
Block 1		.513	.513	12.121**	2, 23
Physical Aggression	.073				
Attachment Security	-.697**				
Block 2		.685	.172	11.989**	1, 22
Interaction	-.445**				

Note: ^t p<.10, *p<.05, **p<.01 (2-tailed)

prediction of internalizing and externalizing behaviour problems even after controlling for the effects of exposure to violence. Specifically, the regression results support the correlational findings suggesting greater maternal psychological symptoms are tied to internalizing and externalizing problems.

Temperament. As can be seen in Table 17, temperament moderates the relationship between physical aggression and externalizing problems. In order to further examine this relationship, the data file was split into two groups; those with values above the mean for temperament and those below the mean. Bivariate correlations were run to assess the relationship between physical aggression and externalizing problems for the split data file. For the participants with temperament values above the mean, the relationship between physical aggression and externalizing problems was marginally significant, $r(10) = .57, p = .053$. For the participants with temperament values below the mean, the relationship between physical aggression and externalizing problems was not significant, $r(12) = -.17, p = .560$. This suggests that the connection between exposure to physical aggression and externalizing problems is exacerbated by the presence of a difficult temperament and was not present for those young children with a less difficult temperament. Temperament was not found to moderate any other relationships between exposure to domestic violence and behaviour problems (see Tables 16 and 17). In addition, however, the regression analyses revealed that temperament added unique variance to the prediction of internalizing and externalizing behaviour problems even after controlling for the effects of exposure to violence. Consistent with correlational findings, young children with more difficult temperaments also had greater internalizing and externalizing difficulties.

Attachment security. As predicted, attachment security moderated the relationship

between physical aggression and internalizing and externalizing behaviour problems (see Table 19). In order to further examine these relationships, the data file was split into two groups; those with values above the mean for attachment security and those below the mean. Bivariate correlations were run to assess the relationship between physical aggression and internalizing problems for the split data file. For the participants with attachment values above the mean, the relationship between physical aggression and internalizing problems was not significant, $r(8) = -.50, p = .143$. For the participants with attachment values below the mean, the relationship between physical aggression and internalizing problems was significant, $r(14) = .58, p = .019$. This suggests that participants with lower attachment security demonstrated a positive connection between exposure to physical aggression and more internalizing problems whereas those with better attachment security showed a reverse pattern with exposure associated with lower internalizing difficulties (although this latter connection did not reach statistical significance).

Bivariate correlations were also run to assess the relationship between physical aggression and externalizing problems for the split data file. For the participants with attachment values above the mean, the relationship between physical aggression and externalizing problems was marginally significant, $r(8) = -.61, p = .062$. For the participants with attachment values below the mean, the relationship between physical aggression and externalizing problems was also marginally significant, $r(14) = .46, p = .071$. Although the small numbers in each group made it difficult to detect statistically significant connections here, this pattern of data indicated that young children with a higher quality attachment actually demonstrated lower externalizing problems in the presence of higher levels of exposure to physical aggression in their homes. In contrast, as was predicted, the connection between physical aggression and externalizing

problems was strong and positive for those young children who had a poorer (or less secure) attachment to parents. Contrary to expectations, attachment security did not moderate the relationship between physical aggression and sleep problems (Table 19), nor the relationships between psychological aggression and behaviour problems (Table 18). In addition, the regression analyses revealed that attachment security adds unique variance to the prediction of internalizing and externalizing problems even after controlling for the effects of exposure to violence such that greater problems are predicted from poorer quality attachments.

Study 2: Summary

Study 2 sought to understand the nature of the relations between exposure to domestic violence and the two developmental indices of emotion regulation and behaviour problems while considering risk and protective factors. The findings from this research support a relationship between exposure to domestic violence and behaviour problems and highlight the importance of other risk and protective variables such as temperament and attachment security in that relationship. Interestingly, the findings do not support a relationship between exposure to domestic violence and emotion regulation as expected. Table 20 provides a summary of hypotheses, research questions and findings for Study 2.

Table 20. Hypotheses, Research Questions and Findings.

<i>Hypotheses and Research Questions</i>	<i>Findings</i>
Correlates of exposure to domestic violence:	
Positive correlation between domestic violence and behaviour problems	<ul style="list-style-type: none"> • Internalizing behaviours: supported (Psychological aggression $p = .041$; Physical aggression $p = .025$) • Externalizing behaviours: not supported (Psychological aggression $p = .232$; Physical aggression $p = .140$) • Sleep behaviours: not supported (Psychological aggression $p = .472$; Physical aggression $p = .260$)
Positive correlation between domestic violence and emotion regulation	<ul style="list-style-type: none"> • Not supported (Psychological aggression $p = .356$; Physical aggression $p = .343$)
Positive correlation between domestic violence and attachment	<ul style="list-style-type: none"> • Supported (Psychological aggression $p = .024$; Physical aggression $p = .042$)
Positive correlation between domestic violence and temperament	<ul style="list-style-type: none"> • Not supported (Psychological aggression $p = .306$; Physical aggression $p = .168$)
Positive correlation between domestic violence and psychological symptomology	<ul style="list-style-type: none"> • Supported (Psychological aggression $p = .002$; Physical aggression $p = .038$)
Connections between risk/protective factors and adjustment:	
Positive correlation between emotion regulation and attachment	<ul style="list-style-type: none"> • Not supported $p = .244$
Positive correlation between emotion regulation and temperament	<ul style="list-style-type: none"> • Not supported $p = .178$
Positive correlation between emotion regulation and psychological symptomology	<ul style="list-style-type: none"> • Trend (positive) $p = .065$
Positive correlation between behaviour problems and attachment	<ul style="list-style-type: none"> • Supported for internalizing problems ($p = .001$), externalizing problems ($p < .001$) and sleep problems ($p = .011$)
Positive correlation between behaviour problems and temperament	<ul style="list-style-type: none"> • Supported for internalizing problems ($p = .003$) and externalizing problems ($p < .001$) • Sleep behaviours: positive trend ($p = .095$)
Positive correlation between behaviour problems and maternal psychological symptomology	<ul style="list-style-type: none"> • Supported for internalizing problems ($p < .001$) and externalizing problems ($p = .003$) • Sleep behaviours: not supported ($p = .129$)

<i>Hypotheses and Research Questions</i>	<i>Findings</i>
Risk and protective factors as moderators:	
Does attachment moderate domestic violence and emotion regulation?	<ul style="list-style-type: none"> • No significant findings (see Tables 7 and 8)
Does temperament moderate domestic violence and emotion regulation?	<ul style="list-style-type: none"> • No significant findings (see Tables 9 and 10)
Does psychological symptomology moderate domestic violence and emotion regulation?	<ul style="list-style-type: none"> • No significant findings (see Tables 11 and 12)
Attachment will moderate domestic violence and behaviour problems	<ul style="list-style-type: none"> • Moderation supported in the cases of exposure to physical aggression and the relations to internalizing and externalizing problems (see Table 19) • Sleep problems and exposure to psychological aggression: not supported (see Table 18)
Temperament will moderate domestic violence and behaviour problems	<ul style="list-style-type: none"> • Moderation supported in the case of exposure to physical aggression and externalizing problems (see Table 17) • Sleep problems, internalizing problems and exposure to psychological aggression: not supported (see Table 16)
Does psychological symptomology moderate domestic violence and behaviour problems?	<ul style="list-style-type: none"> • No significant findings (see Tables 14 and 15)

Discussion

Few empirical studies have examined the effects for young children exposed to domestic violence. This is surprising given that infants and toddlers (birth through three years) are more likely than any other age group to be exposed to domestic violence and this exposure is more common at this age than any other form of abuse (Trocmé et al., 2005). While the effects of witnessing domestic violence on young children were long believed to be non-existent, current research indicates that infants do suffer negative consequences as a result of witnessing violence (e.g., Zeanah et al., 1999). Two factors associated with domestic violence that have been previously studied are behaviour problems and emotion regulation abilities. While most of the research in this area has been completed with older children, this dissertation investigated the experience of exposure to domestic violence for younger children (under age four). It is imperative that these links are understood, especially in light of the rate of exposure for young children.

The primary goal of this research was to understand the experiences of young children exposed to violence, specifically examining the connection between exposure to domestic violence and adjustment (i.e., emotion regulation and behaviour problems) in young children. As young children develop emotional and behavioural skills in the context of their relationships and home life, it was expected that the developmental pathways of children living in homes with domestic violence would be disrupted. The development of these processes was examined in light of risk and protective factors to understand variables that may exacerbate or buffer the relationship between exposure to violence and adjustment. Study 1 focused on the reliable measurement of emotion regulation in this younger sample of children with behaviour problems and/or exposed to domestic violence. Study 2 investigated the relationship between exposure to

domestic violence and adjustment while considering the role of important risk and protective variables (i.e., child temperament, attachment relationship, and maternal psychological symptomology) that may serve to moderate the underlying relationship.

Although small, the sample in this research showed a range of exposure scores from no violence to high levels of exposure as measured by the Conflict Tactics Scale. Of specific interest within the framework of adjustment was the measurement of emotion regulation as a marker of functioning. It was interesting to see that 27 % of the participants were categorized as undercontrolled in their emotion regulation suggesting they reacted to the Still Face in a dysregulated fashion with responses that were characterized by increased levels of observable emotional behavioural responsiveness, whereas 55% were seen to be adaptively concerned (e.g., showed emotional behavioural responses that were congruent with the procedure). The final group of young children (18%) regulated their emotions in an overcontrolled fashion (e.g., dysregulated responses typified by a lack of observable emotional behavioural responses). This distribution of categories of emotion regulation was quite similar to the categorizations by Maughan and Cichetti who found that 24% of their sample of children aged 4 to 6 were undercontrolled, 63% were adaptively concerned and 14% were overcontrolled. The most noticeable difference between the two samples appears to be that a smaller proportion of the younger children in the present research were seen to regulate their emotions in an adaptively concerned fashion. While this difference may be due to chance, it is also possible that it has to do with the younger age of the population. Many children in this study were nonverbal and the coding scheme (which was originally designed to be used with verbal children) may not have adequately captured all of their nonverbal indicators of effective emotion regulation.

A second critical marker of functioning was viewed to be behaviour problems. Young

children in this study exhibited a wide range of problems from few problems to many problems. Indeed, just over one third of the young children (38%) were above the cut-off score for clinical significance with respect to their level of internalizing problems. A larger proportion of nearly half the sample (46%) were in the clinical range for externalizing problems with slightly fewer young children experiencing sleep problems that were of clinical note (42%). In a non-clinical sample, rates of behaviour problems for 2 year olds have been shown to be 12-16% (Briggs-Gowan et al., 2001). Clearly the present sample exceeded this rate, however this is not surprising as it has been found that children aged 3 to 5 who have been exposed to domestic violence have increased rates of behaviour problems (e.g., Lieberman, et al., 2005). This increased rate is also not surprising given that in this sample the reason for referral was often behaviour problems. Mean t scores in this sample (internalizing problems $M=62$, externalizing problems $M=63$, and sleep problems $M= 64$) were very similar to those found in other clinical samples (internalizing problems $M=61$, externalizing problems $M=57$, and sleep problems $M= 60$; Achenbach & Rescorla, 2000).

The one area where this sample differed from other studies is pertains to sex, with the current sample having 73% boys, while other studied have typically included 55%-60% boys (Maughan & Cicchetti, 2002; Lieberman et al., 2005). Due to the limited sample size, there were not enough female participants to split the sample according to sex to determine what, if any differences existed between the sexes. While this was unfortunate, a recent analysis found no significant sex differences in behaviour problems for children exposed to domestic violence (Sternberg, Baradaron, Abbott, Lamb, Guterman, 2006). With the exception of sex, the current group of participants were similar to samples used in previous research.

From a developmental psychopathology perspective, it is also important to consider the

current findings in terms of the connections between the risk and protective factors of attachment security, child temperament and maternal psychological symptomology, and child behaviour problems. As expected, young children with a less secure quality of attachment were more likely to show internalizing, externalizing and sleep problems. Secure attachment relationships help children organize their emotions and behaviours, and this may help explain the link between quality of attachment relationships and behaviour problems. Similarly, young children with more difficult temperaments and with mothers experiencing greater psychological symptomology were reported to demonstrate more difficulties with their behaviour (both internalizing and externalizing). Although only a trend, more difficult temperament was not surprisingly tied to greater sleep difficulties. Children with more difficult temperaments may be more prone to behaviour problems as they are more easily upset and more difficult to settle. Having a mother who is experiencing increased psychological symptomology is possibly related to increased behaviour problems in children for numerous reasons. First it may be that that increased symptoms of mothers interrupts typical parenting behaviour, without which children display more behaviour problems. Second, it is also possible that children whose mothers have increased mental health concerns are at increased risk themselves due to genetic and environmental factors. A third possibility is that maternal ratings of behaviour problems are negatively skewed when the mother is experiencing increased symptomology as their perceptions are coloured by their own challenges. The findings from this research are consistent with previous studies (e.g., Burgess et al., 2003; Grace et al., 2003; Guerin et al., 1997; Morrell & Steele, 2003) and indicate that the basic relationships, well established in the literature have been replicated in this sample. This replication is important as it provides some credibility and support for the participants, procedures and measures used with this smaller sample. These findings also provide support for

the contextual approach of developmental psychopathology where a broad range of variables are thought to be associated with current symptoms.

While there is a large body of literature on the correlates of behaviour problems (including those measured in the present study), there is less known about links to emotion regulation. Findings from this study indicated a trend in the relationship between emotion regulation and maternal psychological functioning where dysregulation was associated with increased symptomology. Although the current study did not have enough power to detect a significant effect, previous research has similarly established this relationship (Maughan et al., 2007) in a sample of 4 year-olds. Surprisingly, the current study did not find associations between emotion regulation, attachment and temperament that were expected based on previous research (e.g., Dejonghe et al., 2005). Although it is possible that attachment and temperament are not tied to emotion regulation in younger children another possible explanation for the lack of a predicted connection here concerns the measurement of emotion regulation. Given the central emphasis on measuring emotion regulation in the present study, a more detailed discussion of this issue is presented below.

Taken together, there is substantial evidence that the current sample is consistent with other samples used in this field of research. While all efforts were made to have an inclusive sample (e.g., free parking, available bus tickets, home visits) it is always difficult to ensure that the sample is truly representative. At this point it is only possible to discuss the similarities between the current sample and those samples used in previous research. Whereas the findings surrounding links to behaviour problems were similar to previous findings, the relations with emotion regulation were not as consistent and will be more fully explored.

Factors Associated with Exposure to Domestic Violence

Behaviour problems. The primary interest of this research was to understand the experience of living with domestic violence for young children. In order to examine this, factors thought to be associated with domestic violence were examined. Previous research has indicated that it is not just the person on the receiving end of the aggression who suffers. Indeed evidence points to the fact that children who witness this violence also suffer (e.g., Wolfe et al., 2003). This is likely due to the importance of the family for children and the extreme nature of domestic violence which acts to interrupt the typical pathways that develop in the context of the family. Given the correlational design of the present research, it is not possible to say definitively that exposure to domestic violence leads to or exacerbates an adjustment outcome. Nevertheless, the first step to asking a causal question involves demonstrating that an underlying link exists.

It is known that children typically learn to regulate their behaviours at home and in the context of relationships (e.g., imitating behaviours). In the face of domestic violence (both physical and psychological) this developmental pathway was disrupted for at least some children in this study who showed signs of greater internalizing behaviour problems. It is possible that children dealing with violence at home have difficulty dealing with the strong emotions this arouses and in turn display more withdrawn, anxious and depressed behaviour. It may also be that children in homes with violence live with fear and anxiety not only during the violence, but in anticipation of the next episode of violence. However, it is also possible that having a child with behaviour problems places stress on the parental relationship leading to increased violence. Previous research has found that behaviour problems are associated with exposure to domestic violence in children (Fantuzzo & Mohr, 1999), and research has demonstrated that children can develop PTSD following a trauma (Scheeringa & Zeanah, 1995). Thus, the current findings add to the growing body of evidence that domestic violence goes hand in hand with negative

outcomes for children of all ages. In order to more fully understand this pathway of development, moderator analyses examined risk and protective factors. Attachment security moderated the relationship between exposure to physical aggression and internalizing problems where less securely attached participants displayed more internalizing problems with more exposure to physical aggression. For those with better attachment security there was a trend for children to display fewer internalizing problems when exposed to more violence. This indicates that a secure attachment relationship may act as a protective factor for those children exposed to physical aggression and that the relationship between physical aggression and internalizing behaviour problems needs to be studied with attachment security as a consideration. Due to the central importance of the attachment relationship and the observation that sensitive parenting behaviours are related to secure attachment (Ainsworth, 1963) it is likely that having a parent who continues to attend to and meet the needs of the child even during domestic violence will help protect the child and continue to help them learn adaptive ways to monitor their behaviour.

Unlike the connection to internalizing difficulties, the present findings showed no significant links between previous exposure to domestic violence and externalizing or sleep problems. In light of the well-documented connection between exposure to violence and behaviour problems (e.g., Lieberman et al., 2005), these results are unexpected. While some children exposed to violence display internalizing behaviours, it was expected that children would also respond to the violence with anger and aggression which might carry over into other aspects of their lives.

Although internalizing behaviour problems were associated with exposure to violence in young children, it is unclear why this effect is expressed as internalizing problems and not other behaviour problems. In older children both internalizing and externalizing behaviours have been

found to be related to domestic violence (Fantuzzo & Mohr, 1999), however it is possible that in younger children the effects are manifested differently. One possibility may be that during the violence in the home young children retreat and withdraw from the conflict and these behaviours carry over into other aspects of their life (e.g., withdrawal, inward focus). Due to the high rate of externalizing behaviours seen in this sample, it is clear that children of this age are certainly able to display those types of behaviours. Examining the role of risk and protective factors may help explain complexity around the development of externalizing behaviours in the face of domestic violence.

Despite the fact that the direct connection between exposure to domestic violence and externalizing behaviour was not significant, the present results indicated a trend towards attachment security playing a buffering role against exposure. For those children with less secure attachments, increased exposure was linked with increased behaviour problems. However, those children with a more secure attachment relationship with their mother showed lower levels of externalizing behaviour problems when exposed to higher levels of physical aggression. For externalizing behaviour problems, the link to exposure to domestic violence needs to be understood in light of other factors such as the attachment relationship, highlighting the concept of multifinality within the developmental psychopathology framework. Again this speaks to the central role of the attachment relationship and the power of this relationship to help foster healthy development even when living in an unhealthy environment.

The moderating role of attachment as a protective factor is consistent with previous research (e.g., El-Sheikh & Elmore-Staton, 2004) and is particularly important when considering interventions with young children and their mothers who have experienced domestic violence. A stronger attachment relationship is related to fewer behaviour problems. Future research could

examine whether strengthening the attachment relationship after exposure to violence will protect against the development of behaviour problems. This finding provides good support for the importance of a strong attachment relationship, and thus provides positive opportunities for effective intervention.

In addition to the protective role of attachment, the role of temperament was also studied as a way to understand the development of behaviour problems. When trying to understand the role of externalizing behaviour problems, temperament appears to be an important risk factor. Looking at the literature on the development of aggression, there is evidence that aggression does not develop uniformly across individuals, rather temperament plays a role in the expression of aggression where young children with uninhibited temperaments displayed increased aggression (Kimonis et al., 2006). Although the underlying relationship between exposure to physical aggression and externalizing problems was not significant in the present research, temperament was found to moderate this relationship. Children rated as having a more difficult temperament showed greater externalizing problems with higher levels of exposure to physical aggression. This result is consistent with previous research showing that temperament moderated the relationship between marital conflict and externalizing behaviour problems (Ramos et al., 2005) such that children with more difficult temperaments who lived with increased conflict showed later behaviour problems. Thus it appears that having an easier temperament acts as a protective factor for acting out behaviours when faced with physical aggression in the home, and that a more difficult temperament acts as a risk factor. One explanation for this may be that children with more difficult temperaments rely more on their parents to help manage their behaviour than do children with easier temperaments. In situations of domestic violence it is postulated that consistent parenting behaviour can be interrupted and children with more difficult

temperaments who rely more on their parent, are more affected. It is possible that this is expressed as externalizing behaviour as these children are not able to regulate their own behaviour or it is also possible that these children display externalizing behaviours as a way to capture their parent's attention.

While the connection between exposure to violence and internalizing behaviours is at least in part a direct, straightforward link, clearly the relationship between exposure and externalizing problems for young children needs to be understood in the context of other variables such as attachment and temperament. These findings speak to the importance of assessing temperament when working with a child exposed to physical aggression. While the intervention may not directly target the child's temperament per se, considering the "goodness-of-fit" model for temperament, intervention could focus on helping parents adjust their responses to the child based on the child's temperament. An additional role of professionals will be to work with parents to help them understand the role temperament plays in the development of emotions and behaviours.

Despite the fact that temperament and attachment played a moderating role in some relations involving behaviour, the findings of this study do not support the notion that psychological symptomology moderates the relationship between exposure to domestic violence and behaviour problems. In light of previous research, this may not be surprising. While Levendosky and colleagues (2002) found that maternal functioning played a moderating role with adolescents in the link between exposure to domestic violence and internalizing behaviours, when this was examined in children the moderating role was not supported (Hazen et al., 2006). The findings from this research combined with previous research provide an indication that the moderating role of maternal psychological symptomology may change across the lifespan, not

taking on a prominent role until adolescence. It appears that for children, exposure to violence is associated with internalizing behaviour problems regardless of maternal symptomology. It is unclear what is different about adolescence, perhaps adolescents are more aware of their mothers' functioning or perhaps they are more able to mirror their mothers' reactions to domestic violence. It may be that in young children, the threat to the mother is a significant enough event to be associated with internalizing behaviour problems, whereas adolescents with their greater cognitive development use their mothers' functioning as their measure of the severity of the situation. Therefore, adolescents who observe greater symptomology in their mothers assess the situation as more severe which is then linked to increased symptomology in the adolescent. Due to the limited research in this area and the growing evidence that the role of maternal psychological symptomology may change across the lifespan, further investigation is needed. A different explanation for the results may be that differences could be seen when studying psychological symptomology versus diagnosed psychopathology. Future research could operationalize the parent individual variable as psychopathology to see if the same pattern of findings exists.

Future research in this area can also continue to look for other risk and protective factors that help explain the pathway of behavioural development in young children exposed to domestic violence. Research can also address some limitations of this study such as sample size, which made it difficult to probe significant moderating effects using a more standardized three-group division into low, medium and high attachment security groups that may well have provided more specific information (Aiken & West, 1991). Future research with a larger sample would be able to more fully examine the moderating effects found in this research and could provide enough power to detect other significant effects.

Emotion regulation. In addition to the role that behaviour problems play for children exposed to domestic violence, the role of emotion regulation was central in the current investigation. As behaviour problems can be thought of as signs of emotional dysregulation, it was expected that emotion regulation would be linked with behaviour problems. This was the case for internalizing problems where more behaviour problems may be representing signs of dysregulation and fewer problems representing signs of regulation. A trend was found connecting higher frequencies of sleep problems to more difficulties regulating emotion. Once again the expected connection with externalizing problems was not found. While it was thought that acting out behaviours could represent loss of control and poorer regulation, this was not found with the present sample. It appears that understanding variables associated with externalizing behaviour problems in this age group is complicated and requires further study.

As emotion regulation develops in the context of early relationships, it was expected that any disruptions to those relationships or the home environment (e.g., domestic violence) would be associated with difficulties in emotion regulation. Unexpectedly, no significant connection was found between exposure to domestic violence and emotion regulation. In both the present investigation and the research done by Maughan and Cicchetti (2002) with older children, the expectation that emotion regulation would be linked with exposure to domestic violence was not supported. In their research, Maughan and Cicchetti postulated that exposure to domestic violence may have indirectly affected emotion regulation, possibly through its relationship with the maltreatment status of the child. None of the young children participating in this research had a documented history of maltreatment status, therefore it was not possible to see if similar results would be found with this population. Future researchers would do well to examine maltreatment status as a variable in this relationship for young children.

Although emotion regulation was not observed to be connected to exposure to domestic violence, it was interesting to see the connection that emerged when emotional responsiveness was considered. Young children who responded to a mildly stressful encounter with higher distress and fear were likely to come from homes characterized by greater psychological aggression between parents. This result is not surprising given that one effect of trauma in children is long lasting fear (Nelson Goff & Schwerdtfeger, 2004). No other composite of emotional responsiveness was significantly related to previous exposure to domestic violence. No specific hypotheses were tied to the emotional responsiveness composites however, just as one may have expected externalizing behaviours to be associated with domestic violence, one might have also speculated that the hostility composite would be related to exposure to domestic violence. Although it is unclear why this was not related, the finding might make sense were this to be a sample of young children with low scores on aggressive behaviour. However, given that almost 50% of the children in this study reached clinical levels for externalizing behaviours, this is not a plausible explanation. Another possibility is that while young children certainly display externalizing behaviours, this is not the way they typically respond following exposure to domestic violence. It is interesting to note that the distress/fear composite would be the composite most closely related to internalizing behaviours. Taken together this provides some converging support for the notion that young children present differently (i.e., with more internalizing as opposed to externalizing behaviours, with more distress and fear as opposed to hostility) in the face of greater experience with domestic violence and this certainly warrants further investigation.

Findings from this study do not support the idea that temperament, attachment security, and psychological symptomology moderate the relationship between exposure to domestic

violence and emotion regulation. As previous research examining moderators in this area is limited, no directional hypotheses were made but moderating roles in the relationship between exposure to violence and emotion regulation were explored. While there were no a priori expectations for the moderator analyses, other relationships with emotion regulation were hypothesized but were not found to be significant.

The generally non-significant findings for the emotion regulation construct require some examination. There are several possible reasons why emotion regulation did not emerge as a prominent developmental marker of exposure to domestic violence. The first possibility is that the construct of emotion regulation was not adequately measured in the current study. This suggestion leads to a discussion about whether emotion regulation can be (a) accurately measured with this age group during the Still Face situation and (b) adequately captured with the coding system used in this study.

The low frequency of certain discrete codes makes it necessary and reasonable to question whether the Still Face Procedure was stressful enough to provide a context where children of this age needed to use their emotion regulation strategies. The fact that every child changed his or her behaviour in response to the Still Face provides evidence that they noticed the change and were affected by their mother's reactions. For some children it was certainly a stressful situation as they quickly became upset and began acting out. However, due to the low frequency of all codes within the concern composite (which assesses the child's concern for his or her mother's well being) it is possible that many children were not overly concerned during the procedure. It is also possible that for many children the "still face" from their mothers represented an expression they were familiar with and thus elicited no significant reaction from the children. It is important however to keep in mind that these codes may not have been as

applicable to the Still Face procedure or may not be as applicable to this age group. It is possible that certain codes within the scheme represented developmentally higher order emotions. Due to the young age group of this sample, the children may not have displayed all of the emotions because they were not yet able to express those emotions. As an example, no child exhibited any verbal concern during the Still Face. Despite the fact that this code was modified to include inflection in the child's vocalization (for non-verbal children), it may be that children of this age do not yet typically express themselves in this way. It is also possible that the Still Face procedure is not a stressful enough situation for children to create an optimal environment to assess emotional responsiveness. For instance, there were no instances of children crying during the Still Face. Young children are certainly able to cry so an explanation for this lack of crying during the Still Face may be that the procedure is not taxing enough to warrant such a response. Future research may choose to re-examine the applicability and utility of each code during the Still Face procedure and make appropriate modifications.

Another possibility for the absence of significant findings is that the coding scheme did not effectively capture the construct of emotion regulation. While intentions were to keep the coding scheme as intact as possible, and some consideration was given to measurement equivalence, it is possible that some of codes were not measuring exactly the same construct as when it was used with older children during simulated anger episodes. While certain codes may not have been measuring identical concepts, the similar rates of emotion regulation categories (e.g., adaptively concerned, undercontrolled, overcontrolled) between this research and previous research suggest that emotion regulation was measurable. Future research could examine same-aged participants during a simulated conflict situation, or older children in the Still Face with this coding system. This would allow a comparison of those results with previous results and the

results of the current study and would provide more support of the effectiveness of the current modifications to the coding system or highlight problems with the modifications. Future research could also re-evaluate each of the individual codes and might consider deleting certain codes with poor reliability (e.g., helping the mother) to make it more salient to the situation (i.e., Still-Face paradigm) and age group (e.g., young children). Future research could also consider adding other codes to capture aspects of emotion regulation that were not captured in the current scheme (for instance, observing children's efforts to avoid or leave the situation). Studies with larger samples would be beneficial to allow for emotion regulation to be analyzed as a three category variables as opposed to the dichotomous analyses used in this research. This would allow researchers to tease apart the effects of overcontrolled versus undercontrolled emotion regulation.

Taken together, the use of the coding system during the Still Face procedure presented difficulties. Achieving reliability was a challenge right from the beginning. The low frequency of certain codes meant that many tapes needed to be viewed during the training portion just to have an opportunity to observe all behaviours. This impacted reliability coding as there was limited experience with certain codes. While the coding system in the end was found to be reliable, future research in this area will need weigh the cost/benefits of using this coding system.

One other consideration for the measurement of emotion regulation is that it was the only variable in the study not measured using maternal report. When all variables are rated by maternal report shared method variance becomes a concern (i.e., variables could be correlated simply because reports are all coming from the same person) and thus having an observational measure can be helpful. However, measuring emotion regulation in the lab may also cause problems. Maternal reports provide an account of their children across situations and times,

while a laboratory observation occurs only once in an artificial setting. In clinical settings it is quite common for children to be on their “best behaviour” when they attend sessions and thus the degree of symptomology would not be known without parental reports. Observing emotion regulation in the lab does not provide an opportunity to capture a sense of children’s abilities outside of the artificial laboratory environment. This is certainly an area for future research.

Although the issue of measurement is an important one, it must be remembered that it is not uncommon in previous research to find less robust effects involving emotion regulation as compared to behaviour problems. It would be premature at this juncture to conclude that results involving emotion regulation were not found because no underlying relationships exist especially given the restriction in sample size that significantly impaired power in the present analyses.

It is interesting to consider that non-significant results, while contrary to study hypotheses, do not necessarily represent a negative situation. For instance, if one were to assume that the non-significant findings with emotion regulation represent an actual lack of relationship (one possibility in the presence of null findings), this would speak to some resilience in young children that allows their emotion regulation development to proceed normally in the face of a turbulent family environment. This may speak to their innate resilience or perhaps the protective nature of other variables not considered in the present study. While three risk and protective variables were assessed in this study, other factors such as social support for the mother exposed to domestic violence or measures of parenting behaviours may provide a clearer picture of protective factors. This model of resiliency could be further studied by examining the different characteristics of mother-child dyads where the child displays few negative outcomes versus those in which the child experiences behavioural or emotional difficulties.

Risk and protective factors as outcomes. While the present research was interested in

whether risk and protective factors would play a role in moderating the relationship between exposure to violence and child adjustment, the general exploration of associations with domestic violence was of central importance. Thus the risk and protective factors were also examined as factors related to domestic violence.

Consistent with previous literature on infants (e.g., Zeanah et al., 1999), young children in this study displayed more insecure attachment relationships with increased violence in the home. This pattern of results was seen for young children who had been exposed to both psychological and physical aggression in the home. As proposed by attachment theory, the attachment relationship is the central relationship to the child. As the child looks to the attachment figure for his or her needs and security, it is not surprising that this relationship is disrupted when there is violence in the home. It has been postulated that this disruption occurs as the caregiver's resources are diverted towards the violent marital relationship. Some caregivers are thus not able to regularly, consistently and sensitively respond to the needs of the child, which is known to lead to disrupted attachment. Scheeringa and Zeanah (2001) postulated that this was due to the central nature of the attachment relationship and the dependence of the young child on his or her caregivers for all of his or her basic needs. It has been suggested that due to this reliance on the caregiver, a threat to a caregiver is internalized as a threat to the child and this is the cause of the negative outcomes associated with this exposure (Scheeringa & Zeanah, 2001). The above theories suggest that the cause of this finding is directional with domestic violence disrupting the attachment relationship. This is an area that requires further investigation in the future. In addition, the disorganized category of attachment security has been implicated with experiences of trauma, and thus future research can use a categorical (as opposed to continuous) measure of attachment security to further investigate this relationship.

Although attachment was connected to exposure to domestic violence, findings from this study indicated that temperament was not systematically linked to these same difficult home experiences. While this relationship has not been established in the literature, there is evidence that children from dysfunctional, chaotic homes are at increased risk of developing difficult temperaments (Racine & Boyle, 2002, as cited in *The Well Being of Canada's Young Children: Government of Canada Report*, 2003). Although homes with domestic violence are not necessarily dysfunctional, they are likely more at risk of being chaotic and dysfunctional which may exacerbate a potentially temperamentally difficult child. Further research is needed to understand the developmental course of child temperament in children exposed to domestic violence to further delineate this relationship.

It is possible that certain findings in this study could be due to the measurement of temperament as opposed to the construct itself. In the current study, temperament was measured using select items from the Parenting Stress Index (PSI). While the PSI has often been used to measure temperament in research settings, the limited number of items may provide a more narrow conception of this construct which may have impacted the results. Future research could use a measure solely designed to measure temperament to provide a broader assessment of this construct.

Perhaps not surprisingly, homes characterized by high levels of physical and psychological aggression were also homes in which mothers reported a greater degree of psychological symptomology. This relationship between domestic violence and psychological symptomology has been previously established (Fergusson, et al., 2005), and was the reason why this variable was included in the current research. The nature of the findings indicates that mothers with increased psychological symptomology are more at risk of being involved in a

violent relationship or that being involved in a violent relationship leads to increased symptomology. While support for the first possibility is less clear, the development of posttraumatic stress disorder certainly provides a basis for understanding that stressful situations can create significant psychological symptomology (Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Revised; DSM-IV-TR; APA, 2000). One can certainly imagine that dealing with domestic violence would be stressful and that the environment would likely feel unsafe and insecure. This may be even more so for mothers living with domestic violence as they are concerned about the safety of their child as well as themselves. Future research could investigate the added stresses of being a *mother* experiencing domestic violence. This is especially important as it is not the case that increased symptomology always leads to difficulties with emotion regulation and a disruption of parenting behaviours. Of interest would be to examine if there were parenting differences based on whether the mothers had worked through or resolved their own trauma. Examining how mothers continue to parent would provide valuable insight into the experience of growing up in a violent environment.

As maternal psychological symptomology was related to both domestic violence and internalizing and externalizing behaviour problems, in clinical settings the presence of maternal psychological symptomology may serve as an indicator that the child could be experiencing behaviour problems. Likewise, if a child presents with behaviour problems it is worthwhile to investigate the mothers current functioning with this assessment element becoming especially key if there has been domestic violence in the home. Due to the extreme reliance of young children on their mothers, it will be particularly important that in addition to focusing on resolving the behaviour problems, that the mother receives appropriate support for her concerns as well. Whereas some parents are able to effectively parent their children while they are

suffering from mental health concerns, it is important when working with young children to be aware of their environment and to understand all of the different influences at play.

Other considerations for domestic violence. While it is clear that exposure to domestic violence is related in varied ways to behaviour problems, attachment security, temperament, and maternal psychological functioning, the issue of measurement must be addressed. Specifically, the Conflict Tactics Scale, used to measure exposure to violence in the home, does not address how much violence children actually witnessed. While the Conflict Tactics Scale has previously been used in research it is limiting as it represents a proxy measure of exposure to violence as opposed to a more direct measure. However, other research has found a significant positive correlation between marital violence and children's exposure to marital violence (Lieberman et al., 2005). Research has also found a correlation between parental and child reports of marital conflict in the home (El-Sheikh & Elmore-Staton, 2004), indicating that children are aware of the marital conflict that happens in a home. Regardless of the extent to which children actually witness the domestic violence, results from the current study indicate that there are numerous negative effects for young children growing up in violent homes. Future research could use measures that provide a more direct method of quantifying children's exposure to domestic violence, for instance having the parent report about the extent of the violence witnessed by the child in addition to completing a measure of violence in the home. However, due to social desirability effects, parents may be more reluctant to disclose the violence actually witnessed by their child, while the CTS provides an opportunity to disclose violence in the home without having to relate it back to the child.

A final point of discussion about the use of the Conflict Tactics Scale in the present research was the number of participants who did not complete this measure (ten out of 44

participants did not complete the measure). While an incomplete rate of 23% in this study is not atypical compared to other studies (24% in Maughan & Cicchetti, 2002), an explanation is still required. In this study the incomplete data was due to numerous factors and was partly related to the fact that some of the data came from a clinic for children who were being seen for a variety of presenting problems (e.g., behaviour problems). For instance, some mothers did not have current or recent partners (e.g., one child was being raised by his mother and aunt). A few of the children had been removed from their family of origin and their mothers were not available to complete the CTS. There were also cases where a clinical judgment was made not to ask certain families to complete the questionnaire (e.g., a family where the father had passed away). In the future, using samples of participants who are seeking treatment following exposure to domestic violence would limit the number of participants who were unable complete the CTS, however it would also likely decrease the amount of variability of scores on the CTS with fewer participants obtaining low scores.

Conclusions

The present investigation increases the understanding of the emotional and behavioural markers for young children exposed to domestic violence. It represents the first attempt to understand emotion regulation for young children in the context of exposure to domestic violence, during a situation other than a simulated conflict scenario. It has been argued that the Still Face scenario may be a more acceptable procedure for families than a simulated conflict situation, thus allowing emotion regulation in young children exposed to domestic violence to be more readily observed in clinical settings. The results of Study 1 indicated that emotion regulation could eventually be reliably coded during the Still Face procedure using the coding system adapted from Maughan and Cicchetti (2002). The benefit to using the coding system

from this research was that it has been developed and used with children exposed to domestic violence. The disadvantages were that it was unclear if the Still Face procedure was stressful enough to produce strong emotions and the validity of the coding system has yet to be established with younger children during the Still Face scenario. More research is needed before conclusions can be definitively drawn about the utility of the Still Face procedure with an older population and the validity of the coding system.

As posited by a developmental psychopathology framework, it was important for the present research to recognize the different influences on young children. As young children exist within the context of their families and developmental pathways are strongly influenced by their early relationships, it was important that variables associated with the child, the mother and the relationship between them be examined. While the present research was only able to assess three of these variables, future research can examine potential risk and protective factors alongside outcome variables associated with exposure to domestic violence. In addition, future research can examine the role of culture in understanding the experiences of young children.

When considering the results as a whole, there was more support for the association between domestic violence and behaviour problems, than emotion regulation. While it is unclear if this is due to measurement considerations or reflects the actual nature of the associations, this set of findings is consistent with previous research in this area. In addition, there is considerably more research examining the behavioural consequences of exposure to domestic violence than emotion regulation. Clearly more research is needed to have a better understanding of the potentially important relationship between exposure to domestic violence and emotion regulation.

Looking at the risk and protective variables as a group, it appears that the weight of the

evidence from previous research and this study is strongest for the protective role of attachment security as it relates to exposure to domestic violence. As it has been posited that this relationship is central to the development of the child and his or her sense of safety and security, maybe it is not surprising that this is where the strongest support was found. This certainly speaks to the importance of targeting this relationship in families where there has been domestic violence. While little support was found for the role of maternal psychological symptomology, modest support was found for the role of child temperament as a moderating variable. As previous research has found that the combination of a more difficult temperament with an anxious attachment relationship is associated with externalizing behaviour problems (Burgess et al., 2003), further exploration of this phenomenon is needed which could assess a combination of moderating variables (rather than assessing them one at a time).

The issue of sample size is often a factor in research with clinical samples. The present sample was collected over a two year period and included every possible participant. Thus, there is a balance between having a large enough sample, a sufficiently thorough protocol, and a reasonable data collection time period. The limitations with such a small sample include restrictions in number and types of data analyses, power limitations, and concerns about generalizability.

It is clear that there is still much research to be done in order to understand the relationship between exposure to violence and adjustment in young children. The connections between these variables do not appear to be straightforward and there is evidence that possible risk and protective variables may play a role in explicating this relationship. Continued research using a developmental psychopathology framework can help understand the nature of these relationships by considering the processes of equifinality and multifinality. Finally, public awareness of the

issues affecting young children who are exposed to domestic violence is necessary to ensure that they receive the best and most appropriate interventions at the earliest possible age.

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Appendix A

The Still Face Procedure

Introduction:

The still face is a standard play session between you and your child to see how he/she reacts when you respond to him/her in an unexpected way.

I will give you instructions over this cordless ear piece. Provide instruction for use of ear piece.

When this play session starts I want you to play with your child “as you would at home” for a few minutes.

Through the ear piece I will then ask you to make a neutral face. (Demonstrate a neutral face and have the parent practice.) During this period I would like you to keep this neutral face no matter what your child does to get your attention. Keeping the neutral face you are allowed to look at your child, but please do not touch, smile, or talk to your child. Many parents find this difficult, but it is important that you try very hard not to react.

Finally, I will let you know when the neutral face time has ended and I will ask you to go back to playing with your child “as you would at home”.

Procedure:

- 3 minutes Free Play
- 1.5 minutes Still Face
- 2 minutes Reunion (Free Play)

Toys:

Place the big red bucket in the middle of the room and place the following toys in it.

- Puppets (duck and sheep)
- Train and animals (giraffe, zebra, monkey, lion, etc.)
- Piglet
- Bus and people
- Doll and baby bottle
- Food and dishes (choose a few making sure to include a hotdog, corn, and a French fry)
- Where the Wild Things Are stuffed animal puppet(white)

Appendix B

Coding Manual for the Still Face Procedure

INFANTS'S EMOTIONAL RESPONSIVENESS TO THE STILL FACE PARADIGM

Instructions: Observational periods during and after the Still Face are divided into 30-second coding intervals. Within each of these intervals, raters should code for the presence and absence of the following 15 behavioral categories that reflect children's emotional reactivity.

Codes:

DISTRESS/FEAR

A. Sadness/dysphoria - Children's facial expression and/or posture reflect sadness or depressed affect. Clues reflecting sadness may include: (1) crying, (2) postural slumping (e.g., shoulders slumped down, head down), (3) inner corner of eyebrows are drawn up / skin below eyebrows is triangulated with the inner corner up, (4) the upper eyelid corner is raised, (5) the corner of the lips are down (See Field & Walden, 1982; Ekman & Friesen, 1977).

B. Crying - Visible tears and/or sobbing.

C. Whining - Child whimpers, frets, complains, or whines with or without actually crying.

D. Freezing - The child is tense, motionless, or "fixed in place" for 5 or more seconds (with the exception of small movements of the fingers). If the 5 seconds overlaps between 2 coding periods, code in the interval where it begins.

E. Anxiety/fear - The child expresses anxiety through facial expressions and/or posture. Facial expressions may reflect tension, anxiety, or concern through raised eyebrows, open mouth, grimacing, staring wide-eyed, biting lips or other odd lip movements; see pictures in Field & Walden, 1982). Gestures may include odd bodily movement or posturing that may indicate fear or anxiety, that is not seen throughout the entire lab session, and may include: stereotypic movements (e.g., rocking, flapping arms, stomping feet), postural tension (e.g., curling into a ball, sliding or holding body in an odd position), fidgeting, repeatedly rubbing eyes, wringing hands, twitching, repeated grooming gestures (e.g., smoothing hair or clothing, touching face, picking skin).

HOSTILITY

A. Anger - Child's facial expression and/or posture reflects anger. Examples may include giving "mean" looks to actress, furrowing of eyebrows (e.g., pushed downward and together), clenching of teeth, jaws, or fists, depressed lower lip, yelling/screaming, or intonation or content of verbal statements reflect anger. [See Field & Walden, 1982; Ekman & Friesen, 1977].

B. Physical Aggression Against Mother - The child physically assaults the mother or exhibits behavior that is intended to physically hurt the mother. Physical assaults may include hitting, pushing, kicking, pinching, shoving, pulling, biting, chasing the mother, and throwing/hitting with an object. Note that the intent to physically harm is the important part of the definition; the child need not be successful in hurting the mother (e.g., may throw something at her and miss).

C. Verbal/Nonverbal Aggression Against Mother - The child is verbally or nonverbally abusive toward the mother. Examples may include swearing, name-calling, screaming, mocking, scolding,

yelling, or raising a fist, if they are clearly directed toward the act. These behaviors should be coded regardless of whether the mother hears or witnesses the abusive act.

D. Object-Related Aggression - Verbal or physical hostility directed toward objects. Examples may include engaging in aggressive story or play themes, using toys as pretend weapons, and throwing or kicking objects/toys if the purpose of the act does not involve harming another.

E. Dysregulated Aggression - This form of aggression has an aimless, disorganized, and uncontrolled quality indicative of a loss of behavioral and emotional control. Examples include: (a) the child throws a toy across the room, (b) the child karate chops or punches the air, (c) the child kicks the wall. Nonexamples include: (a) the child throws a ball to his mother, with no apparent intention of harming either the object or his/her mother, (c) the child in using a Fischer Price plastic hammer and peg set proceeds to pound the plastic pegs into the holes - this is considered appropriate play with no apparent intention of damaging the toys. This code always (or almost always) co-occurs with some other form of aggression (e.g., karate chops in the air would be simultaneously coded as dysregulated aggression and object-related aggression) and "loss of control."

VIGILANCE

A. Preoccupation - During the still face, the child is watching the adult intently for **most of the coding period** (e.g., stops playing to listen and perhaps watch the mom). The quality of the play dramatically changes, or play is completely stopped. May also see an exaggerated startle response in the child. In situations immediately after the still face, the child appears to be watching intently in anticipation that the adult will engage in the Still Face again. (NOTE: THIS CANNOT BE CODED IN THE BASELINE).

SMILING/LAUGHING

A. Smiling/Laughing: Smiling or laughing to self or parent that is clearly an **anxious response** to the Still Face (NOTE: DO NOT CODE IN THE BASELINE).

CONCERN

A. Verbal Concern/ Inquiries about mother's feelings - The child verbally expresses concern regarding the Still Face or the possible consequences of the still face. The child asks about the mother's emotional or psychological state (e.g., "Mom, are you sad/okay?"). In non-verbal children listen for a change in inflection (rising inflection, change in volume) that is clearly not anger, but indicates concern (about the welfare of the mother).

C. Helping/instructing mother - The child helps or gives instructions to the mother. This may include using the mother as an object.

D. Comforting/protecting the mother - The child appears to comfort or protect the mother during the still face. Specific examples may include: (a) verbally comforting the mother, (b) hugging or touching the mother in an apparent attempt to comfort her, (c) standing near the mother in an attempt to protect the mother. NOTE: A child hugging or standing near the mother as a sole means of comforting oneself, and not the mother, should not be coded as protecting/comforting the mother

Questions and table from Maughan and colleagues (2007) which provided the criteria for emotion regulation classification.

1. Does the child exhibit generally low, moderate, or high levels of emotional behavioural reactivity in response to the witnessed exchange?
2. Does the child exhibit any overt displays of dysregulated emotion (e.g., presence of dysregulated aggression/loss of control, responses are aimless and/or disorganized)?
3. What is the duration of the child’s emotional responses across the simulation procedure (e.g., do responses subside or continue after witnessed reconciliation)?
4. Are emotional behavioral responses congruent with procedural demands (e.g., elevated reactivity during anger exposure and amelioration of responses during conflict resolution)?
5. Is the child able to effectively modulate the intensity and duration of his/her emotional behavioral responses (e.g., latency period between anger exposure and emotion expression, rise time to peak arousal, and ability to verbally process witnessed event with mother)?

Example responses to overall profile assessments for the three EMRP classifications

	Adaptively		
Overall Profile Assessments	Regulated EMRP	Undercontrolled EMRP	Overcontrolled EMRP
1. Level of emotional behavioral reactivity	Moderate	High	Low
2. Overt displays of dysregulated emotion	No	Yes	No
3. Duration of emotional behavioral responses	Moderate	Extended	Brief
4. Responses congruent with procedural demands	Yes	No	No
5. Effectively modulate emotion responses	Yes	No	No

EMRPs emotion regulation patterns.

Appendix C

Consent Form

**INFANT AND PRESCHOOL CLINIC
University of Saskatchewan**

INFORMED CONSENT FORM

We are asking you to take part in assessment and feedback sessions provided by the Infant and Preschool Clinic of the Psychology Services Centre of the Department of Psychology, University of Saskatchewan and to give permission for your child (children) to participate.

Contact Information: Department of Psychology, University of Saskatchewan
Leah Hatton, 966-2323
Alissa Schactman, 966-2323
Dr. Debby Lake (Clinical Supervisor), 966-2634
Dr. Patti McDougall (Research Supervisor), 966-8957

Purpose and Procedure: You will be asked to participate in an assessment that will take place over approximately four sessions. Each session will take from one to two hours. During the assessment sessions you will be asked to provide information about yourself and your family. Information will be collected by interviews, paper-and-pencil questionnaires and observations of you and your child taking part in different activities in the playroom. For example, we will collect information to learn more about your child and your family, including your concerns, your child's behaviour and development, and your relationship with your child. We are also interested in learning more about children's stress-response systems and will invite you to collect saliva samples from your child for this purpose. Following the assessment, you will have the chance to discuss treatment options with your therapist.

Potential Benefits for Participation: Although there are no anticipated direct benefits to participants, it is our hope that this research will contribute to a greater understanding of young children with early stressful experiences and/or challenging behaviors. As such, this research may benefit other families with similar concerns for their children.

Confidentiality: Any information you provide will be kept in strictest confidence. However, the clinic staff has a professional and legal responsibility to report to the appropriate authorities if there are reasons to suspect that a person is at risk of harming themselves or someone else, if there is suspicion that a child is being abused, or if files are subpoenaed by a court of law.

Information used for research purposes will be combined to look at averages and group data. No identifying information (such as names, occupations, addresses or phone numbers) will be connected to the data. Research involving group findings may be used in the completion of doctoral theses, in journal publications or presented at scholarly conferences.

Research and the Right to Withdraw: The Infant and Preschool Clinic is a teaching clinic. Information that you provide during the sessions may be used for research purposes, with your

consent. If you do not want your information to be used for research purposes, you will still have access to all clinical services offered by the Infant and Preschool Clinic.

Storage of Data: All written and video/audiotaped information you provide will be stored in a secure, locked area where it will be kept in strictest confidence. This information will be stored for a minimum of five years after completion of the research project. Clinically relevant information will be stored for ten years. After that time, all data will be systematically destroyed by the clinical supervisor.

Questions:

If you have any questions, please feel free to ask at any point; you are also free to contact any of the people listed above if you have questions at a later time. I understand that this study has been approved on ethical grounds by the University of Saskatchewan Behavioural Sciences Research Ethics Board on (May 24, 2006). Any questions regarding your rights as a participant in research may be addressed to that committee through the Office of Research Services (966-2084). Out of town participants may call collect.

Consent to Participate: I have read and understood the information provided above. I have been provided with an opportunity to ask questions and any questions have been answered satisfactorily. A copy of this consent form has been offered to me for my records. I consent to:

- Yes, I consent to participate in clinical services as described above.
- Yes, I consent to allow my sessions to be video/audiotaped.
- No, I do not consent to allow my sessions to be videotaped.
- Yes, I consent to allow the information I provide to be used for research purposes.
- No, I do not consent to allow the information I provide to be used for research purposes.

I understand that, at any time, I can decide not to continue in clinical and research activities and can withdraw consent for my material to be used for clinical and/or research purposes at any time. My signatures below indicate that I have read and understand the above information and the conditions for taking part in the Infant and Preschool Clinic. My signature indicates that I agree to participate and give my permission for my child(children) to participate under these conditions.

Witness Signature

Legal Guardian Signature

Date

Legal Guardian Signature

Appendix D

Conflict Tactics Scale

No matter how well a couple gets along, there are times when they disagree on major decisions, get annoyed about something the other person does, or just have spats or fight because they're in a bad mood or tired or for some other reason. They also use many different ways of trying to settle their differences. Please circle how many times you did each of these things in the past year, and how many times your partner did them in the past year.

- 1 = Once in the past year
- 2 = Twice in the past year
- 3 = 3-5 times in the past year
- 4 = 6-10 times in the past year
- 5 = 11-20 times in the past year
- 6 = More than 20 times in the past year
- 7 = Not in the past year, but it did happen before
- 0 = This has never happened

	Respondent								Partner							
A. Discussed an issue calmly	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
B. Got information to back up your side of things	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
C. Brought in, or tried to bring in, someone to help settle things	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
D. Insulted or swore at him/her	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
E. Sulked or refused to talk about an issue	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
F. Stomped out of the room or house or yard	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
G. Cried	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
H. Did or said something to spite him/her	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
I. Threatened to hit or throw something at him/her	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
J. Threw or smashed or hit or kicked something	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
K. Threw something at him/her	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
L. Pushed, grabbed, or shoved him/her	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
M. Slapped him/her	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
N. Kicked, bit, or hit him/her with a fist	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
O. Hit or tried to hit him/her with something	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
P. Beat him/her up	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
Q. Threatened him/her with a knife or gun	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0
R. Used a knife or fired a gun	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0

Appendix E

The Conflict Tactics Scale 2

RELATIONSHIP BEHAVIOURS

No matter how well a couple gets along, there are times when they disagree, get annoyed with the other person, want different things from each other, or just have spats or fights because they are in a bad mood, are tired, or for some other reason. Couples also have many different ways of trying to settle their differences. This is a list of things that might happen when you have differences. Please circle how many times you did each of these things in the past year, and how many times your partner did them in the past year. If you or your partner did not do one of these things in the past year, but it happened before that, circle “7”.

How often did this happen?

- 1 = Once in the past year
- 2 = Twice in the past year
- 3 = 3-5 times in the past year
- 4 = 6-10 times in the past year
- 5 = 11-20 times in the past year
- 6 = More than 20 times in the past year
- 7 = Not in the past year, but it did happen before
- 0 = This has never happened

1. I showed my partner I cared even though we disagreed.	1 2 3 4 5 6	7 0
2. My partner showed care for me even though we disagreed.	1 2 3 4 5 6	7 0
3. I explained my side of a disagreement to my partner.	1 2 3 4 5 6	7 0
4. My partner explained his or her side of a disagreement to me.	1 2 3 4 5 6	7 0
5. I insulted or swore at my partner.	1 2 3 4 5 6	7 0
6. My partner did this to me.	1 2 3 4 5 6	7 0
7. I threw something at my partner that could hurt.	1 2 3 4 5 6	7 0
8. My partner did this to me.	1 2 3 4 5 6	7 0
9. I twisted my partner’s arm or hair.	1 2 3 4 5 6	7 0
10. My partner did this to me.	1 2 3 4 5 6	7 0
11. I had a sprain, bruise, or small cut because of a fight with my partner.	1 2 3 4 5 6	7 0
12. My partner had a sprain, bruise, or small cut because of a fight with me.	1 2 3 4 5 6	7 0
13. I showed respect for my partner’s feelings about an issue.	1 2 3 4 5 6	7 0
14. My partner showed respect for my feelings about an issue.	1 2 3 4 5 6	7 0
15. I made my partner have sex without a condom.	1 2 3 4 5 6	7 0

16. My partner did this to me.	1 2 3 4 5 6	7 0
17. I pushed or shoved my partner.	1 2 3 4 5 6	7 0
18. My partner did this to me.	1 2 3 4 5 6	7 0
19. I used force (like hitting, holding down, or using a weapon) to make my partner have oral or anal sex.	1 2 3 4 5 6	7 0
20. My partner did this to me.	1 2 3 4 5 6	7 0
21. I used a knife or gun on my partner.	1 2 3 4 5 6	7 0
22. My partner did this to me.	1 2 3 4 5 6	7 0
23. I passed out from being hit on the head by my partner in a fight.	1 2 3 4 5 6	7 0
24. My partner passed out from being hit on the head in a fight with me.	1 2 3 4 5 6	7 0
25. I called my partner fat or ugly.	1 2 3 4 5 6	7 0
26. My partner called me fat or ugly.	1 2 3 4 5 6	7 0
27. I punched or hit my partner with something that could hurt.	1 2 3 4 5 6	7 0
28. My partner did this to me.	1 2 3 4 5 6	7 0
29. I destroyed something belonging to my partner.	1 2 3 4 5 6	7 0
30. My partner did this to me.	1 2 3 4 5 6	7 0
31. I went to a doctor because of a fight with my partner.	1 2 3 4 5 6	7 0
32. My partner went to a doctor because of a fight with me.	1 2 3 4 5 6	7 0
33. I choked my partner.	1 2 3 4 5 6	7 0
34. My partner did this to me.	1 2 3 4 5 6	7 0
35. I shouted or yelled at my partner.	1 2 3 4 5 6	7 0
36. My partner did this to me.	1 2 3 4 5 6	7 0
37. I slammed my partner against a wall.	1 2 3 4 5 6	7 0
38. My partner did this to me.	1 2 3 4 5 6	7 0
39. I said I was sure we could work out a problem.	1 2 3 4 5 6	7 0
40. My partner was sure we could work it out.	1 2 3 4 5 6	7 0
41. I needed to see a doctor because of a fight with my partner, but I didn't.	1 2 3 4 5 6	7 0
42. My partner needed to see a doctor because of a fight with me, but didn't.	1 2 3 4 5 6	7 0
43. I beat up my partner.	1 2 3 4 5 6	7 0
44. My partner did this to me.	1 2 3 4 5 6	7 0
45. I grabbed my partner.	1 2 3 4 5 6	7 0
46. My partner did this to me.	1 2 3 4 5 6	7 0
47. I used force (like hitting, holding down, or using a weapon) to make my partner have sex.	1 2 3 4 5 6	7 0
48. My partner did this to me.	1 2 3 4 5 6	7 0
49. I stomped out of the room or house or yard during a disagreement.	1 2 3 4 5 6	7 0
50. My partner did this to me.	1 2 3 4 5 6	7 0
51. I insisted on sex when my partner did not want to (but did not use physical force).	1 2 3 4 5 6	7 0
52. My partner did this to me.	1 2 3 4 5 6	7 0
53. I slapped my partner.	1 2 3 4 5 6	7 0
54. My partner did this to me.	1 2 3 4 5 6	7 0
55. I had a broken bone from a fight with my partner.	1 2 3 4 5 6	7 0
56. My partner had a broken bone from a fight with me.	1 2 3 4 5 6	7 0

57. I used threats to make my partner have oral or anal sex.	1 2 3 4 5 6	7 0
58. My partner did this to me.	1 2 3 4 5 6	7 0
59. I suggested a compromise to a disagreement.	1 2 3 4 5 6	7 0
60. My partner did this to me.	1 2 3 4 5 6	7 0
61. I burned or scalded my partner on purpose.	1 2 3 4 5 6	7 0
62. My partner did this to me.	1 2 3 4 5 6	7 0
63. I insisted my partner have oral or anal sex (but did not use physical force).	1 2 3 4 5 6	7 0
64. My partner did this to me.	1 2 3 4 5 6	7 0
65. I accused my partner of being a lousy lover.	1 2 3 4 5 6	7 0
66. My partner accused me of this.	1 2 3 4 5 6	7 0
67. I did something to spite my partner.	1 2 3 4 5 6	7 0
68. My partner did this to me	1 2 3 4 5 6	7 0
69. I threatened to hit or throw something at my partner.	1 2 3 4 5 6	7 0
70. My partner did this to me.	1 2 3 4 5 6	7 0
71. I felt physical pain that still hurt the next day because of a fight with my partner.	1 2 3 4 5 6	7 0
72. My partner still felt physical pain the next day because of a fight we had.	1 2 3 4 5 6	7 0
73. I kicked my partner.	1 2 3 4 5 6	7 0
74. My partner did this to me.	1 2 3 4 5 6	7 0
75. I used threats to make my partner have sex.	1 2 3 4 5 6	7 0
76. My partner did this to me.	1 2 3 4 5 6	7 0
77. I agreed to try a solution to a disagreement my partner suggested.	1 2 3 4 5 6	7 0
78. My partner agreed to try a solution I suggested.	1 2 3 4 5 6	7 0

Appendix F

CTS and CTS-2 Psychological and Physical Aggression Items

CTS	CTS-2
Psychological Aggression	
Insulted or swore at him/her	Insulted or swore at my partner
Stomped out of the room or house or yard	Stomped out of the room or house or yard during a disagreement
Did or said something to spite him/her	Did something to spite my partner
Threatened to hit or throw something at him/her	Threatened to hit or throw something at my partner
Physical Aggression	
Threw something at him/her	Threw something at my partner that could hurt
Pushed, grabbed, or shoved him/her	*Pushed or shoved my partner *Grabbed my partner
Slapped him/her	Slapped my partner
Used a knife or fired a gun	Used a knife or gun on my partner
Hit or tried to hit him/her with something	Punched or hit my partner with something that could hurt
Beat him/her up	Beat up my partner
Kicked, bit, or hit him/her with a fist	Kicked my partner

Note: Each participant answered the question about themselves and their partner

* In order to combine the items into 1 item (like the CTS), for participants who gave a score greater than 0 on both items, the total of both items was added together and divided in half.

Appendix G

Attachment Q-Sort Items

The following is a list of behaviours that may or may not describe your child. The purpose of reading through this list is to help you get familiar with these behaviours. Over the next few days we will want you to think about the behaviours on this list while you are with your child. We will then ask you to describe your child using these behaviours.

1. Child readily shares with mother or lets her hold things if she asks to.
2. When child returns to mother after playing, he is sometimes fussy for no clear reason.
3. When he is upset or injured, child will accept comforting from adults other than mother.
4. Child is careful and gentle with toys and pets.
5. Child is more interested in people than in things.
6. When child is near mother and sees something he wants to play with, he fusses or tries to drag mother over to it.
7. Child laughs and smiles easily with a lot of different people.
8. When child cries, he cries hard.
9. Child is lighthearted and playful most of the time.
10. Child often cries or resists when mother takes him to bed for naps or at night.
11. Child often hugs or cuddles against mother, without her asking or inviting him to do so.
12. Child quickly gets used to people or things that initially made him shy or frightened him.
13. When the child is upset by mother's leaving, he continues to cry or even gets angry after she is gone.
14. When child finds something new to play with, he carries it to mother or shows it to her from across the room.
15. Child is willing to talk to new people, show them toys, or show them what he can do, if mother asks him to.
16. Child prefers toys that are modeled after living things (e.g., dolls, stuffed animals).
17. Child quickly loses interest in new adults if they do anything that annoys him.
18. Child follows mother's suggestions readily, even when they are clearly suggestions rather than orders.
19. When mother tells child to bring or give her something, he obeys.
20. Child ignores most bumps, falls, or startles.
21. Child keeps track of mother's location when he plays around the house.
22. Child acts like an affectionate parent toward dolls, pets, or infants.
23. When mother sits with other family members, or is affectionate with them, child tries to get mom's affection for himself.
24. When mother speaks firmly or raises her voice at him, child becomes upset, sorry, or ashamed about displeasing her.
25. Child is easy for mother to lose track of when he is playing out of her sight.
26. Child cries when mother leaves him at home with babysitter, father, or grandparent.
27. Child laughs when mother teases him.
28. Child enjoys relaxing in mother's lap.
29. At times, child attends so deeply to something that he doesn't seem to hear when people speak to him.
30. Child easily becomes angry with toys.

31. Child wants to be the center of mother's attention. If mom is busy or talking to someone, he interrupts.
32. When mother says "No" or punishes him, child stops misbehaving (at least at that time). Doesn't have to be told twice.
33. Child sometimes signals mother (or gives the impression) that he wants to be put down, and then fusses or wants to be picked right back up.
34. When child is upset about mother leaving him, he sits right where he is and cries. Doesn't go after her.
35. Child is independent with mother. Prefers to play on his own; leaves mother easily when he wants to play.
36. Child clearly shows a pattern of using mother as a base from which to explore. Moves out to play; Returns or plays near her; moves out to play again, etc.
37. Child is very active. Always moving around. Prefers active games to quiet ones.
38. Child is demanding and impatient with mother. Fussing and persists unless she does what he wants right away.
39. Child is often serious and businesslike when playing away from mother or alone with his toys.
40. Child examines new objects or toys in great detail. Tries to use them in different ways or to take them apart.
41. When mother says to follow her, child does so.
42. Child recognizes when mother is upset. Becomes quiet or upset himself. Tries to comfort her. Asks what is wrong, etc.
43. Child stays closer to mother or returns to her more often than the simple task of keeping track of her requires.
44. Child asks for and enjoys having mother hold, hug, and cuddle him.
45. Child enjoys dancing or singing along with music.
46. Child walks and runs around without bumping, dropping, or stumbling.
47. Child will accept and enjoy loud sounds or being bounced around in play, if mother smiles and shows that it is supposed to be fun.
48. Child readily lets new adults hold or share things he has, if they ask to.
49. Runs to mother with a shy smile when new people visit the home.
50. Child's initial reaction when people visit the home is to ignore or avoid them, even if he eventually warms up to them.
51. Child enjoys climbing all over visitors when he plays with them
52. Child has trouble handling small objects or putting small things together.
53. Child puts his arms around mother or puts his hand on her shoulder when she picks him up.
54. Child acts like he expects mother to interfere with his activities when she is simply trying to help him with something.
55. Child copies a number of behaviors or way of doing things from watching mother's behavior.
56. Child becomes shy or loses interest when an activity looks like it might be difficult.
57. Child is fearless.
58. Child largely ignores adults who visit the home Finds his own activities more interesting.
59. When child finishes with an activity or toy, he generally finds something else to do without returning to mother between activities.

60. If mother reassures him by saying "It's OK" or "It won't hurt you", child will approach or play with things that initially made him cautious or afraid.
61. Plays roughly with mother. Bumps, scratches, or bites during active play. (Does not necessarily mean to hurt mom)
62. When child is in a happy mood, he is likely to stay that way all day.
63. Even before trying things himself, child tries to get someone to help him.
64. Child enjoys climbing all over mother when they play.
65. Child is easily upset when mother makes him change from one activity to another.
66. Child easily grows fond of adults who visit his home and are friendly to him.
67. When the family has visitors, child wants them to pay a lot of attention to him.
68. On the average, child is a more active type person than mother.
69. Rarely asks mother for help. Middle if child is too young to ask.
70. Child quickly greets his mother with a big smile when she enters the room. (Shows her a toy, gestures, or says "Hi, Mommy").
71. If held in mother's arms, child stops crying and quickly recovers after being frightened or upset.
72. If visitors laugh at or approve of something the child does, he repeats it again and again.
73. Child has a cuddly toy or security blanket that he carries around, takes it to bed, or holds when upset.
74. When mother doesn't do what child wants right away, child behaves as if mom were not going to do it at all.
75. At home, child gets upset or cries when mother walks out of the room. (May or may not follow her.)
76. When given a choice, child would rather play with toys than with adults.
77. When mother asks child to do something, he readily understands what she wants (May or may not obey.)
78. Child enjoys being hugged or held by people other than his parents and/or grandparents.
79. Child easily becomes angry at mother.
80. Child uses mother's facial expressions as good source of information when something looks risky or threatening.
81. Child cries as a way of getting mother to what he wants.
82. Child spends most of his play time with just a few favorite toys or activities.
83. When child is bored, he goes to mother looking for something to do.
84. Child makes at least some effort to be clean and tidy around the house.
85. Child is strongly attracted to new activities and new toys.
86. Child tries to get mother to imitate him, or quickly notices and enjoys it when mom imitates him on her own.
87. If mother laughs at or approves of something the child has done, he repeats again and again.
88. When something upsets the child, he stays where he is and cries.
89. Child's facial expressions are strong and clear when he is playing with something.
90. If mother moves very far, child follows along and continues his play in the area she has moved to. (Doesn't have to be called or carried along; doesn't stop play or get upset.)