

Post-traumatic Stress Symptoms in Siblings Exposed to Intimate Partner Violence:

The Role of Mother-Child Relationships

by

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### Abstract

It is well documented that exposure to intimate partner violence (IPV) negatively affects children's developmental outcomes (see reviews: Chan & Yeung, 2009; Evans, Davies & DiLillo, 2008; Kitzmann, Gaylord, Holt & Kenny, 2003; Wolfe, Crooks, Lee, McIntyre-Smith & Jaffe, 2003) and may lead to the expression of symptomatology consistent with post-traumatic stress disorder (PTSD) (Graham-Bermann, De Voe, Mattis, Lynch & Thomas, 2006; Kilpatrick & Williams, 1997, 1998; Rossman, 1998). In North America, the prevalence and incidence rates of childhood experiences of IPV vary greatly due to definitional, theoretical, and methodological issues (Holden, 2003). However, regardless of this variation, it remains a serious current public health problem in Canada (Public Health Agency of Canada, 2010). While many risk and protective factors have been investigated, there is currently no consensus as to the nature of the influence of mother-child relationships on child outcomes such as post-traumatic stress symptoms in IPV-exposed families. The present study examined the role of maternal influences, such as the quality of mother-child interaction, maternal depression, and maternal violence history on sibling trauma outcomes. Results indicated that increased maternal depressive symptoms, maternal violence history, and negative mother-child interactions did not significantly predict post-traumatic stress symptoms in siblings exposed to IPV. Findings provided support for the notion of maternal compensatory strategies used to protect siblings from the detrimental consequences of IPV exposure. Strengths, limitations, and future research considerations were also presented.

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**Post-traumatic Stress Symptoms in Siblings Exposed to Intimate Partner Violence:  
The Role of Mother-Child Relationships**

Childhood experiences of intimate partner violence (IPV) are all too common place in society. Childhood exposure to IPV, also commonly referred to as family violence, domestic violence, spousal abuse, marital violence or interparental violence, may include: a child hearing the violence, witnessing the violence and/or becoming directly involved in the violence (Carlson, 2000; Cunningham & Baker, 2004; Graham-Bermann, 2001; Holden, 2003). According to the United Nations Secretary-General's Study on Violence Against Children, as many as 275 million children worldwide are exposed to violence in the home every year (Pinheiro, 2006), while leading family violence experts estimate the prevalence and incidence rates of child witnesses of this type of violence in North America to be upwards of 10 million children per year (Straus & Gelles, 1990). According to Statistics Canada and the Canadian Centre for Justice Statistics, “children living in close to half a million households in Canada saw or heard one parent being assaulted by the other in a five year period” (Dauvergne & Johnson, 2001). Furthermore, Canadian data from the 2004 General Social Survey on Victimization indicated that 394,000 spousal violence victims reported that their child(ren) saw or heard the intimate partner violence (Beattie, 2005), while the Canadian Incidence of Study of Reports of Child Abuse and Neglect (2003) found that the rate of exposure to domestic violence between 1998 and 2003 increased by 259%, from 1.72 to 6.17 cases of primary substantiated maltreatment per 1,000 children (Trocmé et al., 2005).

The detrimental impact of childhood exposure to IPV has been well documented, and includes a wide variety of consequences, including but not limited to: negative emotional and behavioural functioning, compromised social competence and cognitive functioning, poor school



achievement, psychopathology and general health concerns (see reviews: Carpenter & Stacks, 2009; Chan & Yeung, 2009; Evans, Davies & DiLillo, 2008; Holt, Buckley & Whelan, 2008; Kernic, Wolf, Holt, McKnight, Huebner & Rivara, 2003; Kitzmann, Gaylord, Holt & Kenny, 2003; Wolfe, Crooks, Lee, McIntyre-Smith & Jaffe, 2003). Specifically, children exposed to IPV may experience a variety of behavioural and emotional issues including internalizing (e.g., depression, anxiety disorders) and externalizing (e.g., aggressiveness, conduct disorders) behavioural problems (Cummings & Davies, 1994; Lieberman, Van Horn & Ippen, 2005; Margolin & Gordis, 2000; Osofsky, 2003). Additionally, some children may display trauma symptoms consistent with post-traumatic stress disorder (PTSD) resulting from exposure to IPV (Graham-Bermann, De Voe, Mattis, Lynch & Thomas, 2006; Graham-Bermann, & Levendosky, 1998; Kilpatrick & Williams, 1997, 1998; McCloskey & Walker, 2000). Although this serious adjustment problem has gained increasing attention in the literature (Graham-Bermann & Levendosky, 1998; Margolin & Vickerman, 2007; Vickerman & Margolin, 2007; Graham-Bermann et al., 2006) it is not yet well understood.

It is also important to note that some children exposed to IPV do not appear to demonstrate maladjustment difficulties (Margolin & Gordis, 2004; Rutter, 2007). Further investigation is clearly needed of the potential risk and protective factors that may either intensify children's maladjustment, or help protect children from potential negative outcomes associated with exposure to IPV (Letourneau, Fedick & Willms, 2007; Grych, Jouriles, Swank, McDonald, & Norwood, 2000). The developmental psychopathology perspective and the concepts of risk and resiliency, and emotional security provide relevant theoretical frameworks needed to understand the interplay of individual characteristics, familial characteristics, and environmental circumstances influencing child outcomes (Graham-Bermann, De Voe, Mattis, Lynch & Thomas,

2006; Rutter, 2007). Of particular importance and interest to the present study is the role of the mother-child relationship for IPV exposed children (Graham-Bermann & Levendosky, 1998; Kilpatrick & Williams, 1997, 1998; Letourneau et al., 2007; Rossman, 1998). While some previous work has begun to examine the risks posed by negative mother-child relationships for child outcomes (Huth-Bocks & Hughes, 2008), little is known about the potential protective influence provided by positive mother-child relationships (Haight, Shim, Linn & Swinford, 2007; Letourneau et al., 2007). The following literature review will begin with an overview of the terminology and taxonomy of IPV, and survey the selected theoretical frameworks of developmental psychopathology and family risk perspectives. Subsequently, research on the effects of childhood exposure to IPV with a focus on post-traumatic stress symptoms will be reviewed. The unique role of the mother-child relationship in families with a history of intimate partner violence will be discussed, and specific hypotheses will be proposed.

### **Terminology and Taxonomy of Intimate Partner Violence**

Accurate measurement of childhood exposure to IPV is dependent upon both the type of definition used and the methodology implemented (Holden 2003; Murray & Graybeal 2007). The lack of commonality of definitions and discontinuity of methodologies employed across different studies has had detrimental effects on the documentation of accurate prevalence and incidence rates for children exposed to IPV (Fantuzzo & Mohr 1999; Jouriles, McDonald, Norwood & Ezell, 2001; Knutson, Lawrence, Taber, Bank & De Garmo, 2009). Furthermore, depending on various circumstances such as geographical location, academic training and theoretical framework, the definitions and scope of taxonomy for IPV vary substantially across studies. Recent work highlighting the challenges of trying to operationalize a definition of IPV has suggested that prevalence estimates may be underestimated considering that many studies

were limited to two-parent households and/or economically advantaged homes (Knutson et al., 2009). Lack of clear definitions and terminology across studies is common. For example, one recent meta-analysis included studies utilizing various terminologies, such as domestic violence, interparental violence, and marital violence, which were defined and measured very differently across studies (Kitzmann et al., 2003). A more recent review by Holt and colleagues (2008) further highlighted the limitations of using the term domestic violence, broadly defined as “the intimate context within which one partner is abused by another, involving both men and women as victims and same sex partner violence” (p. 798). Holt et al. (2008) acknowledged that the term domestic violence has been criticized for being gender neutral and primarily emphasizing physical assaults while excluding other forms of violence. In their review, they used the terms interparental violence and intimate partner violence synonymously when referring specifically to violence in an intimate context where women were abused by men (Holt et al. 2008).

To further complicate matters, Murray and Graybeal (2007) emphasized that as “there are no universally accepted definitions of the terms intimate partner, intimate partner violence, violence and domestic violence, that these definitional issues translate into measurement issues in that it becomes challenging to measure a construct when no clear, operational definition of that construct exists” (p. 1253). Prinz and Ferick (2003) stressed the importance of developing a common language or taxonomy and common measurement approaches among family violence researchers. Edleson and his colleagues (2007) stated “that exposure is most commonly defined as being within sight or sound of the violence...However there are compelling arguments to redefine and assess a child’s exposure to violent events in broader terms” (p. 963). Knutson et al. (2009) reported that there is a tendency to treat children’s exposure to IPV as a static and binary category, but that it should instead be viewed as a continuous and dynamic process considering

the frequency and severity of the violence. Holden (2003) also discussed the importance of moving beyond the dichotomy of considering whether the child observed or overheard the violence or not, to ten discrete categories that form a taxonomy for children exposed to domestic violence. Holden's proposed taxonomy includes: being exposed prenatally, intervening, being victimized, participating in the violence, eye witnessing the violence, overhearing the violence, observing the initial effects, experiencing the aftermath, hearing about the violence and being ostensibly unaware. Furthermore, Holden stressed the importance of using the term "exposed" instead of "witnessed" or "observed" as it is more inclusive of the different types of experiences and does not assume that the child physically observed the violence but may have heard and/or experienced the threat of intimate violence. Others have concurred that the aftermath of IPV should also be considered, because it may also be traumatic for the children involved (Edleson, Mbilinyi, Beeman, & Hagemester, 2003).

### **Present Definition**

As there is currently no general consensus regarding the terminology and taxonomy used to define intimate partner violence, for the purpose of the present study it will be defined as "physical or psychological violence between adults who are present and/or past sexual/intimate partners in a heterosexual or homosexual relationship" (CDC, 2009). Although it is acknowledged that sexual abuse and/or assault are important components of IPV, they are beyond the scope of the present study. This particular definition was chosen for its inclusivity of non-married partnerships, individuals not involved in sexual relationships, and intimate relationships lasting longer than seven days (CDC, 2009). Furthermore, the term intimate partner violence (IPV) will be used exclusively in the present study, even when reviewing literature that used other terminology such as domestic violence, interparental violence, partner violence, partner

maltreatment, family violence, spousal abuse, wife abuse, and marital violence. Given the present definition of IPV, work that investigated interparental conflict, intimate partner conflict, marital conflict and family conflict was not reviewed.

### **Theoretical Frameworks and Perspectives**

Similar to the challenges regarding terminology and taxonomy, there are several competing theoretical frameworks in the literature that seek to explain the effects of exposure to IPV on children (Levendosky, Bogat & von Eye, 2007). For example, the biopsychosocial perspective, trauma theory, general systems theory, ecological theory, family systems theory, family stress theory, social learning theory, the emotional security hypothesis and developmental psychopathology have all been proposed to understand developmental outcomes for children exposed to IPV (Cowan & Cowan, 2006; Cummings, Davies & Campbell, 2000; Levendosky et al., 2007; Johnson & Lieberman, 2007; Margolin, 2005; Patterson, 2002). Interestingly, all of these theoretical frameworks and perspectives assign an important role to the influence of maternal-child relationships on developmental outcomes for children exposed to IPV (Luther, Cicchetti & Becker, 2000; Levendosky et al., 2007; Cummings et al., 2000; Rutter & Sroufe, 2000). Historically, research has focused on mother-child relationships as a unidirectional mechanism with the parent being seen as the sole determinant of child outcomes (Kuczynski, 2003, Maccoby, 2007). More recently there has been a shift to accepting bidirectional causality and transactional models (Sameroff & Seifer, 1983), in which both individuals in the dyad are considered to be in a constant reciprocal process of evolution, mutually influencing each other's outcomes. Two main theoretical perspectives were chosen for the present study, selected on the basis of their ability to explain both the positive and negative influences of mother-child relationships on developmental outcomes for children exposed to IPV (Cummings et al., 2000;

Kucynski, 2003; Sameroff & Fiese, 2000). These include the developmental psychopathology perspective and constructs of risk and resiliency and emotional security.

### **Developmental Psychopathology**

The developmental psychopathology perspective is useful for understanding the role of risk and protective factors in developmental outcomes for children exposed to IPV because it emphasizes the investigation of differing pathways of development, including both pathological and non-pathological trajectories (Cummings et al., 2000; Rutter & Sroufe, 2000). The principles of developmental psychopathology focus on the dynamic mediating processes that account for patterns of adaption and maladaptation, and the identification of multiple elements that influence children's functioning both positively and negatively over time (Cowan & Cowan, 2006; Cummings et al., 2000). The four main assumptions of the developmental psychopathology perspective are: 1) that development is a dynamic process of interaction between multiple factors within and outside individuals; 2) that individuals play an active role in their own development; 3) the investigation of multiple domains and multiple responses within individuals is important whenever possible, and 4) the identification of contextual factors, including environmental situations that influence children's developmental outcomes, is key to understanding how and why different pathways are followed by individuals facing similar circumstances (Cummings et al., 2000).

Furthermore, Cowan and Cowan (2006) advocate the study of developmental psychopathology from a family systems and family risk factor perspectives when investigating issues within families, such as IPV. They state "[that] formulations from a family systems or a family risk factor perspective can provide value-added information, both in predicting the

trajectories people follow in their journeys toward or away from diagnosed disorders, and in planning interventions for those at risk or already in distress” (p. 532). A better understanding of the etiology and locus of psychopathology, such as the mediating role of family relationships in the developmental outcomes of children exposed to IPV, can be obtained by utilizing a family risk factor and family systems approach within the context of developmental psychopathology (Cowan & Cowan, 2006). A developmental psychopathology perspective also provides the flexibility warranted by a multi-method multi-informant methodology (Cummings et al., 2000). Furthermore, this perspective is useful to contextualize the concepts of risk and resiliency and emotional security for children exposed to IPV.

### **Risk and Resiliency**

Within a developmental psychopathology framework, the concepts of risk and resiliency are useful for further elucidating how an individual’s cumulative risk and protective factors influence their response to traumatic and threatening experiences (Cowan & Cowan, 2006). Resilience can be defined as “the process of, capacity for, or outcome of successful adaption despite challenging or threatening circumstances” (Cummings et al., 2000, p.127). Martinez-Torteya, Bogat, von Eye, and Levendosky (2009) characterized resilience as a dynamic process where individuals are resistant to specific environmental hazards or display adaptation during one situation but not another. Complementarily, “risk, by definition, reflects a notion that children experiencing a particular risk factor have an increased probability of experiencing psychological problems”(Cummings et al., 2000, p. 138), while protective factors refer specifically to characteristics that may enhance adaption in the face of adversity (Martinez-Torteya et al., 2009).

### **Emotional Security**

Consistent with the developmental psychopathology perspective, the construct of emotional security is also useful to help understand the role of the mother-child relationship and children's trauma resulting from IPV exposure (Cummings, Davies & Campbell, 2000). Building upon attachment theory, the emotional security hypothesis postulates that exposure to interparental discord increases a child's vulnerability to psychological problems by undermining children's sense of security and safety in the family (Davies, Cummings & Winter, 2004). The three main tenets of the emotional security hypothesis are: 1) the primary goal motivating children's actions and reactions is to promote and preserve their own sense of emotional security; 2) emotional security serves a motivational function by guiding children to regulate their exposure to stressful parental emotion and 3) children's internal representations of family relations influence the process of emotional security (Cummings et al., 2000). In the context of IPV exposure, the emotional security hypothesis proposes that children may develop concerns about their sense of security resulting from disrupted parent-child relationships and family instability. Furthermore, children may become increasingly anxious about their personal safety and well-being in the context of exposure to IPV thus leading to emotional instability (Davies et al., 2004). Rather than becoming desensitized to violent incidents over time, the emotional security hypothesis postulates that children will become increasingly sensitized to both violent events and the context of threat surrounding them. This sensitization may contribute to increasing anxiety, wariness and vigilance over time which may erode children's trust in their caregivers as well as their feelings of safety and security within the family.

In summary, while early research examining the effects of exposure to violence on children focused on identifying the consequences of exposure, more recent research has focused



on explicating the processes or mechanisms that influence variation in individual responses to adversity. Therefore, a developmental psychopathology framework informed by the concepts of risk and resilience and emotional security provides a useful theoretical perspective for the present research as it can be used to address the role mother-child relationships may play in exacerbating or ameliorating the adjustment of children exposed to IPV. In the next section, the overall effects of exposure to IPV on children will be reviewed, with an emphasis on post-traumatic stress symptoms (PTSS). Using the theoretical frameworks outlined above, the known risk and protective factors for post-traumatic stress will be surveyed, including the potential mechanisms and processes by which they operate, as well as the contexts in which they are found.

### **Effects of Exposure to Intimate Partner Violence**

It is universally accepted and empirically supported that children and adolescents exposed to intimate partner violence are at an increased risk for a wide variety of physical, psychological, cognitive, social and behavioural problems and maladaptation (Bair-Merritt, Blackstone & Feudtner, 2006; Carlson, 2000; Hughes & Graham-Bermann, 1998; Rutter, 2007; Sternberg, Lamb, Guterman & Abbott, 2006). However, recent meta-analyses and critiques of the literature studying these effects report results that appear to be diverse and even inconsistent (Chan & Yeung, 2009; Kitzmann et al. 2003; Holt et al., 2008; Wolfe, et al. 2003). According to Chan and Yeung (2009) “the synthetic studies of Kitzmann et al. (2003), Steinberg, Baradaran, et al. (2006), and Wolfe et al. (2003) agree that children from a violent family do have more adjustment problems than their counterparts from non-violent households, their findings about the moderating effects appeared to be inconsistent” (p. 314).

Kitzmann, Gaylord, Holt and Kenny (2003) analyzed 118 studies of psychosocial outcomes of children exposed to IPV and reported a significant association between exposure and children's problems, and that witnesses had significantly worse outcomes than non-witnesses. According to Martinez-Torteya et al. (2009), "domestic violence exposed children were 3.7 times more likely than non-exposed children to develop internalizing and externalizing problems" (p. 562). Furthermore, Chan & Yeung (2009) reviewed 37 refereed journal articles from 1995 to 2006 and concluded "that adjustment outcomes including PTSD, internalizing and externalizing problems appeared to be more strongly affected by exposure to family violence, while those in terms of perceptions/cognitions of exposure to family violence, interpersonal relationships and competence showed lesser impacts" (p.320).

The majority of maladjustment outcomes for children exposed to IPV may be classified into three main categories: internalizing problems, externalizing problems, and trauma symptoms. Adjustment difficulties in the area of social competence are also known to be associated with childhood exposure to IPV including difficulties with academic achievements, and problems with social competence (Fergusson & Horwood, 1998; Kernic et al., 2002; Osofsky, 2003; Silverstein, Augustyn, Cabral & Zuckerman, 2006).

### **Internalizing Problems**

The most common internalizing problems associated with childhood exposure to IPV include: depression, withdrawal, low-self esteem, and anxious behaviour (Cummings & Davies, 1994; Fantuzzo & Mohr, 1999; Graham-Bermann, 1996; Margolin & Gordis, 2004). Appraisals of threat and self-blame for violence have been linked to more serious internalizing problems (Skopp, McDonald, Manke & Jouriles, 2005; Jouriles, McDonald, Norwood, Ware, Spiller &

Swank, 2000). Moreover, some findings report that female children may be more vulnerable to internalizing difficulties than male children (Leinonen, Solantaus & Punamäki, 2003; Letourneau et al., 2007).

### **Externalizing Problems**

The most common externalizing difficulties noted for children exposed to IPV are: aggression, delinquency, conduct problems, substance abuse, hyper-activity, attention difficulties and impulsivity (Cummings et al. 1994; Margolin & Gordis, 2004; Sternberg et al., 2006 (a); Herrera & McCloskey, 2001; Ybarra, Wilkens, Lieberman, 2007). Limited research involving siblings exposed to IPV suggest that male siblings are particularly vulnerable to externalizing problem as they may be the topic of parental disputes more often, leading them to feel responsible for the IPV and more likely to physically involve themselves while offering protection for their mother (Edleson et al., 2003; Skopp et al., 2005). Furthermore, externalizing problems are believed to be related to the severity and duration of children's exposure to IPV, meaning that children exposed to more severe forms of IPV for longer periods are more likely to display externalizing as opposed to internalizing difficulties (Carlson, 2000; Skopp et al., 2005).

### **Posttraumatic Stress Symptoms**

Recent research suggests that children exposed to IPV are at an increased risk for post-traumatic stress disorder (PTSD) (Carlson, 2000; Lieberman, Van Horn, Ozer, 2005; Levendosky, Huth-Bocks & Semel, 2002; Margolin & Vickerman, 2007; Kilpatrick & Williams, 1997; 1998). In contrast to widespread attention given to internalizing and externalizing difficulties, relatively few studies have given specific attention to the adverse mental health consequences of trauma related to the expression of post-traumatic stress disorder (PTSD) in

children exposed to IPV (Yehuda, Halligan, Grossman, 2001; Rossman & Ho, 2000; Osofsky, 2003; Kilpatrick & Williams, 1997, 1998). Moreover, Lang and Stover (2009) report “that in comparison to other outcome measures for children and adolescents exposed to domestic violence, there is less research on post-traumatic stress symptoms among child-witnesses of IPV” (p. 620). Part of the reason that PTSS has not been a primary focus of research is that many studies do not differentiate trauma symptoms from either internalizing or externalizing difficulties (Graham-Bermann & Levensosky; 1998; Graham-Bermann et al. 2006; Margolin & Vickerman, 2007).

An additional challenge to understanding post-traumatic stress symptomatology for children exposed to IPV is the difficulty in differentiating between post-traumatic stress symptomatology (PTSS), as opposed to a specific clinical diagnosis of post-traumatic stress disorder (PTSD). Many of the studies that consider PTSD or PTSS as an outcome for children exposed to IPV use proxy measures rather than the criterion from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (Graham-Bermann et al., 2006). Moreover, the DSM criterion has been criticized for not being developmentally sensitive to children of a young age (Margolin & Vickerman, 2007). Symptomatology consistent with post-traumatic stress include: re-experiencing the trauma (flashbacks), hyper-arousal, numbing, flat affect, dissociation, sleep disturbances, attention difficulties, cognitive problems, impulsivity and risk taking behaviours, and suicidal ideations (Ackerman, Newton, McPherson, Jones & Dykman, 1998; Margolin & Vickerman, 2007; Perrin, Smith & Yule, 2000). Moreover, the DSM-IV stipulates that children must meet the diagnostic criteria for chronic PTSD, in contrast to acute PTSD, where the trauma symptoms must persist for three months or longer (American Psychological Association, 1994). In addition, co-morbid and secondary problems associated with PTSD may exacerbate

symptomatology and/or lead to misdiagnoses (Margolin & Vickerman, 2007). Co-morbidity of PTSS is common with internalizing and externalizing difficulties (Margolin & Vickerman, 2007). Studies examining post-traumatic stress symptoms in children exposed to IPV report that up to 50% of children may meet the stringent criteria for clinical diagnosis of PTSD (Graham-Bermann et al., 2006; Margolin & Vickerman, 2007). However, it is important to interpret these findings within the context of the methodological challenges of accurate measurement of trauma symptoms, as well as the likelihood of co-morbidity with other difficulties. In fact, rates of PTSS in IPV-exposed children may be much higher than currently reported.

### **Mother-Child Relationships and Exposure to Intimate Partner Violence**

While it is widely accepted that childhood exposure to IPV has numerous detrimental consequences, only recently have researchers called for systematic investigation to address the processes and mechanisms that may influence child outcomes (Kerig, 2003; Knutson et al., 2009; Levendosky, et al., 2007; Øverlien, 2009). Previous work examining maternal influences has addressed individual characteristics, relationship characteristics, and family or contextual characteristics. For example, investigations of maternal characteristics have included age, mental health status including maternal psychopathology, depression and anxiety, level of stress, and history of maltreatment as a child (Johnson & Lieberman, 2007; Kilpatrick & Williams, 1998; Letourneau et al., 2007; Levendosky, Leahy, Bogat, Davidson & von Eye, 2006; Levendosky & Graham-Bermann, 2000; Lieberman et al., 2005; McCloskey, Figueredo & Koss, 1995; Owen, Thompson, Jackson & Kaslow, 2009; Renner, 2009; Samuleson & Cashman, 2008). Work examining mother-child relationship characteristics has included measures of maternal warmth, sensitivity and responsiveness, maternal hostility, parental discipline strategies, as well as psychological aggression and neglect (Letourneau et al., 2007; Carlson, 2000; Huth-Bocks &

Hughes, 2008; Haskett, Nears, Ward & McPherson, 2006; Johnson & Lieberman, 2007; Lieberman et al., 2005). Research examining family or contextual characteristics has addressed factors such as low-income status and lone parent status, which have been shown to partially mediate the association between IPV and parenting stress (Renner, 2009). Of particular interest to the present study are those maternal influences that are related to children's trauma symptoms. The following review surveys recent work that has linked maternal characteristics such as depression, mother-child relationship characteristics, and family characteristics related to children's trauma symptoms in IPV-affected families.

### **Maternal Characteristics**

**Maternal Depression.** Maternal experiences of IPV have been consistently linked to poor mental health including maternal post-traumatic stress symptoms and depression (Campbell, 2002; Coker, Smith, Thompson, McKeown, Bethea & Davis, 2002; DeJonghe, Bogat, Levendosky, von Eye, 2008; Lilly & Graham-Bermann, 2008; Jones, Hughes & Unterstaller, 2001; Martinez-Torteya et al., 2009; Renner, 2009). Findings indicated that maternal psychopathology, parenting stress and depression have a significant negative impact on parenting practices and developmental outcomes for children exposed to IPV (Graham-Bermann, Gruber, Howell & Girz, 2009; Huth-Bocks & Hughes, 2008; Levendosky & Graham-Bermann, 2000; Owen et al., 2009; Samuelson & Cashman, 2008; Schwartz, Hage, Bush & Burns, 2006; Silverstein et al., 2006; Ybarra et al., 2007). This body of work suggests that poor maternal mental health, particularly depressive symptoms, contributes to less optimal parenting behaviours since depressed mothers are less attentive and attuned to their child(ren) (DeJonghe et al., 2008; Johnson & Lieberman, 2007). While previous research has examined child behaviour outcomes

and maternal mental health, very little work has specifically studied the link between maternal mental health characteristics such as depression and trauma in children exposed to IPV.

Graham-Bermann, De Voe, Mattis, Lynch & Thomas (2006) evaluated the trauma symptoms of 218 school-aged children living in the community who had been exposed to IPV, and found that a significant minority of their sample demonstrated PTSS. Maternal depression was significantly associated with child trauma in this sample; furthermore, they concluded that maternal depression was the most salient predictor of child PTSS as compared with maternal self-esteem and maternal PTSD. Strengths of this work included sampling from an ethnically diverse population, with the majority of the children (95%) residing in the community. In addition, these researchers used a multi-method assessment of child behaviour problems that included both teacher and maternal reports. Although this study made a significant contribution to the literature by directly addressing the link between maternal depression and children's trauma symptoms, it did not address the quality of the mother-child relationship. Observational data to assess mother-child interactions would have furthered strengthened these results. Unfortunately, there is a deficit of empirical research that considers how both maternal depression and the quality of mother-child interaction may influence trauma outcomes for children exposed to IPV. It is clear from the extant literature that future work utilizing multi-methods, and observational data in particular, is needed to better understand the role of maternal influences on childhood PTSS and exposure to IPV.

**Maternal Violence History.** Another potential factor that may influence child trauma outcomes in families with a history of IPV is chronicity and severity of maternal violence history. Spilsbury and colleagues (2007) examined trauma symptoms and behavioural problems in a community-based sample of children exposed to IPV. These researchers found that the type of

exposure to IPV (e.g., direct involvement, seeing the violence, hearing the violence) was significantly associated with child trauma symptoms, meaning that children who were exposed to more severe IPV had significantly higher odds of reaching the clinical cutoffs for anxiety, anger and posttraumatic stress. Furthermore, results showed that chronicity of exposure to IPV was linked to clinically significant levels of anxiety and dissociation that are characteristics consistent with posttraumatic stress. Similar results were reported by Lang and Stover (2008) in their study of posttraumatic stress symptoms among youth exposed to IPV. They found that among a community sample of children (ages 2-17) post-traumatic stress symptoms were also differentiated by youth history of exposure to IPV, but also by maternal distress and maternal aggression. Furthermore, they interpreted their results as suggesting that children tend to demonstrate trauma symptom patterns that mirror their mothers' own trauma symptoms.

Taken together, these studies demonstrate that characteristics of violence history are important to take into account when investigating children's trauma symptoms. However, they did not address how the quality of the mother-child relationship may have mediated trauma symptoms for children exposed to IPV. Furthermore, confounding variables such as maternal age, education attainment, socioeconomic status, and ethno-cultural background were not consistently taken into account (Dubowitz et al., 2001; Owen et al., 2009; Spilsbury et al., 2007; Taylor, Guterma, Lee & Rathouz, 2009; Ybarra et al., 2007).

### **Mother-Child Interaction Characteristics**

From a developmental psychopathology perspective, family risk factors play an important role in influencing children's developmental trajectories (Cowan & Cowan, 2006). While it is acknowledged that the quality of the mother-child relationship significantly influences



the health and well-being of children exposed to IPV, the specific dimensions of these relationships are only just beginning to be investigated (Graham-Bermann et al., 2009). Limited research has shown that the quality of the mother-child relationship can either mitigate or exacerbate child adjustment difficulties. More specifically, positive mother-child relationships may buffer the detrimental effects of childhood IPV exposure (Casanueva, Martin, Runyan, Barth & Bardley, 2008; Haight et al., 2007; Letourneau et al., 2007), while negative mother-child relationships may contribute to maladjustment outcomes for children (Levendosky & Graham-Bermann, 2000; Lieberman et al., 2005; Renner, 2009). Furthermore, disrupted and inconsistent parenting, and harsh discipline practices including the use of corporal punishment are also considered risk factors (Carlson, 2000; Hazen, Connelly, Kelleher, Barth & Landsverk, 2006; Huth-Bocks & Hughes, 2008), while democratic parenting practices, positive discipline, and maternal consistency are seen as protective factors for children exposed to IPV (Letourneau et al., 2007; Johnson & Lieberman, 2007). Chronic and severe violence can create extreme stress which interferes with effective parenting, maternal sensitivity and maternal responsiveness (Carlson, 2000; Letourneau et al., 2007; Levendosky & Graham-Bermann, 2000; Lieberman et al., 2005). On the other hand, mothers may compensate for stressful circumstances with heightened sensitivity and attunement that may help protect and promote healthy emotional and developmental outcomes for children exposed to IPV (Carlson, 2000; Haight, et al., 2007; Johnson & Lieberman, 2007; Levendosky & Graham-Bermann, 2000; Letourneau et al., 2007; Lieberman et al., 2005).

Letourneau, Fedick & Willms (2007) analyzed data from the Canadian National Longitudinal Survey of Children and Youth to longitudinally investigate the relationship between exposure to family violence and parenting behaviours as predictors of children's development.

They hypothesized that self-reported parenting behaviours (positive discipline, warm and nurturing parenting and consistent parenting) of mothers exposed to IPV would differ from mothers not exposed to IPV over time. In this work, maternal depression, socioeconomic status, social support, family dysfunction and sex of the child were statistically controlled. The total sample consisted of 3,245 mothers of children (ages 24- 48 months, cycle 1; up to 144 months, cycle 2), with 208 children who were exposed to IPV and 3,037 children with no such history. While this study did not utilize any child trauma measures as outcomes, Letourneau and colleagues found that mothers with a history of IPV were warmer, more consistent in their parenting and more likely to use positive discipline than mothers without a history of IPV. They concluded that these mothers may be compensating for their children's negative experiences. These findings are especially important considering that the limited research examining mother-child relationships and parenting in the context of IPV focuses primarily on risk and parenting deficits of these mothers, rather than their strengths and capabilities used to protect their children from trauma. It should be noted that this study included mothers of infants and toddlers, rather than school-aged children. It remains unclear if mothers of older children would demonstrate similar positive parenting characteristics.

Interestingly, similar maternal protective strategies were reported in a qualitative study of women with a history of IPV involved in child protective services. Haight, Shim, Linn & Swinford (2007) used semi-structured interviews with 17 women to discuss the effects of IPV on their children, and to uncover their strategies for supporting and protecting them from trauma. Seven of the mothers interviewed self-identified as having mental health issues, primarily depression. Children ranged from 1-6 years of age. Thirteen mothers detailed negative effects of domestic violence on their children's well-being. Specifically, 9 mothers described their children

as having had a traumatic reaction including externalizing and internalizing distress, while 6 mothers described their children's behaviours consistent with posttraumatic stress symptomatology. Themes that emerged from this research highlighted maternal strategies used to support and protect their children from trauma. These included: providing children with emotional support and reassurance of love, providing clear and appropriate information, instilling hope, and educating children to prevent future violence in their own futures. These findings provide further support for the notion that mothers with a history of IPV can engage in positive parenting behaviours that may mitigate the effects of exposure to IPV on their children.

Levendosky & Graham-Bermann (2000) were the first to utilize observational methods to investigate the quality of mother-child interaction in families with a history of IPV. Their sample consisted of 95 women and their school-aged children recruited from both the community and violence shelters. Dyads were videotaped in 10-minute semi-structured situations. The quality of the mother-child relationship was assessed using dimensions of maternal warmth-support and authority-control, as well as dimensions of child prosocial and antisocial behaviours. Depressed mood was observed for both mothers and children. Findings indicated that maternal experiences of IPV were negatively related to maternal warmth as assessed by both self-report and observational measures. Maternal attunement was related to mothers' ability to provide emotional support to their children under such adverse circumstances. Moreover, while child trauma symptoms were not assessed in this study, findings suggested that less maternal warmth was positively associated with child behavioural problems for children exposed to IPV. These authors proposed that increased exposure to IPV may deplete a mother's ability to give emotional support to her child(ren). Future work should address if maternal warmth is linked to child trauma symptoms in children exposed to IPV.

Lieberman, Van Horn & Ozer (2005) built upon this foundation and investigated whether the quality of the mother-child relationship mediated the association between mothers' lifetime experience of stress and trauma and child behaviour problems. They conducted home-based and laboratory observations to assess the quality of the mother-child relationship in 85 families with preschool-aged children. Observations of the parent-child relationship assessed the degree of reciprocity and partnership between mother and child in maintaining the child's developmental progress. The quality of the relationship was rated on a continuum ranging from good adaptation, through perturbation and disturbance to disorder. Lieberman and colleagues found that exposure to violence and maternal life stress were predictive of child behaviour problems and that child behaviour problems were mediated by maternal psychopathology (stress and PTSD) and the quality of the mother-child relationship.

These results were among the first to suggest that the quality of mother-child interaction may mediate the influence of maternal characteristics on the adjustment of children exposed to IPV. Their multi-method approach included both maternal reports and clinical observations; however, results were limited in that child behaviour problems and not child trauma was considered as an outcome variable. Furthermore, they focused on maternal PTSD and maternal stress and not maternal depression as a mediator of child behaviour problems. While the use of observational measures was noteworthy, the use of global ratings of the parent-child relationship was limited in that specific behaviours were not assessed. Another limitation of this study was that the families who participated represented a particularly high-risk sample, as they were referred to the study by professionals due to clinical problems or child development concerns. Therefore, the sample was not representative of families with a history of IPV in the community.

Subsequent work has identified protective aspects of mother-child relationships for preschool-aged children exposed to IPV using a multi-method approach (Johnson & Lieberman, 2007). Mothers were administered a semi-structured assessment interview and questionnaires to assess maternal history of violence, perceptions of their child's behavioural problems (CBCL), attunement to the child's negative emotions and maternal PTSD. The mother-child relationship was assessed during a videotaped unstructured play session and naturalistic home observations. Observational data used to evaluate the quality of the mother-child relationship was assessed on a global rating scale. Results indicated that mothers who were more attuned to their children's sad and angry feelings had children with fewer externalizing behaviour problems. Surprisingly, maternal PTSD symptoms were not related to either the quality of the mother-child relationship or to mothers' attunement to children's anger. Johnson & Lieberman concluded that several characteristics of family functioning uniquely contributed to children's behaviours in the context of exposure to IPV; these included maternal attunement to children's sad and angry feelings and maternal engagement in developmentally adaptive relationships that may help to reduce the risk of externalizing behaviour problems in their children. Similar to the limitations noted above, this study included an at-risk clinical sample that was not representative of families with a history of IPV from the community. Also, the use of global rating scales limited the identification of specific mother-child behaviours. Moreover, this study did not focus specifically on child PTSS but rather internalizing, externalizing and total child behaviour problems as an outcome from exposure to IPV.

Recently, Casanueva, Martin, Runyan, Barth & Bradley (2008) investigated the quality of parenting among 1,943 mothers with a history of IPV involved with the Child Welfare System. These mothers and their children (less than 10 years of age) were randomly selected from the

National Survey of Child and Adolescent Well-being to investigate potential links between the quality of parenting and mothers' experiences of IPV. Various maternal self-reports, clinical interviews and direct home observations were utilized to measure overall child health, maternal depression, observed parenting practices, maternal social supports, and maternal history of IPV. Results showed that women who experienced IPV in the past, but were no longer victims of IPV, had significantly better parenting scores than women who were currently experiencing IPV when other risk factors were controlled. Observational measures of parental responsiveness and learning stimulation were combined to create a total parenting score. Based on the observational measures of the parenting scale they found that the majority of mothers displayed emotional and psychological availability, responsiveness to their child's needs, and positive child rearing practices (i.e.: hugging or kissing, using a positive tone of voice, helping demonstrate achievement).

Casanueva and colleagues proposed that these results challenge negative perceptions about parenting in the context of IPV, and argued that parenting strengths and capacities of women with a history of IPV must be acknowledged in prevention and intervention strategies. As noted above, while this study utilized a multi-method approach, measures of child trauma were not assessed. Although the majority of families in this sample consisted of more than one child, results were limited to parenting of one child only. While this was a large and ethnically diverse sample, all of the families had a previous history of Child Protective Service investigation limiting the generalizability of these results. Furthermore, a comparison of parenting of siblings would have strengthened these findings.

It is evident from this review of the limited literature regarding mother-child relationships in IPV-affected families that more research is needed to address the quality of mother-child

interaction. Taken together, these results provide little clarity regarding how mother-child relationships may play a protective role for children exposed to IPV, particularly for those children demonstrating trauma symptoms. More empirical research utilizing a multi-method approach is required to better understand how the quality of mother-child relationships may uniquely influence child trauma symptoms in families with a history of IPV exposure. In addition, no empirical work to date has addressed the issue of parenting siblings in these families. This important aspect of mother-child relationships is reviewed next.

### **Differential Parenting**

Differential maternal parenting of siblings may also influence child outcomes and trauma symptoms associated with IPV. Currently, there is a dearth of research examining differential parenting of siblings exposed to IPV; however, investigations involving non-violent families have shown that differential parental treatment of siblings is significantly associated with negative mental health outcomes and behaviour problems including: depressed mood, low self-esteem and conduct disorders (Dunn, Stocker & Plomin, 1990; McHale, Crouter, McGuire & Updegraff, 1995; Richmond, Stocker, Rienks, 2005). One of the few studies that has addressed siblings exposed to IPV examined differential adjustment in 112 sibling dyads recruited from shelters (Skopp et al., 2005). The researchers concluded that low to moderate correlations between sibling adjustment outcomes suggested that each child's perspective of IPV was unique, and may depend upon individual appraisal of threat, as well as sibling differences in adjustment. Furthermore, they advocated for further investigation into both the individual (i.e.: temperament, coping strategies) and shared variables (i.e.: differential parenting, quality of mother-child relationships, maternal psychopathology) that may influence differential outcomes for siblings exposed to IPV. In summary, a gap clearly exists in the literature regarding differential parental

treatment of siblings exposed to IPV. A final goal of the present study was to explore similarities and differences in the quality of mother-child interaction with younger and older siblings exposed to IPV.

### **Summary**

It is apparent from the present review that the quality of mother-child relationships for children exposed to IPV is under-studied, particularly in relation to child trauma outcomes. While strong links have been established between maternal characteristics such as depression and violence history and trauma symptoms of children exposed to IPV, the nature of mother-child interaction requires further investigation. In addition, the majority of existing research that does address mother-child relationships relies heavily on maternal self-report. Research utilizing a multi-method approach, including behavioural observations of mother-child interaction, is currently lacking. Finally, no research to date has explored the nature of differential parenting of siblings exposed to IPV, and how it may be associated with child trauma symptoms.

### **Purpose of the Present Study**

The overall goal of the present study was to address these gaps in the literature by investigating how maternal influences, such as the quality of mother-child interaction and maternal depression, may influence post-traumatic stress symptoms in children exposed to IPV. The present study utilized a community-based sample of families with a history of IPV, as opposed to shelter-based, police-referred or clinically-referred families, in order to facilitate a more representative sample. In addition, families with more than one child were recruited in order to explore the nature of maternal differential treatment. Finally, the present study utilized a multi-method approach, including both maternal report and observational measures.



In summary, the first goal of the present study was to examine how maternal characteristics of depressive symptoms and violence history were associated with the quality of the mother-child relationship, and with child trauma outcomes. The second goal was to determine whether the quality of mother-child relationships uniquely predicts child trauma symptoms, after maternal characteristics such as depression, violence history and age were taken into consideration. The third and final goal of the present study was to explore differential treatment of siblings exposed to IPV; exploratory comparisons of both positive and negative maternal interaction with younger and older siblings were conducted.

## Method

### Participants

Families were recruited from the Winnipeg community using a number of methods, including flyers posted at agencies (Klinik, Mount Carmel Clinic, Fort Garry Women's Centre), letters sent to private clinicians and advertisements in local newspapers. Participants were screened over the phone to ensure that all criteria were met: (a) all family members spoke English fluently; (b) two school-aged siblings (K-12) were willing to participate; (c) the mother self-identified as having a history of intimate partner violence; (d) the mother must have had or be currently receiving treatment and/or counseling for IPV.

**Mothers.** A non-random sample of 47 mothers agreed to participate. Their average age was 35 years ( $SD= 5.30$ ). Mothers indicated their ethnic-cultural backgrounds as 62% Euro-Canadian, 30% Aboriginal, and 8% multiracial. The majority of mothers (75%) reported they were lone parents (separated, divorced, widowed or never married). As required by the Research Ethics Board, all mothers had prior counseling for their abuse, which ranged from less than one

month (9%) to more than one year (49%). Thirty families (64%) had an income of less than \$20,000 a year and this fell below the Low-Income Cut-Off (LICO) for families of three members or more, which was \$27,000 at the time of data collection (Statistics Canada, 1998).

**Children.** Younger sibling participants included 27 boys and 20 girls. The age of younger siblings ranged from 4 to 14 years of age ( $M= 7.89$ ,  $SD= 2.50$ ). Older sibling participants included 29 boys and 18 girls; their age ranged from 6 to 17 years of age ( $M= 10.83$ ,  $SD= 3.00$ ). Sibling dyads had an average age spacing of 2.8 years ( $SD= 2.0$ ). The dyads include 18 male pairs, 9 female pairs, 8 older male/ younger female pairs, and 9 older female/ younger male pairs. Moreover, 62% of mothers reported that their children received family counseling.

### **Measures and Procedures**

After mothers signed an informed consent form and children provided oral consent, each family member was interviewed separately and privately. When age appropriate, each family member was given the option of completing the instruments on their own (with an interviewer present to answer questions). All interviewers were female, and whenever possible interviewers were of similar ethno-cultural origin to family members. All families were provided \$75 remuneration and information about local community resources (e.g., crisis hotlines).

Regarding family observations, mother-child dyads were brought into an observation room equipped with a video camera. The observation room was set up to emulate a family home setting including: two couches, a chair, and a coffee table. A snack was also provided. Mothers were videotaped separately with each sibling for 10 minutes. Interactions were semi-structured, in that mother-child dyads were provided with an Issues Checklist created by Robin and Foster (1989), which consisted of a list of potential conversational topics that were likely to generate

conflict (e.g., problems at home, school, or with friends) and asked to choose those issues they most wanted to discuss. When children were not participating in the observation, they completed measures with a research assistant in a separate room.

**Maternal Violence History.** The Physical Aggression scale of the Conflict Tactics Scale (CTS) (Straus, 1979) was completed by mothers. The CTS asked about 9 violent behaviours that occurred within the context of a conflict in the past 12 months. Each violent behaviour is rated on a 7-point scale ranging from 0 (never) to 6 (more than 20 times). Mother provided reports on their own and their partner's behaviours; however, they were more comfortable reporting about themselves ( $n=47$ ) than their partner ( $n=30$ ). Although this is an earlier version of the CTS, it has been widely used to assess aggression in intimate partner relationships and has demonstrated adequate internal consistency, concurrent validity and construct validity (Straus, 1979). Alpha coefficients for this subscale in the present study were .90 and .85 for self report and report on partner respectively.

Mothers in this sample reported experiencing moderate to high levels of intimate partner violence. Overall, 66% reported an intimate partner had directed violent behaviour towards them in the context of conflict at least once the past year (mild physical violence subscale  $M=4.46$   $SD=5.12$ ; severe physical violence subscale  $M=4.61$   $SD=5.63$ ;  $n=30$ ). Examples of these behaviours included: being pushed, grabbed or shoved (66%), kicked, bitten or hit (50%), beaten up (34%) or threatened with a weapon (28%). Sixty-eight percent of mothers also reported directing at least one violent behaviour towards an intimate partner in the context of a conflict during the year prior to the study (mild physical violence subscale  $M=3.17$   $SD=3.89$ ; severe physical violence subscale  $M=2.28$   $SD=7.61$   $n=47$ ). Examples of these behaviours included:

pushing, shoving or grabbing (62%), kicking, biting or hitting (34%), and threatening with a weapon (15%).

**Exposure to Violence.** Mothers were asked to estimate their length of their children's lifetime exposure to IPV. Younger siblings were exposed for an average of 3.9 years (SD= 2.9), while older siblings were exposed for an average of 4.8 years (SD= 3.6).

**Child Trauma Symptoms.** The Child Behavior Checklist (CBCL) is a widely used tool for assessing externalizing and internalizing difficulties in children aged 4 to 18 years (Achenbach, 1991). A subset of items from this measure has also been widely used as a proxy measure of post-traumatic stress disorder symptoms in children (Dehon & Scheeringa, 2006; Rossman, Bingham & Emde, 1997; Wolfe, Gentile & Wolfe, 1989). This subscale consists of 20 items selected to reflect PTSD criteria as defined in the DSM-III-R (Wolfe et al., 1989) such as: difficulties concentrating, obsessive thoughts, feelings of guilt, moodiness, difficulties sleeping, nightmares, irrational fears, clinging to adults, nervousness, anxiety, sadness or depression, withdrawal, secretivity, feelings of persecution, irritability, frequent arguing, and somatic complaints including: headaches, nausea, stomachaches, and vomiting. Each item is rated on a 3-point scale, ranging from 0 (not true), 1 (somewhat true) to 2 (often true). The CBCL-PTSD subscale has shown predictive power and incremental validity above and beyond the externalizing and internalizing behaviour scales of the CBCL-Total (Dehon & Scheeringa, 2006). Previous research with the CBCL-PTSD subscale for 4-18-year olds demonstrated good internal consistency, with a coefficient alpha of .87 (Dehon & Scheeringa, 2006). Similarly, good internal consistency was found for the CBCL-PTSD in the present study; coefficient alpha was .84.

**Maternal Depression.** The Parental Stress Index (Abidin, 1995) was administered to mothers; it included a subscale that assessed depressive symptoms. High scores on the depression subscale are suggestive of the presence of significant depression in the mother. The items are related to those found on scales designed to detect the presence of clinically significant depression (Webster-Stratton, 1988). The general impact of high scores on the depression domain subscale represent parental difficulty in mobilizing the psychic and physical energy needed to fulfill parenting responsibilities (Dumas, Gibson & Abidin, 1989). Withdrawal and a general inability to act with assertiveness toward the child is a frequent behavioural manifestation (Perez, 1989). The nine items on the Depression Domain Subscale are scored on a 5-point Likert scale, ranging from 1 (strongly agree) to 5 (strongly disagree). All items are reverse scored so that higher scores indicate greater depressive symptoms. Previous work indicates the PSI has acceptable psychometric properties. For example, internal consistency for the depression subscale has ranged from .78 to .84 (Abidin, 1995; Haskett, Ahern, Ward & Allaire, 2006). Coefficient alpha for the depression subscale in the present study was .81. Past assessment has also indicated good test-retest reliability for both clinical and non-clinical populations (Abidin, 1995).

**Mother-Child Interaction.** Direct observations of family interactions are considered invaluable for planning interventions, evaluating outcomes and examining research questions about the mechanisms involved in social interaction (Aspland & Gardner, 2003). Furthermore, observational techniques provide a window on real behaviours of interest, which may be defined consistently and reliably by a researcher, rather than by self-reported parent measures (Gardner, 2000). The Parent-Child Relationship Coding Scheme (Stewart-Tufescu & Piotrowski, 2009) is a behaviour observation coding system designed to study dyadic family interactions. Development

of the present observational coding scheme was modeled somewhat on The Family Process Code: A Multidimensional System for Observing Family Interactions from the Oregon Social Learning Centre (Dishon, Gardner, Patterson, Reid, Spyrou & Thibodeaux, 1987).

After years of research and revisions, the Family Process Coding scheme consists of three dimensions called Activity, Content and Valence, which are recorded at all times. Activity dimensions include: work, play, read, eat, attend and unspecified. Content codes are divided into verbal, vocal, nonverbal, physical and compliance behaviour. Valence is recorded for every content code and comprises six ratings: exuberant, positive, neutral, negative, unrestrained negative and sad affect (Dishon et al., 1987). For the purposes of this study, the Activity dimensions of The Family Process Code (FPC) are not applicable and therefore not included in The Parent-Child Coding Scheme. Furthermore, the Content and Valence codes were collapsed and modified to better suit the needs of the Parent-Child Coding Scheme (P-CS). While the FPC was intended for use in the home setting, the P-CS was designed for use in a semi-structured laboratory/clinic setting designed to emulate a home environment. While caution must be ensured when generalizing results from a laboratory setting, Webster-Stratton (1985) found moderate to high correlations between behaviours in the home and clinic when mother and child were observed in unstructured situations.

The Parent-Child Coding Scheme was further developed after piloting an initial version on a subsample of videotapes in order to evaluate applicability of categories and codes. The final coding scheme included six content codes (e.g., verbal content, nonverbal content, proximity, physical contact, compliance, and joint attention) designed to capture the quality of mother-child interaction; each content code could be coded as positive, negative or neutral. For each ten minute observation period, each code was applied separately to each mother and child in 15-

second intervals. Therefore, a maximum of 40 15-second intervals were coded for mothers with younger siblings, as well as for mothers with older siblings in each family. Intervals could also be coded as disengagement or uncodeable if for the majority of the 15-second interval, parent and child did not interact, or one of the participants were neither audible nor visible. Definitions of all codes are presented in Tables 1 & 2. Emotional tone was also coded separately for each mother and child in each interval on a 5-point scale ranging from (1) Very Positive to (5) Very Negative; mixed emotions were also coded. Definitions of the emotional rating scale are presented in Table 3.

**Reliability.** Three independent observers were trained in The Parent-Child Coding Scheme. For each observer pair, reliability was conducted on a total of 8 families (16 mother-child dyads). Training involved comparisons of observer coding, and discrepancies were debated until agreement was reached. Inter-rater reliability was computed for each category using Kappa coefficients, and these were: verbal content  $\alpha = .87$ , nonverbal content  $\alpha = .88$ , physical contact  $\alpha = .96$ , proximity  $\alpha = .97$ , compliance  $\alpha = .93$ , joint attention  $\alpha = .92$ , disengagement  $\alpha = .99$ , uncodeable  $\alpha = .99$  and emotional tone  $\alpha = .89$ .

**Observation Variables.** The six content codes of the Parent-Child Coding Scheme were used to assess the quality of the mother-child relationship. Given that not all mother-child dyads were observed for the full 10 minute observation period (e.g., one family member may have left to use the bathroom), the proportion of positive, negative and neutral codes assigned to each of the six categories were calculated based on the total number of observation intervals for each family member. For example, for a full ten-minute observation, the maximum number of 15-second observational intervals would total forty, while for an eight-minute observation, the maximum number of observational intervals would total thirty-two. Therefore, by calculating

proportional frequencies for each code rather than using raw frequencies, differences in the length of observation within and between families were controlled.

Positive and negative codes assigned in the six categories for each mother-child dyad were also summed separately; these proportional frequencies were also summed separately for mothers when interacting with younger and with older siblings. Similar proportional frequencies were summed for younger and older siblings. The positive categories from the six content codes and positive emotional tone ratings were combined to represent a measure of positive mother-child interaction (e.g., warmth, affection, attention). Similarly, a measure of negative mother-child interaction (control, rejection, hostility) included negative codes from the six content codes and negative emotional tone ratings.

**Power Analysis.** A power analysis was conducted for the present study using G\*Power, a statistical software program. G\*Power was designed as a general stand-alone power analysis program for statistical tests commonly used in social and behavioural research (Faul, Erdfelder, Lang & Buchner, 2007). A post-hoc power analysis was calculated based on the sample size of N=47 mother-child dyads (94 children). To ensure a minimum study power of .80, while detecting a medium to large effect size with an alpha of 0.05, analyses including a maximum of five variables are recommended. This is consistent with the literature, which recommends a minimum subject to item ratio of at least 5:1 in explanatory factor analysis, but note that higher ratios are generally better (Gorsuch, 1983; Hather, 1994). While a widely cited rule of thumb from Nunnally (1978) is that the subject to item ratio for explanatory factor analysis should be at least 10:1; it should be noted that this has not been supported by published research (Osborne & Costello, 2004).



## Results

The overall goal of the present study was to investigate the role mother-child relationships may play in the trauma symptoms of children exposed to IPV. Prior to testing the hypotheses, descriptive statistics were conducted on all variables, including means, standard deviations and ranges. These descriptive statistics are presented in Table 4; all variables were normally distributed, and no outliers were detected. Missing data were not replaced or estimated for any analyses. The alpha level used for all analyses in the present study was  $p < .05$ .

**Degree of Association between Variables.** The first goal of the present study was to examine how the maternal characteristics of depressive symptoms and violence history were associated with the quality of the mother-child relationship, and with child trauma outcomes. It was hypothesized that more negative mother-child relationships (e.g., characterized by more hostility, rejection and control) would be significantly associated with more serious child trauma symptoms, more maternal depressive symptoms, and longer and more severe maternal IPV history. It was also hypothesized that more positive mother-child relationships (e.g., characterized by more warmth, sensitivity and affection) will be significantly associated with less serious child trauma symptoms, fewer maternal depressive symptoms, and shorter and less severe maternal IPV history.

Pearson product moment correlations were conducted to assess the degree of association between younger and older trauma symptoms, maternal depression, length of childhood exposure to IPV, maternal violence history, maternal age and positive and negative maternal interactions with each sibling and sibling's interactions with their mother (see Tables 5 and 6). Results indicated that older and younger sibling trauma symptoms were significantly and positively

related,  $r(42) = .51, p < .05$ . Older siblings displayed significantly higher CBCL-PTSD trauma scores than younger siblings on average,  $t(43) = 2.98, p < .005$ . Surprisingly, other variables including maternal depression, maternal violence history, maternal age, proportion of child lifetime IPV exposure and mother-child positive and negative interactions and child-mother positive and negative interaction were not significantly related to trauma symptoms for either older and younger siblings. Interestingly, maternal depressive symptoms were negatively and significantly related to younger sibling negative behavior with mothers,  $r(32) = -.36, p < .05$ .

Maternal behaviour directed towards older siblings was significantly related to older siblings behaviour directed towards mothers,  $r(31) = .88, p < .01$  for negative interactions and  $r(33) = .92, p < .01$  for positive interactions; see Table 5 for details. Similar results were found for mothers and younger siblings. Maternal positive behaviour directed towards younger siblings was significantly related to positive behaviour by younger siblings towards mothers,  $r(35) = .78, p < .01$ . Maternal negative behaviour towards younger siblings was significantly related to negative behaviour by younger siblings towards mothers,  $r(35) = .84, p < .01$ .

Interestingly, correlational analyses also revealed that proportion of lifetime exposure to IPV for both older and younger siblings was significantly associated with length of maternal violence history;  $r(44) = .91, p < .05$  and  $r(44) = .73, p < .01$  for older and younger siblings respectively. For younger siblings only, lifetime exposure to IPV was significantly and *positively* related with positive behaviour by mothers towards them,  $r(35) = .49, p < .05$ , and positively related to their positive behaviour towards mothers,  $r(35) = .43, p < .01$ . Lifetime exposure to IPV was also *negatively* related to maternal negative behaviour towards younger siblings,  $r(35) = -.33, p < .05$ . No other significant associations were found for child lifetime exposure to IPV.

Trends were also noted in the correlational analyses concerning: (a) length of maternal violence history and maternal age,  $r(45) = .26, p < .10$ , and (b) maternal depressive symptoms and length of maternal violence history,  $r(41) = .26, p < .10$ . No other significant associations were found.

### **Prediction of Child Trauma Symptoms**

The second goal of the present study was to determine whether the quality of mother-child relationships uniquely predicted child trauma symptoms, after maternal characteristics such as depression and violence history were taken into account, and after other relevant family characteristics such as child lifetime exposure to IPV were taken into account. Hierarchical regression analyses were conducted separately for older and younger siblings, in which child trauma symptoms were the dependent variable, and predictors were entered in three separate steps. For the first step, child lifetime exposure to IPV was entered. For the second step, maternal depressive symptoms and maternal violence history were entered. For the third and final step, maternal positive and negative behaviours were entered into the hierarchical regression equation. Results are presented separately for younger and older siblings in Table 7.

**Younger Siblings.** The three step-predictor model for younger sibling trauma symptoms accounted for approximately 17% of the overall variance in younger sibling trauma symptoms as measured by the CBCL-PTSD subscale ( $R^2 = .169$ ). This was not statistically significant,  $F(2, 28) = 0.15, p = .15$ . See Table 7 for details.

**Older Siblings.** Similarly, the three step-predictor model for older sibling trauma symptoms accounted for approximately 24% of the variance for older sibling trauma symptoms

as measured by the CBCL-PTSD subscale ( $R^2 = .240$ ). This was also not statistically significant,  $F(2, 23) = 1.53, p = .24$ . See Table 7 for details.

### **Differential Maternal Treatment of Siblings**

The third and final goal of the present study was to explore differential treatment of siblings exposed to IPV; to address this goal, correlational analyses were conducted to determine the degree of association between positive and negative mother-child interactions with both younger and older siblings. Results indicated that maternal positive and negative behaviours towards their younger and older children were significantly and negatively related;  $r(31) = -.58, p < .01$ . A follow up comparison of mean differences using a LSD dependent t-test indicated that mothers directed significantly more positive behaviours towards their older children ( $M = .37, SD = .14$ ), than their younger children ( $M = .31, SD = .15$ ),  $t(32) = 2.96, p < .01$ . No significant differences were found for negative behaviours mothers directed towards their younger and older children. See Figure 1 for details.

Positive and negative behaviours by siblings towards their mothers were also significantly and negatively related,  $r(31) = -.64, p < .01$ . A follow-up comparison of mean differences revealed that older siblings ( $M = .37, SD = .16$ ) directed more positive behaviours towards their mothers compared with younger siblings ( $M = .26, SD = .16$ ),  $t(32) = 3.51, p < .001$ . No significant mean differences were found between siblings concerning negative behaviours directed towards their mothers. See Figure 2 for details.

## **Discussion**

It was the purpose of the present study to investigate the role the mother-child relationship may play in post-traumatic stress symptoms in children exposed to IPV. Findings from this

research highlight the complexity of maternal characteristics and the importance of considering the mother-child relationship regarding child trauma outcomes. Overall, the quality of mother-child interaction did not account for a significant amount of variance in the trauma symptoms of children exposed to IPV; however, several interesting findings add to our understanding of children's experiences within these families. The meaning and implications of these findings are explored in the following discussion with regard to the importance of the role of the mother-child relationship in supporting children exposed to IPV.

## **Maternal Characteristics**

### **Maternal Depression**

Contrary to the hypothesis, maternal depression was not significantly correlated with older and younger sibling post-traumatic stress symptoms, or with maternal behaviours. However, maternal depression was found to be significantly and negatively related to negative behaviours younger children directed towards their mothers. These results are surprising considering Graham-Bermann and colleagues (2006) found maternal depression to be significantly associated with child trauma in school-aged children exposed to IPV. Other research has also reported that depressed mothers were less attuned and sensitive to their children (DeJonghe et al., 2008; Johnson & Lieberman, 2007). Furthermore, while Renner (2009) did not consider child trauma outcomes, she examined the mediating role of maternal depressive symptoms between IPV victimization and later parenting stress, and concluded that maternal depressive symptoms mediated the relation between psychological IPV and later parenting warmth, but not for physical IPV and later parenting warmth. In the present study type of IPV was not differentiated, which may, in part, account for differences in findings. It may also be the

case that the measure of maternal depression used in the present study was not as sensitive as measures used in previous work, that the smaller sample size used in the present study may have reduced the likelihood of finding a significant association, or that this sample of mothers' was particularly resilient to the detrimental effects of IPV.

While the results of the present study do not support those of previous work, they do make a significant contribution to the literature regarding potential linkages between maternal depressive symptoms and trauma outcomes for children exposed to IPV. Keeping in mind that the present sample was recruited from the community, and that all mothers had received some counseling support concerning their IPV history, the present findings suggest that maternal depressive symptoms may not be as strongly associated with trauma outcomes for children exposed to IPV as commonly reported. Interestingly, these findings also suggest that depressive symptoms of these mothers did not appear to interfere with the quality of mother-child interactions—particularly their ability to interact positively with their children. Younger siblings directed less negative behavior towards mothers who were more depressed, suggesting that some children may be sensitive to their mother's emotional state and may be acting in a protective manner towards their parent. Although parentification was not assessed in the present research, further investigation into the role of maternal depressive symptoms and other maternal psychopathology including post-traumatic stress symptoms is necessary to better understand how these factors may influence both maternal behaviour and child outcomes in families exposed to IPV.

### **Maternal Violence History**

As expected, maternal violence history was significantly related to proportion of lifetime IPV exposure for both younger and older siblings; greater length of maternal violence history was

related to maternal depressive symptoms. While contrary to expectations, there was no support for the hypothesis that longer maternal violence history was significantly related to younger and older sibling trauma symptoms. This lack of association with trauma outcomes is interesting considering other studies have documented the association between chronicity and severity of maternal IPV and detrimental child outcomes (Spilsbury et al., 2007; Lang & Stover, 2008). One reason that the present study may not have replicated links between maternal violence history and child trauma outcomes is that it considered chronicity of maternal IPV history only, rather than type or severity. However, the present study did find a relationship between maternal depression and maternal history of IPV, which supports previous work that has documented an association between more severe maternal violence history and increased maternal depression. It should be noted that maternal estimates of children's length of exposure to IPV were not related to maternal depression. Clearly, how IPV is measured can have an impact on results linking IPV with differing family outcomes.

### **Maternal Age**

Contrary to expectations, maternal age was not significantly related to both child trauma symptoms and children's lifetime exposure to IPV. However, results approaching significance indicate a positive relationship between maternal age and maternal violence history. This finding is somewhat contradictory to other research that has documented a relationship between maternal age, IPV exposure and parenting, suggesting that younger mothers as compared to older mothers are less warm and find parenting more difficult (Moffit, 2002). While it may be the case that younger women are at greater overall risk to experience IPV than older women, the families who participated in the present study may represent a broader spectrum than young women who

experience IPV in their first intimate partner relationship, or those younger women who experience IPV prior to having children.

In summary, while regression analyses indicated that maternal characteristics did not account for post-traumatic stress outcomes for both older and younger siblings, the present findings do make a significant contribution to the limited existing research in two ways. First, younger children directed less negative behaviours towards depressed mothers, suggesting that perhaps some unmeasured and subtle feature was exerting an influence, such as flat affect or low energy. Perhaps more importantly, present findings emphasize that certain maternal characteristics may be protective for children's trauma symptoms, such as age or counseling history. More detailed investigation is required to better understand the complexities associated with maternal characteristics influencing children victimized by IPV.

### **Quality of Mother-Child Relationships**

The present study made a significant contribution to the literature by including observational data designed to assess the quality of mother-child relationships. Overall, both positive and negative maternal behaviour did not significantly predict sibling trauma outcomes. However, results indicated a strong relationship between the positive and negative behaviours mothers directed towards their younger siblings and the positive and negative behaviours that younger siblings directed towards them, as well as between positive and negative behaviours mothers directed towards their older children, and the positive and negative behaviours that older siblings directed towards them.

Considering these results from a developmental psychopathology perspective, which emphasized the importance of familial influences on child outcomes, these associations between



maternal and child behaviours may be interpreted as reciprocal or mirroring of behaviours. The notion of mirroring of mother-child behaviours may be useful to consider when interpreting children's trauma outcomes. While this study did not include a measure of maternal PTSS, it is worth considering whether children may be mirroring mother's PTSS in the context of IPV. Another interpretation of these results may suggest that children are mirroring mother's protective strategies such as heightened maternal sensitivity and warmth represented by positive behaviours. Furthermore, interpreting these results from an emotional security hypothesis would suggest that if mothers are providing warmth, sensitivity and attunement to their children in the context of IPV, children may feel more secure and thus display less trauma symptoms related to IPV exposure.

The present findings contribute to the limited literature concerning the quality of the mother-child relationship and child trauma outcomes, and lend support to the notion that mothers may buffer the detrimental effects of IPV exposure with maternal warmth, heightened sensitivity and attunement (Casanueva et al., 2008; Haight et al., 2007; Letourneau et al., 2007), while contradicting other work indicating mothers may contribute to maladjustment difficulties due to maternal hostility, rejection and control (Levendoksy & Graham-Bermann, 2000; Lieberman et al., 2005; Renner, 2009). Taken together, proportion of child lifetime exposure to IPV, maternal depression, maternal violence history and positive and negative behaviours directed by mothers towards their children were not found to significantly predict trauma outcomes for both younger and older siblings. Further investigation is required to better understand the relationship between maternal characteristics, the quality of mother-child relationships, and child PTSS in families with a history of IPV exposure.

### **Differential Parenting**

While there is a dearth of research that has examined differential parenting of sibling exposed to IPV, results from this study partially support the notion of differential maternal treatment of older and younger siblings. Surprisingly, mothers directed significantly more positive behavior towards their older children, and older siblings directed significantly more positive behavior towards them. Also surprising, mothers directed significantly more positive behaviours as compared to negative behaviours towards both younger and older siblings. Similarly, results found that siblings directed significantly more positive than negative behaviours towards their mothers, but there were not significant differences between siblings for negative behaviours directed towards mothers. There was no evidence to suggest that mothers differed in the negative behaviours they directed towards their older child as compared to their younger child. These results are particularly interesting to interpret considering that, on average, older siblings had significantly higher trauma scores as compared to younger siblings, and that younger siblings displayed less negative behavior with depressed mothers. Overall, these findings provide further evidence to support the transactional mirroring processes observed between mothers and their children and begin to shed light on the complex interplay between individual characteristics and relationship dynamics in families with a history of IPV. Further research regarding the implications of differential treatment for individual adjustment and the quality of family relationships for children exposed to IPV is clearly needed.

### **Strengths**

The present study has many noteworthy strengths that were designed to address numerous gaps in the current literature regarding the role of mother-child relationships and child trauma in families with a history of IPV. To highlight, a community-based sample of mother-sibling dyads with a history of IPV was recruited, rather than relying on a shelter-based, or police-referred

sample. Families recruited from the community at large provided a broader range of violent histories and more diverse child trauma and maternal depressive symptoms, thus allowing for greater generalizability of results. Another major strength of the present study was the multi-method approach. Specifically, the observational coding used to assess the quality of mother-child interactions provided rich and specific detail that provided an innovative and in-depth examination of maternal warmth and hostility in families exposed to IPV.

The present study also made a major contribution to the literature by considering the influence of maternal depression on child PTSS and the quality of the mother-child relationship. Few other studies have done so with families with a history of IPV. Maternal depressive symptoms were not strongly linked to child outcomes or the quality of mother-child relationships in this community-based sample of families with counseling experience; this finding is unique in the literature and provides a novel perspective on family dynamics outside of shelter environments. Finally, the findings regarding differential maternal parenting of siblings exposed to IPV are noteworthy as no previous literature has addressed this phenomenon in families with a history of IPV. The present study provides considerable support for further investigation into this concept, as a potential maternal protective strategy in the context of families exposed to IPV.

### **Limitations**

While the present study has considerable strengths, limitations must be acknowledged. First, the non-random, small sample size may have limited the results of the study. Since mothers volunteered and self-identified as having a history of IPV, they may have represented a more resilient sample compared with a randomly generated community sample. Furthermore, technical issues regarding poor audio and visual quality resulted in study attrition therefore

reducing sample size and study power. Additionally, due to the relatively small sample size, the present study was unable to examine gender differences for sibling trauma outcomes and the quality of mother-child relationships.

Additional limitations of the present study are methodological issues. The present study relied heavily on maternal self-reports for many of the maternal and child measures, including the dependent variable: CBCL-PTSD subscale. This study also did not include a measure of the child's perception of the quality of the mother-child relationship. Evaluating the child's perception would provide further insight into the protective, and risk factors resulting from the mother-child relationship. Furthermore, the measure of maternal violence history only considered length of maternal violence history in months, and not the severity, frequency or type of IPV exposure. It would also be important to consider maternal history of violence exposure as a child. Lastly, while due to ethical considerations, only children's exposure to maternal IPV was evaluated and not the co-occurrence of IPV that may have been directed towards siblings.

### **Future Research Considerations**

Future longitudinal research including larger sample sizes is essential to move beyond correlational findings and discover causality and mechanisms that influence sibling trauma outcomes. Moreover, future research would benefit from a comparison sample of mother-sibling dyads with no family history of IPV exposure, to explore similarities and differences between mother-child compensatory strategies.

Other areas for future research include further investigation into maternal differential treatment of siblings and the role of the sibling relationship on child trauma outcomes in families

exposed to IPV. Finally there is a desperate need for research evaluating the role of the father or male partner on sibling trauma outcomes in families with a history of IPV.

### **Conclusions**

Findings from the present study make a significant contribution to the limited literature regarding the importance of the mother-child relationship and sibling post-traumatic stress symptoms in families with a history of IPV. While results do not support the hypothesis that maternal depression, maternal violence history and the quality of mother-child interactions significantly predict child trauma outcomes, these findings provide further evidence to support the notion that mothers exposed to IPV may compensate for IPV exposure and buffer the detrimental effects of IPV with increased maternal warmth, sensitivity and attunement. Interestingly, this study found that mothers and their children engage in a transactional process of mirroring both positive and negative interactions, and that mothers directed significantly more maternal warmth than maternal hostility towards their younger and older children. Additionally, results found partial support for the notion of differential maternal treatment of siblings, suggesting that mothers display similar amounts of negative behaviours towards their children yet directed significantly more positive behaviours towards their older child in the sibling dyad.

Implications for this research are numerous and far reaching including the potential to provide further insight into the processes and mechanism that may influence child PTSS related to IPV exposure; emphasizing maternal strengths to protect children and promote resilience while minimizing the detrimental consequences of childhood IPV exposure; promoting the use of multiple methods and observational data to better understand the role of mother-child relationships; design relationship-based interventions to strengthen the mother-child relationship

in families exposed to IPV; and influencing social policies and practices regarding prevention and intervention strategies to protect children and support families exposed to IPV.

## References

- Abidin, R. (1995). *Parenting Stress Index*. Pediatric Psychology Press, New York, NY.
- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist 4-18 and 1991 Profile*. University of Vermont, Department of Psychiatry, Burlington, VT.
- Ackerman, P. T., Newton, E. J., McPherson, W. B., Jones, J. G., & Dykman, R. A. (1998). Prevalence of post-traumatic stress disorder and other psychiatric diagnoses in three groups of abused children (sexual, physical and both). *Child Abuse and Neglect*, 22(8), 759-774. doi: 10.1016/s0145-2134(98)00062-3
- American Psychological Association (1994). *Diagnostic and statistical manual of mental disorders* (4<sup>th</sup> ed.). Washington, DC: Author.
- Aspland, H., & Gardner, F. (2003). Observational measures of parent-child interaction: An introductory review. *Child and Adolescent Mental Health*, 8(3), 136-143. doi: 10.1111/1475-3588.00061
- Baker, L. L., & Cunningham, A. J. (2004). Helping children thrive / support woman abuse survivors as mothers: A resource to support parenting. London, ON: Centre for Children & Families in the Justice System. Retrieved from [http://www.lfcc.on.ca/HCT\\_SWASM.pdf](http://www.lfcc.on.ca/HCT_SWASM.pdf)
- Bair-Merritt, M. H., Blackstone, M., & Feudtner, C. (2006). Physical health outcomes of childhood exposure to intimate partner violence: A systematic review. *Pediatrics*, 117(2), 278-290. doi: 10.1542/peds.2005-1473

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182. doi: 10.1037/0022-3514.51.6.1173
- Beattie, K. (2005). Family violence against children and youth. In K. AuCoin (Ed.), *Family violence in Canada: A statistical profile*. Retrieved from [http://dsp-psd.pwgsc.gc.ca/collection\\_2007/statcan/85-224-X/85-224-XIE2007000.pdf](http://dsp-psd.pwgsc.gc.ca/collection_2007/statcan/85-224-X/85-224-XIE2007000.pdf)
- Campbell, J. C. (2002). Health consequences of intimate partner violence. *Lancet*, *359*, 1331-1336. doi: 10.1016/s0140-6736(02)08336-8
- Carlson, B. E. (2000). Children exposed to intimate partner violence. *Trauma, Violence & Abuse*, *1*(14), 321-342. doi: 10.1177/1524838000001004002
- Carpenter, G. L., & Stacks, A. M. (2009). Developmental effects of exposure to intimate partner violence in early childhood: A review of the literature. *Child and Youth Services Review*, *31*, 831-839. doi: 10.1016/j.chilyouth.2009.03.005
- Casanueva, C., Martin, S. L., Runyan, D. K., Barth, R. P. & Bradley, R. H. (2008). Quality of maternal parenting among intimate-partner violence victims involved with the child welfare system. *Journal of Family Violence*, *23*, 413-427. doi: 10.1007/s10896-008-9167-6
- Centers for Disease Control and Prevention. (2009). *Intimate partner violence: Definitions*. Atlanta: Centre for Disease Control and Prevention. Retrieved from <http://www.cdc.gov/violenceprevention/intimatepartnerviolence/definitions.html>.



- Chan, Y. C., & Yeung, J. W. K. (2009). Children living with violence within the family and its sequel: A meta-analysis from 1995-2006. *Aggression and Violent Behaviour, 14*, 313-322. doi: 10.1016/j.avb.2009.04.001
- Cicchetti, D., Rogosch, F. A., Lynch, M., & Holt, K. D. (1993). Resiliency in maltreated children: Processes leading to adaptive outcome. *Development and Psychopathology, 5*(4), 629-647.
- Coker, A. L., Smith, P. H., Thompson, M. P., McKeown, R. E., Bethea, L., & Davis, K. E. (2002). Social support protects against the negative effects of partner violence on mental health. *Journal of Women's Health & Gender-Based Medicine, 11*(5), 465-476. doi:10.1089/15246090260137644
- Cummings, E. M., & Davies, P. T. (1994). *Children and marital conflict: The impact of family dispute and resolution*. New York: NY, Guilford Press.
- Cummings, E. M., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family process: Theory, research, and clinical implications*. New York, NY: Guilford Press.
- Cowan, P., & Cowan, C. (2006). Developmental Psychopathology from family systems and family risk factors perspectives: implications for family research, practice, and policy. In D. Cicchetti & D. Cohen (Eds.) (2006). *Developmental Psychopathology 2<sup>nd</sup> edition Volume One: Theory and Method* (pp. 530-587). New Jersey: Wiley.
- Dauvergne, M., & Johnson, H. (2001). Children Witnessing Family Violence. *Juristat 21*(6), Canadian Centre for Justice Statistics: Statistics Canada. Retrieved from <http://dsp-psd.tpsgc.gc.ca/Collection-R/Statcan/85-002-XIE/0060185-002-XIE.pdf>

- Davies, P. T., & Cicchetti, D. (2004). Toward an integration of family systems and developmental psychopathology approaches. *Development and Psychopathology, 16*, 477- 481. doi: 10.1017/S0954579404004626
- Davies, P. T., & Cummings, E. M. (1998). Exploring children's emotional security as a mediator of the link between marital relations and child adjustment. *Child Development, 69*(1), 124- 139. doi: 10.1111/j.1467-8624.1998.tb0613
- Davies, P. T., Cummings, E. M., & Winter, M. A. (2004). Pathways between profiles of family functioning, child security in the interparental subsystem, and child psychological problems. *Development and Psychopathology, 16*, 525-550, doi: 10.1017/S0954579404004651
- Davis, L., & Siegel, L. J. (2000). Posttraumatic stress disorder in children and adolescents: A review and analysis. *Clinical Child and Family Psychology Review, 3*(3), 135-152. doi: 1096-4037/00/0900-0135
- Dehon, C., & Scheeringa, M. S. (2006). Screening for preschool posttraumatic stress disorder with the child behavior checklist. *Journal of Pediatric Psychology, 31*(4), 431-435. doi: 10.1093/jpepsy/jsj006
- DeJonghe, E. S., Bogat, G. A., Levendosky A. A., von Eye, A. (2008). Women survivors of intimate partner violence and post-traumatic stress disorder: Prediction and prevention. *Journal of Postgraduate Medicine, 54*, 294-300. Retrieved from <http://web.ebscohost.com.proxy1.lib.umanitoba.ca/ehost/pdfviewer/pdfviewer?vid=2&hid=107&sid=e406f588-efcb-422b-b2a6-34c113b05f45%40sessionmgr112>

- Dishion, T. J., Gardner, K., Patterson, G. R., Reid, J. B., Spyrou, S., & Thibodeaux, S. (1987). *The Family Process Code: A multidimensional system for observing family interaction*. Unpublished technical report, Oregon Social Learning Center, Eugene, OR.
- Dubowitz, H., Black, M., Kerr, M., Hussey, J., Morrel, T., Everson, M., & Starr, R. (2001). Type and timing of mothers' victimization: Effects on mothers and children. *Pediatrics*, 7(4), 728-735. Retrieved from <http://web.ebscohost.com.proxy1.lib.umanitoba.ca/ehost/pdfviewer/pdfviewer?vid=2&hid=107&sid=50c37963-ebef-4465-81590407bfbaf317%40sessionmgr112>
- Dumas, J. E., Gibson, J. A., & Albin, J. B. (1989). Behavioral correlates of maternal depressive symptomatology in conduct disorder children. *Journal of Consulting and Clinical Psychology*, 54(4), 516-521. doi: 10.1037/0022-006X.57.4.516
- Dunn, J. F., Stocker, C., & Plomin, R. (1990). Nonshared experiences within the family: Correlates of behavioral problems in adult twins. *Developmental Psychopathology*, 2, 113-126.
- Edleson, J. L., Mbilinyi, L. F., Beeman, S. K., & Hagemester, A. K. (2003). How children are involved in adult domestic violence. *Journal of Interpersonal Violence*, 18(1), 18-32. doi: 10.1177/0886260502238538
- Evans, S., Davies, C., & DiLillo, D. (2008). Exposure to domestic violence: A meta-analysis of child and adolescent outcomes. *Aggression & Violence and Behavior*, 13(2), 131-140. doi: 10.1016/j.avb.2008.02.005
- Fantuzzo, J. W., & Mohr, W. K. (1999). Prevalence and effects of child exposure to domestic violence. *The Future of Children*, 9(3), 21-32. Retrieved from

[http://www.jstor.org.proxy1.lib.umanitoba.ca/sici?origin=sfx%3Asfx&sici=1054-8289\(1999\)9%3A3%3C21%3APAE0CE%3E2.0.CO%3B2-G&cookieSet=1](http://www.jstor.org.proxy1.lib.umanitoba.ca/sici?origin=sfx%3Asfx&sici=1054-8289(1999)9%3A3%3C21%3APAE0CE%3E2.0.CO%3B2-G&cookieSet=1)

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191. Retrieved from <http://brm.psychonomic-journals.org.proxy1.lib.umanitoba.ca/content/39/2/175.full.pdf>

Fergusson D. M., & Horwood, J.L. (1998). Exposure to interparental violence in childhood and psychosocial adjustment in young adulthood. *Child Abuse & Neglect*, 22(5), 339-357.  
doi: 10.1016/s0145-2134(98)00004-0

Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology*, 51(1), 115-134. doi: 10.1037/0022-0167.51.1.115

Gardner, F. (2000). Methodological issues in the direct observation of parent-child interaction: Do observational findings reflect the natural behavior of participants? *Clinical Child and Family Psychological Review*, 3(3), 185-198. doi: 1096-4037/00/0900-0185

Garnezy, N., & Masten, A. S. (1994). Chronic adversities. In M. Rutter, L. Herzov, & E. Taylor (Eds.), *Child and adolescent psychiatry* (pp. 191-208). Oxford: Blackwell Scientific Publications.

Gewirtz, A. H., & Edleson, J. L. (2007). Young children's exposure to intimate partner violence: Towards a developmental risk and resilience framework for research and intervention. *Journal of Family Violence*, 22, 151-163. doi: 10.1007/s10896-007-9065-3

Gorsuch, R. L. (1983). *Factor analysis*. Hillsdale, NJ: Erlbaum.

Graham-Bermann, S. A. (1996). Family worries: Assessment of interpersonal anxiety in children from violent and nonviolent families. *Journal of Clinical Child Psychology, 25*, 280-287.

Graham-Bermann, S. A. (1998). The impact of women abuse on children's social development: Research and theoretical perspectives. In G. W. Holden, R. Geffner, & E.N. Jouriles (Eds.), *Children exposed to marital violence: Theory, research and applied issues* (pp. 21-54). Washington, DC: American Psychological Association.

Graham-Bermann, S. A. (2001). Designing intervention evaluations for children exposed to domestic violence. In Graham-Bermann, S.A. & Edleson, J, L, (Eds.), *Domestic violence in the lives of children: The future of research, intervention, and social policy* (pp. 237-267). Washington, DC: American Psychological Association.

Graham-Bermann, S. A., De Voe, E., R., Mattis, J. S., Lynch, S., & Thomas, S. A. (2006). Ecological predictors of traumatic stress symptoms in caucasian and ethnic minority children exposed to intimate partner violence. *Violence Against Women, 12*(7), 663-692. doi: 10.1177/1077801206290216

Graham-Bermann, S.A., Gruber, G., Howell, K. H., & Girz, L. (2009). Factors discriminating among profiles of resilience and psychopathology in children exposed to intimate partner violence (IPV). *Child Abuse and Neglect, 33*(9), 648-660. doi: 10.1016/j.chiabu.2009.01.002

- Graham-Bermann, S. A., & Hughes, H. M. (2003). Intervention for children exposed to interparental violence (IPV): Assessment of needs and research priorities. *Clinical Child and Family Psychology Review, 6*(3), 189- 204. doi: 10.1023/A: 1024962400234
- Graham-Bermann, S. A., & Levendosky, A. A. (1998). Traumatic stress symptoms in children of battered women. *Journal of Interpersonal Violence, 14*(1), 111-128. doi: 10.1177/088626098013001007
- Grych, J. H., Jouriles, E. N., Swank, P. R., McDonald, R., & Norwood, W. D. (2000). Patterns of adjustment among children of battered women. *Journal of Consulting and Clinical Psychology, 68*(1), 84-94. doi: 10.1037/0022-006X.68.1.84
- Haight, W., Shim, W., Linn, L., & Swinford, L. (2007). Mother's strategies for protecting children from batterers: The perspectives of battered women involved in child protective services. *Child Welfare, 86*(4), 41-62. Retrieved from <http://web.ebscohost.com.proxy1.lib.umanitoba.ca/ehost/detail?vid=1&hid=107&sid=0ff0370a-66c0-47c1-bb265de5b6fce5a7%40sessionmgr112&bdata=JnNpdGU9ZWhvc3Qt bGl2ZQ%3d%3d#db=f5h&AN=27026829>
- Haskett, M. E., Ahern, L. S., Ward, C. S., & Allaire, J. C. (2006). Factor structure and validity of the parental stress index-short form. *Journal of Clinical Child Psychology, 35*(2), 302-312. doi: 10.1207/s15374424jccp3502\_14
- Haskett, M. E., Nears, K., Ward, C. S., & McPherson, A. V. (2006). Diversity in adjustment of maltreated children: Factors associated with resilient functioning. *Clinical Psychology Review, 26*(6), 796-812. doi: 10.1016/j.cpr.2006.03.005

- Hazen, A. L., Connelly, C. D., Kelleher, K. J., Barth, R. P., & Landsverk, J. A. (2006). Female caregivers' experiences with intimate partner violence and behavior problems in children investigated as victims of maltreatment. *Pediatrics, 117*(1), 99-109. doi: 10.1542/peds.2004-2542
- Herrenkohl, T. I., Sousa, C., Tajima, E. A., Herrenkohl, R. C., & Moylan, C. A. (2008). Intersection of child abuse and children's exposure to domestic violence. *Trauma, Violence and Abuse, 9*(84), 84-99. doi: 10.1177/1524838008314797
- Herrera, V. M., & McCloskey, L. A. (2001). Gender differences in the risk for delinquency among youth exposed to family violence. *Child Abuse and Neglect, 25*(8), 1037-1051. doi:10.1016/S0145-2134(01)00255-1
- Holden, G. W. (2003). Children exposed to domestic violence and child abuse: Terminology and taxonomy. *Clinical Child and Family Psychological Review, 6*(3), 151-160. doi: 10.1023/A:1024906315255
- Holt, S., Buckley, H., & Whelan, S. (2008). The impact of exposure to domestic violence on children and young people: A review of the literature. *Child Abuse & Neglect, 32*, 797-810. doi: 10.1016/j.chiabu.2008.02.004
- Hughes, H. M., & Graham-Bermann, S. A. (1998). Children of battered women: Impact of emotional abuse on adjustment and development. *Journal of Emotional Abuse, 1*(2), 23-50. doi: 10.1300/J135v01n02\_02
- Hughes, H. M., & Luke, D. A. (1998). Heterogeneity in adjustment among children of battered women. In G.W. Holden, R. Geffner, & E. N. Jouriles (Eds.), *Children*

*exposed to martial violence: Theory, research, and applied issues* (pp. 185-221).

Washington, DC: American Psychological Association.

Huth-Bocks, A., & Hughes, H. (2008). Parenting stress, parenting behavior, and children's adjustment in families experiencing intimate partner violence. *Journal of Family Violence, 23*: 243-251. doi: 10.1007/s10896-007-9148-1

Jaffee, S. R., Caspi, A., Moffitt, T. E., Polo-Tornas, M. & Taylor, A. (2007). Individual, family, and neighborhood factors distinguish resilient from non-resilient maltreated children: A cumulative stressors model. *Child Abuse and Neglect, 31*(3), 231-253. doi: 10.1016/j.chiabu.2006.03.011

Jaffe, P. G., Wolfe, D. A., & Wilson, S. K. (1990). Children of battered women. Newbury Park, CA: Sage.

Johnson, V., & Lieberman, A. (2007). Variations in behaviour problems of preschoolers exposed to domestic violence: The role of mother's attunement to children's emotional experiences. *Journal of Family Violence, 22*, 297-308. doi: 10.1007/s10896-007-9083-1

Jones, L., Hughes, M., & Unterstaller, U. (2001). Post-traumatic stress disorder (PTSD) in victims of domestic violence: A review of the literature. *Trauma, Violence & Abuse, 2*(2), 99-119. doi: 10.1177/1524838001002002001

Jouriles, E. N., McDonald, R., Norwood, W. D. & Ezell, E. (2001). Issues and controversies in documenting the prevalence of children's exposure to domestic violence. In S. A. Graham-Bermann, & J. L. Eldleson (Eds.), *Domestic violence in the lives of children:*



*The future of research, intervention, and social policy* (pp. 12-43). Washington, DC: American Psychological Association.

Jouriles, E. N., McDonald, R., Norwood, W. D., Ware, H. S., Spiller, L. C. & Swank, P. R. (2000). Knives, guns, and interparent violence: Relations with child behavior problems. *Journal of Family Psychology, 12*, 178–194. doi: 10.1037/0022-006X.69.5.774

Kerig, P. K. (2003). In search of protective processes for children exposed to interparental violence. *Journal of Emotional Abuse, 3*(3-4), 149-181. doi: 10.1300/J135v03n03\_01

Kernic, M., A., Wolf, M. E., Holt, V. L., McKnight, B., Huebner, C. E., & Rivara, F. P. (2003). Behavioral problems among children whose mothers are abused by an intimate partner. *Child Abuse & Neglect, 27*, 1231-1246. doi: 10.1016/j.chiabu.2002.12.001

Kilpatrick, K. L., & Williams, L. M. (1997). Post-traumatic stress disorder in child witnesses to domestic violence. *American Journal of Orthopsychiatry, 67*(4), 639-644. doi: 10.1037/h0080261

Kilpatrick, K. L., & Williams, L. M. (1998). Potential mediators of post-traumatic stress ; disorder in child witnesses of domestic violence. *Child Abuse & Neglect, 22*(4), 319-330. doi: 10.1016/S0145-2134(97)00178-6

Kitzmann, K. M., Gaylord, N. K., Holt, A. R., & Kenny, E. D. (2003). Child witnesses to domestic violence: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 71*(2), 339-352. doi: 10.1037/0022-006X.71.2.339

- Knutson, J. F., Lawrence, E., Taber, S. M., Bank, L., & De Garmo, D. S. (2009). Assessing children's exposure to intimate partner violence. *Clinical Child and Family Psychology Review, 12*, 157-173. doi: 10.1007/s10567-009-0048-1
- Kuczynski, L. (2003). Beyond bidirectionality: Bilateral conceptual frameworks for understanding dynamics in parent-child relations. In L. Kuczynski (Ed.), *Handbook of dynamics in parent-child relations* (pp. 3-24). Thousand Oaks, CA: Sage.
- Lang, J. M., & Stover, C. S. (2009). Symptom patterns among youth exposed to intimate partner violence. *Journal of Family Violence, 23*(3), 619-629. doi: 10.1007/s10896-008-9184-5
- Leinonen, J. A., Solantaus, T. S., & Punamaki, RL. (2003). Parental mental health and children's adjustment: The quality of the marital interaction and parenting as mediating factors. *Journal of Child Psychology and Psychiatry, 44*(2), 227-241. doi: 10.1111/1469-7610.t01-1-00116
- Letourneau, L., Fedick, B., & Willms, D. (2007). Mothering and domestic violence: A longitudinal analysis. *Journal of Family Violence, 22*, 649-659. doi: 10.1007/s10896-007-9099-6
- Levendosky, A. A., Bogat, A., & von Eye, A. (2007). New directions for research on intimate partner violence and children. *European Psychology, 12*(1), 1-15. doi: 10.1027/1016-9040.12.1.1
- Levendosky, A. A., & Graham-Bermann, S. A. (2000). Trauma and parenting in battered women. *Journal of Aggression, Maltreatment & Trauma, 3*(1), 25-35. doi: 10.1037//0893-3200.14.1.80

- Levendosky, A. A., & Graham-Bermann, S. A. (2001). Parenting in battered women: The effects of domestic violence on women and their children. *Journal of Family Violence, 16*(2), 171-192. doi: 10.1023/A:1011111003373
- Levendosky, A. A., Huth-Bocks, A. C., & Semel, M. A. (2002). Adolescents peer relationships and mental health functioning in families with domestic violence. *Journal of Clinical Child Psychology, 31*(2), 206-218. doi: 10.1207/S15374424JCCP3102\_06
- Levensosky, A. A., Leahy, K., Bogat, A., Davidson, W., & von Eye, A. (2006). Domestic violence, maternal parenting, maternal mental health, and infant externalizing behaviour. *Journal of Family Psychology, 20*(4), 544-552. doi: 10.1037/0893-3200.20.4.544
- Lieberman, F. A., Van Horn, P., & Ippen, G. C. (2005). Psychotherapy with preschoolers exposed to marital violence. *Journal of American Academy of Child and Adolescent Psychiatry, 44*(12), 1241-1248.
- Lieberman, F. A., Van Horn, P., & Ozer, E. J. (2005). Preschooler witnesses of martial violence: Predictors and mediators of child behaviour problems. *Developmental and Psychopathology, 17*, 385-396. doi: 10.1017/s0954579405050182
- Lilly, M. M., & Graham-Bermann, S. A. (2008). European American and African American women following intimate partner violence: Prevalence and predictors ethnicity and risk for symptoms of posttraumatic stress. *Journal of Interpersonal Violence, 24*(3), 1-19. doi: 10.1177/0886260508314335.
- Luther, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562.

- Maccoby, E. E. (2007). Historical overview of socialization research and theory. In J.E. Grusec & P.D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 13-41). New York, NY: Guilford Press.
- Margolin, G. (2005). Children's exposure to violence: Exploring developmental pathways to diverse outcomes. *Journal of Interpersonal Violence, 20*(1), 72-81. doi: 10.1177/0886260504268371
- Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*, 445-479. doi: 10.1146/annurev.psych.51.1.445
- Margolin, G., & Gordis, E. B. (2004). Children's exposure to violence in the family and community. *Current Directions in Psychological Science, 13*(4), 152-155. doi: 10.1111/j.0963-7214.2004.00296.x
- Margolin, G., & Vickerman, K. (2007). Posttraumatic stress in children and adolescents exposed to family violence: I. Overview and Issues. *Professional Psychology: Research and Practice, 38*(6), 613-619. doi: 10.1037/0735-7028.38.6.613
- Martinez-Torteya, C., Bogat, G. A., von Eye, A., & Levendosky, A. A. (2009). Resilience among children exposed to domestic violence: The role of risk and protective factors. *Child Development, 80*(2), 562-577. doi: 10.1111/j.1467-8624.2009.01279.x
- McCloskey, L., Figueredo, A. J., & Koss, M. (1995). The effects of systemic family violence on children's mental health. *Child Development, 66*, 1239-1261. Retrieved from

[http://www.jstor.org.proxy1.lib.umanitoba.ca/sici?origin=sfx%3Asfx&sici=0009-3920\(1995\)66%3A5%3C1239%3ATEOSFV%3E2.0.CO%3B2-&cookieSet=1](http://www.jstor.org.proxy1.lib.umanitoba.ca/sici?origin=sfx%3Asfx&sici=0009-3920(1995)66%3A5%3C1239%3ATEOSFV%3E2.0.CO%3B2-&cookieSet=1)

McCloskey, L. A., & Walker, M. M. (2000). Posttraumatic stress in children exposed to family violence and single event trauma. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*(1), 108-115. Retrieved from

<http://vnweb.hwwilsonweb.com.proxy1.lib.umanitoba.ca/hww/results>

McHale, S. M., Crouter, A. C., McGuire, S. A., & Updegraff, K. A. (1995). Congruence between mothers' and fathers' differential treatment of siblings: Links with family relations and children's well-being. *Child Development, 66*, 116–128. doi: 10.1111/1467-8624.ep9503233311

Moffit, T. E., & E-Risk Study Team, London, England. (2002). Teen-aged mothers in contemporary Britain. *Journal of Child Psychology and Psychiatry, 43*(6), 727-742. doi: 10.1111/1469-7610.00082

Murray, C. E., & Graybeal, J. (2007). Methodological review of intimate partner violence prevention research. *Journal of Interpersonal Violence, 22*(10), 1250-1269. doi: 10.1177/0886260507304293

Osborne, J. W., & Costello, A. B. (2004). Sample size and subject to item ratio in principal components analysis. *Practical Assessment, Research & Evaluation, 9*(11). Retrieved from <http://PAREonline.net/getvn.asp?v=9&n=11>.

- Osofsky, J. D. (2003). Prevalence of children's exposure to domestic violence and child maltreatment: Implications for prevention and intervention. *Clinical Child and Family Psychology Review, 6*(3), 161-170. doi: 10.1023/A:1024958332093
- Øverlien, C. (2009). Children exposed to domestic violence: conclusions from the literature and challenges ahead. *Journal of Social Work, 1*, 1-18. doi: 10.1177/1468017309350663.
- Owen, A. E., Thompson, M. P., Jackson, E. B., & Kaslow, N. J. (2009). Family variables that mediate the relations between intimate partner violence (IPV) and child adjustment. *Journal of Family Violence, 24*, 433-445. doi: 10.1007/s10896-009-9239-2.
- Patterson, J. (2002). Integrating family resilience and family stress theory. *Journal of Marriage and Family, 64*(2), 349-360. doi: 10.1111/j.1741-3737.2002.00349.x
- Perez, L. L. (1989). *Maternal depression, parenting stress, social support, and coping mechanisms: A comparison of Puerto Rican clinic and non-clinic latency-age boys*. (Unpublished doctoral dissertation). New York University, New York.
- Perrin, S., Smith, P., & Yule, W. (2009). Practitioner review: The assessment and treatment of post-traumatic stress disorder in children and adolescents. *Journal of Child Psychology and Psychiatry, 41*(3), 227-289.
- Pinheiro, P. S., (Ed.). (2006). *World report on violence against children; Secretary-General's study on violence against children*. New York: United Nations. Retrieved from <http://www.unviolencestudy.org/>
- Prinz, R. J., & Ferrick, M. M. (2003). Children exposed to community violence or war/terrorism:

Current status and research directions—Introduction. *Clinical Child and Family Psychology Review*, 6, 221-305.

Public Health Agency of Canada. (2010). The National Clearinghouse on Family Violence (NCFV) E-bulleten. Retrieved from: <http://www.phac-aspc.gc.ca/ncfv-cnivf/EB/eb-March-2010-eng.php>.

Renner, L. M. (2009). Intimate partner violence victimization and parenting stress: Assessing the mediating role of depressive symptoms. *Violence Against Women*, 15(11), 1380-1401. doi: 10.1177/1077801209346712

Richmond, M. K., Stocker, C. M., & Rienks, S. L. (2005). Longitudinal associations between sibling relationship quality, parental differential treatment, and children's adjustment. *Journal of Family Psychology*, 19, 550-559. doi: 10.1037/0893-3200.19.4.550

Robin A. L., & Foster S. L. (1989). *Negotiating Parent-Adolescent Conflict: A Behavioral-Family Systems Approach*. New York, NY: Guilford Press.

Rossmann, R. B. B. (1998). Descartes's error and posttraumatic stress disorder: Cognition, and emotion in children who are exposed to parental violence. In G. W. Holden, R. A. Geffner, & E. N. Jouriles (Eds.), *Children exposed to marital violence: Theory, research, and applied issues* (pp. 223-256). Washington, DC: American Psychological Association.

Rossmann, R. B. B., Bingham, R. D. & Emde, R. N. (1997). Symptomatology and adaptive functioning for children exposed to normative stressors, dog attack and parental violence. *Journal of American Academy of Child and Adolescent Psychiatry*, 36(8), 1089-1097. doi:0890-8567/97/3608-1089

- Rossmann, R. B. B., & Ho, J. (2000). Posttraumatic response and children exposed to parental violence. In Geffner, R., Jaffee, P., & M. Sudermann (Eds.), *Children exposed to violence: Current issues in research, intervention, prevention and policy development* (pp.85- 139). Binghamton, NY: Harworth Press.
- Rutter, M. (2007). Resilience, competence, and coping. *Child Abuse and Neglect*, 31, 205-209. doi: 10.1016/j.chiabu.2007.02.001
- Rutter, M., & Sroufe, L. A. (2000). *Developmental psychopathology: Concepts and challenges*. New York, NY: Cambridge University Press.
- Sameroff, A. J., & Fiese, B. H. (2000). Transactional regulation: The developmental ecology of early intervention. In Shonkoff, J. P., & S. J. Meisels (Eds.), *Handbook of early interventions* (pp. 135-178). New York, NY: Cambridge University Press.
- Sameroff, A. J., & Seifer, R. (1983). Familial risk and child competence. *Child Development*, 54(5), 1254-1268. Retrieved from <http://www.jstor.org.proxy1.lib.umanitoba.ca/stable/1129680?cookieSet=1>
- Samuelson, K. W. & Cashman, C. (2008). Effects of intimate partner violence and maternal posttraumatic stress symptoms on children's emotional and behavioural functioning. *Journal of Emotional Abuse*, 8: 139-153. doi: 10.1080/10926790801986007
- Schwartz, J. P., Hage, S. M., Bush, I., & Burns, L. K. (2006). Unhealthy parenting and potential mediators as contributing factors to future intimate violence: A review of the literature. *Trauma, Violence & Abuse*, 7(3), 206-221. doi: 10.1177/1524838006288932



- Silverstein, M., Augustyn, M., Cabral, H., & Zuckerman, B. (2006). Maternal depression and violence exposure: Double jeopardy for child school functioning. *Pediatrics, 118*, 792-800. doi: 10.1542/peds.2005-1841.
- Skopp, N., McDonald, R., Manke, B., & Jouriles, E. (2005). Siblings in domestically violent families: Experiences of interparent conflict and adjustment problems. *Journal of Family Psychology, 19*(2), 324-333. doi: 10.1037/0893-3200.19.2.324
- Spilsbury, J. C., Belliston, L., Drotar, D., Drinkard, A., Kretschmar, J., Creedon, R., . . . Friedman, S. (2007). Clinically significant trauma symptoms and behavioral problems in a community –based sample of children exposed to domestic violence. *Journal of Family Violence, 22*, 487-499. doi: 10.1007/s10896-007-9113-z.
- Statistics Canada (1998). Income in Canada 1998 Catalogue no. 75-202-XIE. Retrieved from: <http://www.statcan.gc.ca/pub/75-202-x/75-202-x1998000-eng.pdf>.
- Sternberg, K. J., Baradaran, L. P., Abbott, C. B., Lamb, M. E., & Guterman, E. (2006). Type of violence, age, and gender differences in the effects of family violence on children's behavior problems: A mega-analysis. *Developmental Review, 26*(1), 89-112. doi: 10.1016/j.dr.2005.12.001
- Sternberg, K. J., Lamb, M. E., Guterman, E., & Abbott, C. B. (2006). Effects of early and later family violence on children's behaviour problems and depression: A longitudinal, multi-informant perspective. *Child Abuse and Neglect, 30*(3), 283- 306. doi: 10.1016/j.chiabu.2005.10.008

- Stewart-Tufescu, A., & Piotrowski, C. C. (2009). The parent-child coding scheme. Unpublished instrument. Department of Family Social Sciences, University of Manitoba.
- Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics Scales. *Journal of Marriage and the Family*, *41*(1), 75–88. doi: 10.2307/351733
- Straus, M. A., & Gelles, R. (1990). Physical Violence in American families: Risk factors and adaptations to violence in 8, 145 families. New Brunswick, MI: Transaction Publishers.
- Taylor, C. A., Guterman, N. B., Lee, S. J., & Rathouz, P. J. (2009). Intimate partner violence, maternal stress, nativity, and risk for maternal maltreatment of young children. *American Journal of Public Health*, *99*(1), 175–183. doi: 10.2105/AJPH.2007.126722
- Trocmé, N., Fallon, B., MacLaurin, B., Daciuk, J., Felstiner, C., Black, T., Tonmyr, L., . . . Cloutier, R. (2005). Canadian Incidence Study of Reported Child Abuse and Neglect – 2003: Major Findings. Minister of Public Works and Government Services Canada. Retrieved from [http://www.phac-aspc.gc.ca/ncfv-cnivf/pdfs/nfnts/incidence2003\\_final\\_e.pdf](http://www.phac-aspc.gc.ca/ncfv-cnivf/pdfs/nfnts/incidence2003_final_e.pdf).
- Vickerman, K.A., & Margolin, G. (2007). Posttraumatic stress in children and adolescents exposed to family violence: II. Treatment. *Professional Psychology: Research and Practice*, *38*(6), 620-628. doi: 10.1037/0735-7028.38.6.620
- Webster-Stratton, C. (1988). Mothers' and fathers' perceptions of child deviance: Roles of parent and child behaviors and parent adjustment. *Journal of Consulting and Clinical Psychology*, *56*, 909-915. Retrieved from [http://www.incredibleyears.com/Library/items/maternal-depression\\_88.pdf](http://www.incredibleyears.com/Library/items/maternal-depression_88.pdf)

- Wolfe, D. A., Crooks, C. V., Lee, V., McIntyre-Smith, A., & Jaffe, P. G. (2003). The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clinical Child and Family Psychology Review*, 6(3), 171-187. doi: 1096-4037/03/0900-0171/0
- Wolfe, V. V., Gentile, C. & Wolfe, D. A. (1989). The impact of sexual abuse on children: A PTSD formulation. *Behavior Therapy*, 20(2), 215-228. doi: 005-7894/89/0215-0228.
- Ybarra, G. J., Wilkens, S. L., & Lieberman, A. F. (2007). The influence of domestic violence on preschooler behaviour and functioning. *Journal of Family Violence*, 22(1), 33-42. doi: 10.1007/s10896-006-9054-y
- Yehuda, R., Halligan, L. S., & Grossman, R. (2001). Childhood trauma and risk for PTSD: Relationship to intergenerational effects of trauma, parental PTSD, and cortisol excretion. *Developmental Psychopathology*, 13, 733-753. doi: 10.1017/S0954579401003170

Table 1: Parent-Child Coding Scheme: Definitions of Content Codes

<b>CODES</b>	<b>POSITIVE (1)</b>	<b>NEUTRAL (2)</b>	<b>NEGATIVE (3)</b>
<b>VERBAL CONTENT</b>	Positive statements about self & family; approvals; volunteering; thanks; endearments; apologies; asking permission; agreement; recipient given choice to comply; affectionate peer names; positive emotion towards another; praise; empathy	General conversations; how to's; Q & A's; suggestions; agreement and disagreement over facts; teasing; playful banter; specific commands; ambiguous commands: one-word follow-up commands; firm but unclear nonspecific directives for behaviour change	Specific negative statements about self and family; disapproving another's behaviour in the obs.; leading questions involving blame; verbal attacks; emotional name calling; threats (physical or emotional); verbal indication of non-compliance; partial refusals
<b>NON-VERBAL &amp; VOCAL CONTENT</b>	Laughing, smiling; singing to self; OK signal; sharing/offering; non-verbal agreement; volunteering.	Shrugging; nodding; other indications that subjects heard or understood; pointing; gesturing; humming; whistling	Non-verbal whining, sobbing, threatening gestures; non-verbal refusal; tense body position; stomping; grabbing object; shaking finger
<b>PHYSICAL CONTACT</b>	Brief touch, casual contact; tickling, patting; holding; embraces; extended physical contact; holding another on lap; arm around shoulder	Non-aversive directive physical contact; restraining; guiding; restrictive physical movement involved with physical play; no physical contact	Push; pull; pinch; hit; destructive/disruptive with object(s); low-grade aversive contact; spank; kick; hit with object; any physical aggression of highly aversive physical contact
<b>COMPLIANCE TO RESEARCH TASK</b>	Comply; Clear obedience to research directives/tasks	Somewhat complies to research directives/tasks with minimal interest/attention	Non-comply; clear disobedience to research directives/tasks
<b>PROXIMITY</b>	Within one arms length	Within one to two arms lengths away	Greater than two arms lengths away
<b>JOINT ATTENTION</b>	Parent and child are interacting together- positive joint attention. Sharing, cooperating, helping.	Parent and child are interacting but with minimal interest; distracted.	Parent and child are interacting with negative joint attention. Arguing; showing dominance; being competitive; grabbing obj.

Table 2: Definitions of Disengagement &amp; Uncodeable Codes

<b>CODES</b>	<b>YES (PRESENT)</b> <i>Checked=<input checked="" type="checkbox"/></i>	<b>NO (ABSENT)</b> <i>Left blank=<input type="checkbox"/>.</i>
<b>DISENGAGEMENT</b>	Disengagement is coded when for the majority of the interval (> 10 seconds) parent and child did not talk, make eye contact, or interact with each other. Disengagement is either checked= <input checked="" type="checkbox"/> or left blank= <input type="checkbox"/> . If Disengagement occurs in the interval, then all the other Content and Emotional Tone codes are to be left blank for both mother and child.	If no disengagement occurs then the remaining Content and Emotional Tone codes are recorded separately for mother and child in the dyad.
<b>UNCODEABLE</b>	Uncodeable is coded for the majority of the interval (> 10 seconds) if one or more of the participants leaves the room, were neither audible or visible, or someone else (i.e.: research assistant) enters the room during the interaction. Uncodeable is either checked= <input checked="" type="checkbox"/> or left blank= <input type="checkbox"/> . If Uncodeable occurs in the interval, then all the other Content and Emotional Tone codes are to be left blank for both mother and child.	If Uncodeable is not recorded for the interval the remaining Content and Emotional Tone codes are recorded separately for both the mother and child in the dyad.

Table 3 Parent-Child Coding Scheme: Definitions of Emotional Tone

<b>CODE</b>	<b>Very Positive (1)</b>	<b>Positive (2)</b>	<b>Neutral (3)</b>	<b>Negative (4)</b>	<b>Very Negative (5)</b>	<b>Mixed (6)</b>
<b>EMOTIONAL TONE</b>	Overjoyed; exhilarated; rejoiced; loving; excited; joyful; excitement; enthusiastic	Warm; happy; responsive; concerned; affectionate; approving; cheerful; pleased;	Calm; mild; relaxed; cordial; polite; pleasant; or absence of emotion	Displeasure; irritation; bored; unresponsive tense; contempt; hostility; disapproval; mild sadness; annoyed; bored; impatient	Extreme hostility; anger; depression; yelling; crying; loss of emotional control; extreme disapproval	Combination of emotions is present in a single interval (ie: both a positive and then a negative are present in an interval of roughly equal duration.

Table 4

*Sample descriptive characteristics*

Measures	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
Youngest Child Trauma Score	46	10.75	5.98	27.00
Oldest Child Trauma Score	44	13.67	6.16	25.00
Youngest Child Lifetime IPV Exposure	46	.46	.315	.99
Oldest Child Lifetime IPV Exposure	46	.44	.305	.99
Maternal Age	47	34.85	5.32	21.00
Maternal Violence Hx (months)	47	57.89	42.90	167.00
Maternal Depression	43	30.09	6.17	26.00
Mother-Oldest Child Positive Interactions	33	.373	.144	.624
Mother-Oldest Child Negative Interactions	33	.132	.137	.521
Mother-Youngest Child Positive Interactions	37	.305	.305	.629
Mother-Youngest Child Negative Interactions	37	.140	.127	.529

Table 5

*Pearson's Product Moment Correlation for Older Siblings*

Variables	1	2	3	4	5	6	7	8	9
1. Oldest Trauma Score	—	.150 (43)	-.092 (44)	.156 (44)	-.233 (41)	.042 (31)	.089 (31)	-.005 (31)	.130 (31)
2. Prop. lifetime IPV exposure- Oldest	—	—	.093 (46)	.912** (46)	.249 (42)	.166 (33)	-.222 (33)	.101 (33)	-.258 (33)
3. Maternal Age in Years	—	—	—	.260 (47)	.251 (43)	.006 (33)	-.202 (33)	-.031 (33)	-.057 (33)
4. Maternal Violence History	—	—	—	—	.259 (43)	-.003 (33)	-.164 (33)	-.088 (33)	-.166 (33)
5. Maternal Depression	—	—	—	—	—	-.271 (30)	.097 (30)	-.173 (30)	.056 (30)
6. Mom-Oldest Positive Interactions	—	—	—	—	—	—	-.644** (33)	.915** (33)	-.673** (33)
7. Mom-Oldest Negative Interactions	—	—	—	—	—	—	—	-.594** (33)	.884** (33)
8. Oldest-Mom Positive Interactions	—	—	—	—	—	—	—	—	-.683** (33)
9. Oldest-Mom Negative Interactions	—	—	—	—	—	—	—	—	—

Note: (N), \* $p < .05$ , \*\* $p < .01$  level (2-tailed)



Table 6

*Pearson's Product Moment Correlations for Younger Siblings*

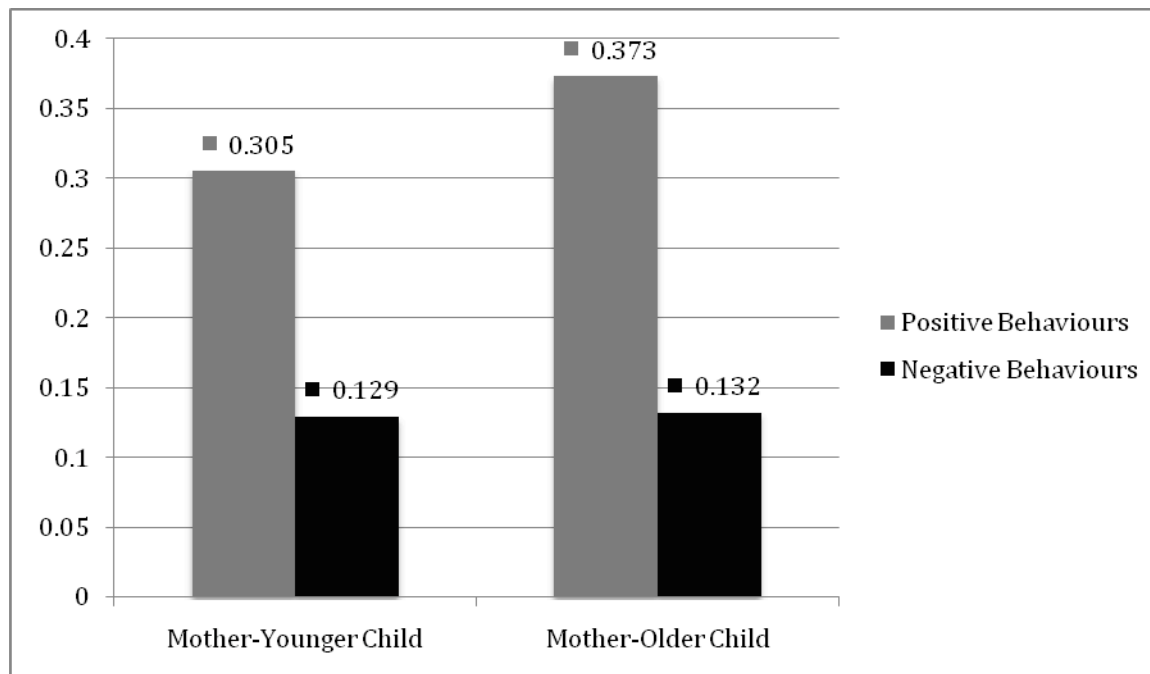
Variables	1	2	3	4	5	6	7	8	9
1. Youngest Trauma Score	—	.030 (45)	-.156 (46)	.057 (46)	-.184 (43)	.038 (36)	-.034 (36)	-.050 (36)	.276 (36)
2. Prop. lifetime IPV exposure-Youngest	—	—	.127 (46)	.728** (46)	.302 (42)	.493** (37)	-.328* (37)	.431** (37)	-.250 (37)
3. Maternal Age	—	—	—	.260 (47)	.251 (43)	.175 (37)	-.312 (37)	.086 (37)	-.285 (37)
4. Maternal Violence History	—	—	—	—	.259 (43)	.310 (37)	-.217 (37)	.256 (37)	-.121 (37)
5. Maternal Depression	—	—	—	—	—	.039 (34)	-.149 (34)	.239 (34)	-.362* (34)
6. Mom-Youngest Positive Interactions	—	—	—	—	—	—	-.461** (37)	.778** (37)	-.333* (37)
7. Mom-Youngest Negative Interactions	—	—	—	—	—	—	—	-.361* (37)	.843** (37)
8. Youngest-Mom Positive Interactions	—	—	—	—	—	—	—	—	-.442** (37)
9. Youngest-Mom Negative Interactions	—	—	—	—	—	—	—	—	—

Note: (N), \* $p < .05$ , \*\* $p < .01$  level (2-tailed)

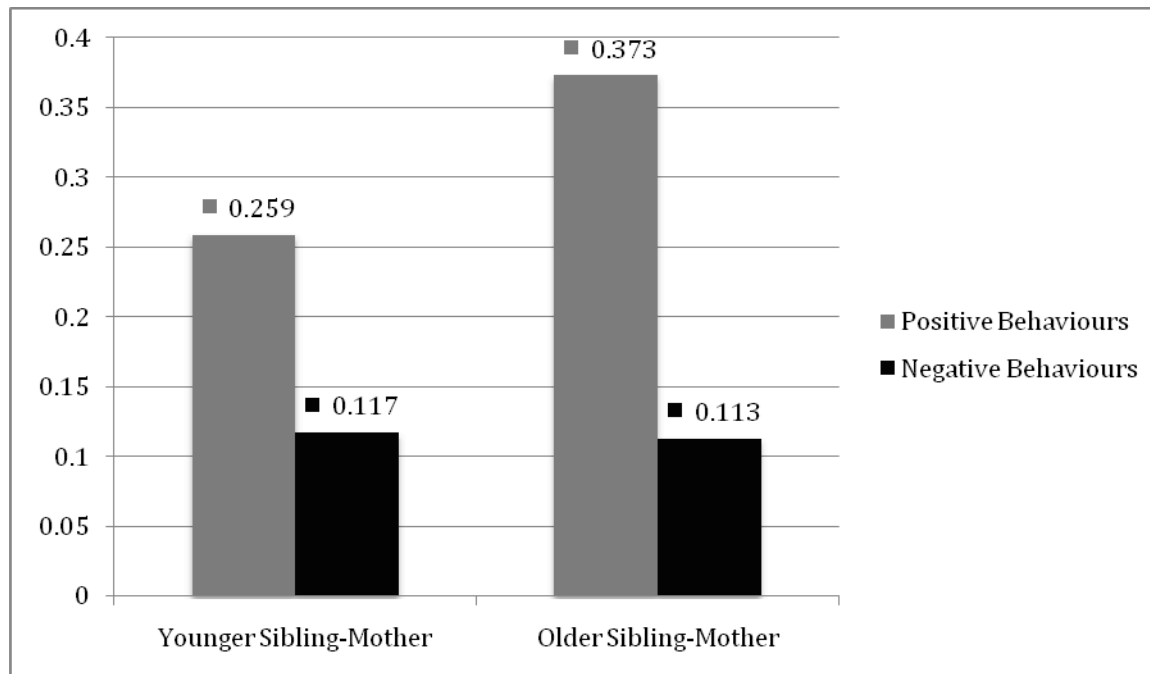
Table 7

*Hierarchical Multiple Regression Analyses Predicting Youngest Siblings Trauma Scores From Child, Maternal and Mother-Child Relationship Characteristics*

Predictor	Child post-traumatic stress score			
	Youngest Sibling		Oldest Sibling	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Model 1	.007		.066	
Proportion of child lifetime exposure to IPV		-.085		.258
Model 2	.038		.073	
Maternal depression		-.171		-.224
Maternal history of violence		.167		.337
Model 3	.123		.101	
Mother-Child Positive Interactions		.326		.429
Mother-Child Negative Interactions		.395		.470
Total $R^2$	.168		.240	
$N$	34		29	



*Figure 1.* Mean proportions of mothers' positive and negative behaviours directed towards their younger and older children. Mothers showed significantly more positive behaviours towards older siblings compared to younger siblings,  $t(33) = 2.96, p < .01$ . No significant differences were found between mothers' negative behaviours directed towards younger and older siblings.



*Figure 2.* Mean proportions of younger and older siblings' positive and negative behaviours towards their mothers. Older siblings directed significantly more positive behaviours towards mothers compared to younger siblings,  $t(32) = -3.51, p < .001$ . No significant differences were found between younger and older sibling negative behaviours directed toward mothers.