Development and Psychopathology **31** (2019), 9–21

doi:10.1017/S0954579418001542

Maternal history of childhood maltreatment and later parenting behavior: A meta-analysis

LAURA-ÉMILIE SAVAGE,[a,b] GEORGE M. TARABULSY,[a,b] JESSICA PEARSON,[b,c] DELPHINE COLLIN-VÉZINA,[b,d] AND LISA-MARIE GAGNÉ[a,b]

[a]*School of Psychology, Laval University, Québec City, Canada;* [b]*University Centre for Research on Youth and Family, Québec City, Canada;* [c]*School of Psychoeducation, University of Québec at Trois-Rivières, Trois-Rivières, Canada; and* [d]*School of Social Work, McGill University, Montréal, Canada*

Abstract

Exposure to maltreatment during childhood (CM) can have deleterious effects throughout the life span of an individual. A parent's history of child maltreatment can also impact his or her own parenting behavior. Theoretically, parents who experienced maltreatment as children may have fewer resources to cope with the challenges of childrearing and may adopt more problematic parenting behaviors. However, empirical studies examining the association between CM and later parenting behavior have yielded mixed results. The aim of this study is to conduct a meta-analysis of studies that have examined the association between exposure to CM and the subsequent parenting outcomes of mothers of 0- to 6-year-old children. A secondary aim is to examine the potential impact of both conceptual and methodological moderators. A total of 32 studies (27 samples, 41 effect sizes, 17,932 participants) were retained for analysis. Results revealed that there is a small but statistically significant association between maternal exposure to CM and parenting behavior ($r = –.13$, $p < .05$). Moderator analyses revealed that effect sizes were larger when parenting measures involved relationship-based or negative, potentially abusive behaviors, when samples had a greater number of boys compared to girls, and when studies were older versus more recent. Results are discussed as they relate to the intergenerational transmission of maltreatment and abuse.

Keywords: childhood maltreatment; intergenerational transmission; meta-analysis; parenting

According to the World Health Organization (WHO; 2006), child maltreatment (CM) is a pervasive public health problem that presently affects approximately one in four children worldwide with the potential for profound developmental sequelae. In addition to the call for effective prevention, the WHO (2006) outlines the growing need to gain clearer insight into the developmental processes that characterize individuals exposed to CM and that provide the infrastructure for its emergence in different ecological settings. Child maltreatment researchers have also highlighted the urgent need to enhance knowledge of the factors that lead parents to expose their offspring to maltreatment (Freisthler, Merritt, & Lascala, 2006; Stith et al., 2009). Such descriptions would provide a clearer path to more meaningful intervention work for individuals exposed to CM, as well as help target factors that lead to the emergence of CM in different families (Cicchetti & Toth, 2016). The purpose of this meta-analysis is to systematically examine studies that have addressed the relation between CM exposure and later quality of parenting behavior. The CM–parenting association is perceived as being one of the core paths linking the potential transmission of maltreatment across generations (Plant, Jones, Pariante, & Pawlby, 2017).

A growing body of literature has demonstrated that CM, defined as the experience of sexual, emotional, or physical abuse or neglect before the age of 18 years, may have short-term and long-term consequences on an individual's physical, behavioral, emotional, and psychological health and well-being (Alink, Cicchetti, Kim, & Rogosch, 2012; Norman et al., 2012). Many researchers have suggested that CM may not only have lifelong consequences on the individuals who are exposed to it, but it may also have deleterious effects on their offspring (Plant et al., 2017; Roberts, O'Connor, Dunn, & Golding, 2004). Children of mothers who experienced CM are at greater risk of being engaged on developmental paths that are characterized by more frequent manifestations of impulsivity, aggressiveness, depression, and anxiety, and to develop disorganized attachment with their caregiver (Madigan, Wade, Plamondon, & Jenkins, 2015; Plant et al., 2017). Moreover, parents with a maltreatment history are twice as likely to maltreat their own children (Madigan et al., 2019). In light of the observation that approximately one in four children experience CM (Stoltenborgh, Bakermans-Kranenburg, Alink, & van Ijzendoorn, 2015; WHO, 2016), and that one in three parents with a history of maltreatment will go on to maltreat his or her own children (Kaufman & Zigler, 1987), it is critical to elucidate the

Address correspondence and reprint requests to: Laura-Émilie Savage or George M. Tarabulsy, School of Psychology, Laval University, 2325, Allée des Bibliothèques, Québec (Québec), Canada, G1V 0A6; E-mail: Laura-Emilie.Savage.1@ulaval.ca; George.Tarabulsy@psy.ulaval.ca.

developmental processes involved in the intergenerational transmission of maltreatment.

Theoretical Overview of Child Maltreatment and Subsequent Parenting

Many researchers have suggested that individuals who experienced maltreatment as children are at risk for experiencing difficulties in their parenting behavior (Freisthler et al., 2006). This may be due, in part to the duel burden of experiencing CM, as well as its negative psychosocial circumstances (Madigan, Wade, Tarabulsy, Jenkins, & Shouldice, 2014). Research from different conceptual perspectives has shown that when CM victims become parents, there is a greater likelihood of experiencing difficulties in their daily interactions with their child (Fraiberg, Adelson, & Shapiro, 1975; Goldberg, Benoit, & Blokland, 2003; Madigan et al., 2007; Pasalich, Cyr, Zheng, McMahon, & Spieker, 2016; Rijlaarsdam et al., 2014). In this view, one of the paths by which exposure to CM may be linked to later child outcome is through problematic parenting and parent–child interaction (Cicchetti & Toth, 2016).

Attachment theory provides a helpful conceptual framework for understanding the effects of CM on later parenting. Attachment theory postulates that the quality of interactions and relationship experienced with primary caregivers during childhood form a "blueprint" for later, meaningful relationships (Sroufe & Fleeson, 1986), including parent–child relationships (Feeney & Woodhouse, 2016). Much of the research in support of this hypothesis has been conducted in longitudinal studies that show that early attachment is linked to later socioemotional outcome in children and adolescents and the way they form relationships (e.g., Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010; Troy & Sroufe, 1987). In light of such findings, it is noteworthy that most studies on the topic have underlined that childhood exposure to maltreatment is frequently linked to insecure and disorganized attachment, both of which are linked to developmental risk and relationship difficulties (Cyr, Euser, Bakermans-Kranenburg, & van Ijzendoorn, 2010). Such attachments mark the presence of a potentially problematic socioemotional trajectory (Fearon et al., 2010).

At least two aspects of attachment theory have been relied upon to address the association between CM and parenting behavior. The first concerns the possibility that exposure to CM may create conflict between the parent's attachment and caregiving behavioral systems. Bowlby (1969), Lyons-Ruth and Block (1996), and George and Solomon (2008) have suggested that, while caregiving is a goal-corrected behavioral system that is deployed to provide protection and care for offspring within the context of interactions, signals, and child emotions, CM experiences may increase parental need to maintain their own vigilance and self-protection, which may create problems in how parents interpret and respond to child signals. The competing behavioral systems make the parent less able to appropriately interpret and respond to child needs in a predictable fashion, as parents may be overly concerned with their own preservation and well-being. Several studies have provided indirect support for this hypothesis. For example, Lyons-Ruth and Block (1996) have obtained data showing that mothers with histories of sexual abuse are less involved and more withdrawn during interactions with their infant than their nonabused counterparts. Relatedly, Bailey, Tarabulsy, Moran, Pederson, and Bento (2017) have shown how exposure to maltreatment moderated the transmission of maternal to infant attachment. Mothers exposed to maltreatment appeared to experience disrupted attachment transmission in comparison to those who were not exposed. Thus, the notion that CM may create a kind of systemic obstacle to parenting is a viable hypothesis.

Second, attachment theory casts CM as a potentially traumatic event that has ramifications for the manner in which parents will interact with their child. Addressing CM in this light may help to gain insight into the interactive experiences of children and the developmental processes that are involved. For example, Main and Hesse (1990) have suggested that unresolved trauma resulting from CM may be activated by child emotional signals and behaviors, whereby the fear, distress, and confusion associated with trauma are triggered by events occurring in the context of interaction and negatively influence a parent's ability to respond sensitively to the child. In support of these specific theoretical postulates, different studies have shown that exposure to CM leads to more frightened, frightening, or otherwise negative, atypical parental behavior that may alarm the child (e.g., Madigan et al., 2007). When these behaviors become recurrent patterns of interaction, they have the potential to be associated with different aspects of infant and child development, including attachment security and organization (Moran, Forbes, Evans, Tarabulsy, & Madigan, 2008).

Empirical Overview of Child Maltreatment History and Parenting Behaviors

In view of the strong theoretical underpinnings linking CM to parenting behavior, it is surprising to note that although the CM–parenting association has been examined in a number of reports, results have varied considerably. While some studies support the basic CM–parenting link, others have not. For example, in the German Longitudinal Study, Fuchs, Moehler, Resch, and Kaess (2015) examined the potential association between maternal history of abuse and parenting behaviors by observing mother–infant interactions at infant age 12 months. In this study, mothers who did not report abuse experiences showed greater levels of interactive sensitivity than those who had, during a 20-min free-play interaction segment. Similar results emerged from a study by Zvara, Mills-Koonce, Appleyard Carmody, and Cox (2015), who found an association between childhood sexual abuse and the observed parenting behavior of mothers of 5-year-old children in a low-income group of participants. Results revealed that mothers who experienced sexual abuse scored sig-

https://doi.org/10.1017/S0954579418001542 Published online by Cambridge University Press

nificantly lower on parenting sensitivity, and significantly higher on harsh intrusiveness and boundary dissolution dimensions, compared to mothers with no experiences of sexual abuse. Such findings have been used to support the hypothesis that maternal experiences of abuse may impact future parenting behavior.

However, in contrast, some studies have obtained results that do not support the CM–parenting association. For example, in a study focusing on the effects of maternal CM on mother–child interactions at 6 months postpartum, Sexton, Davis, Menke, Raggio, and Muzik (2017) found no evidence of any association between CM and either observed hostile, controlling, or positive parenting behaviors. Similarly, in a study that examined the association between exposure to neglect during childhood and the quality of parental interactive behavior, Lounds, Borkowski, and Whitman (2006) found no association when mothers were observed with their child at 3 and 5 years of age.

One method for resolving discrepancies in the literature is to conduct a meta-analytic synthesis. Thus, the primary aim of the current meta-analysis is to quantify the association between maternal exposure to CM and subsequent parenting in children aged 0–6. The specific focus on the parenting behavior of children under the age of 6 is due to the greater homogeneity of parenting measures during early childhood, compared to middle or later childhood (Koehn & Kerns, 2018). The mixed findings that emerge from studies on the CM–parenting association may be linked to a number of conceptual and methodological issues that vary across studies. Thus, a secondary aim of the current study will be to examine whether four categories of variables, that vary across studies, systematically moderated the proposed association: the type of parenting measure, the type of maltreatment parents were exposed to as children, the method used to assess parenting outcome (i.e., self-reported vs. observed), and whether characteristics of the sample (i.e., level of risk, child gender, and child and maternal age) moderated the proposed association. Each of these potential moderators is discussed in further detail below.

Moderators

Type of parenting measure. The type of parenting measure used in different studies is usually chosen by researchers as a function of the specific hypotheses that are addressed in a given study. Some have focused on broad, normative, positive aspects of parenting behaviors. These involve assessments of parental warmth and sensitivity during parent–child interactions (e.g., Bernstein, Laurent, Musser, Measelle, & Ablow, 2013; Dayton, Huth-Bocks, & Busuito, 2016; Gonzalez, Jenkins, Steiner, & Fleming, 2012; Madigan et al., 2015; Nuttall, Valentino, Wang, Lefever, & Borkowski, 2015). Other researchers have addressed specific characteristics of the parent–child relationship, where the units of analysis included consideration of both parental and child dimensions to infer relationship quality. Studies where relationship variables were considered focused on measures of bonding or the quality of mother–child interaction. Many of these studies examined the hypothesis that the effects of CM on parental behavior emerged in the dynamics of the mother–child relationship (e.g., Lounds et al., 2006; Milan, Lewis, Ethier, Kershaw, & Ickovics, 2004). Finally, other researchers have examined the link between CM and more negative aspects of parenting linked to possible abuse and the potential for maltreatment, such as punitive behaviors, hostility, coerciveness and intrusiveness, or physical or psychological aggression (e.g., Kim, Pears, Fisher, Connelly, & Landsverk, 2010). In the current study we examine all three categories of parenting variables, and compare and contrast their effect sizes in terms of their association with CM.

Although they assess different aspects of parenting, there is no reason to believe that these different categories are mutually exclusive. It is conceivable that more positive parenting behaviors are linked to higher quality interactions and relationships and lower levels of negative behaviors, and in this regard, considering all assessments of parenting behaviors together in the current meta-analysis is warranted. However, given that different types of measures are called on to address different sets of hypotheses, it is possible that such conceptual and methodological variations may account for some of the mixed findings from research on the CM–parenting association. Moreover, given the theoretical postulate that CM predisposes parents to behave in atypical ways that may distress their child, it is possible that by isolating more negative parenting behaviors, a greater effect size between CM and parenting may be documented than if the distinction in parenting behaviors is not made.

Parenting measures also differ as a function of the informant. Some studies have examined parenting behavior through parental self-reports (e.g., Beckerman, van Berkel, Mesman, & Alink, 2017; Bert, Guner, & Lanzi, 2009; Renner, Whitney, & Easton, 2015; Rijlaarsdam et al., 2014; Roberts et al., 2004; Schuetze & Eiden, 2005). Others have used observational strategies such as the Maternal Behavior Q-Sort (Pederson & Moran, 1995; e.g., Dayton et al., 2016; Gonzalez et al., 2012; Pereira et al., 2012) or the Atypical Maternal Behavior Instrument for Assessment and Classification (Bronfman, Madigan, & Lyons-Ruth, 1992–2009; e.g., Ensink, Normandin, Plamondon, Berthelot, & Fonagy, 2016). Such variations in research methodology may account for some of the divergence in results between studies. It may be expected that self-reports could lead to more favorable portrayals of parenting behavior than observational assessments and, as such, yield lower associations to CM exposure. The possibility that the source of parenting measures moderates the CM–parenting link will presently be examined.

Type of maltreatment exposure. Several studies have indicated that there might be differential associations between different kinds of maltreatment exposure and parenting outcome. For example, Bailey, DeOliviera, Wolfe, Evans, and Hartiwck (2012) found an association between parental hos-

https://doi.org/10.1017/S0954579418001542 Published online by Cambridge University Press

tility and exposure to childhood emotional abuse, but not to sexual and physical abuse. Lyons-Ruth and Block (1996) found an association between exposure to childhood sexual abuse (but not physical abuse or neglect) and high levels of parental withdrawal during interactions with the child. Pereira et al. (2012) reported that lower maternal sensitivity was associated to maternal childhood physical abuse as well as emotional neglect, but not to childhood sexual abuse. In view of the different aspects of CM that have been considered in this body of research, it is important to address the possibility that the CM–parenting association varies as a function of the type of maltreatment the parent experienced as a child. In the present study, three CM subgroups were devised to examine the potential moderating role of maltreatment exposure: (a) childhood sexual abuse; (b) physical and emotional abuse; and (c) physical and emotional neglect. Conceptually, the major distinctions that are made concern that between physical and sexual abuse (categories a and b) and between maltreatment that involves specific acts (categories a and b) or acts of omission (category c). Similar distinctions have been made elsewhere in the literature, where groups of CM exposure were created (Ethier, Couture, & Lacharite, 2004).

Exposure to risk. Problems in parenting are more likely to arise in contexts where a diversity of risk factors characterizes the family's developmental ecology and it is possible that such differences may affect the link between CM and later parenting behaviors (Stack et al., 2012). For example, it is well established that socioeconomic risk factors such as teen or single parenting and low income are linked to difficulties in parenting, including positive and relationship-based assessments (Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Spieker & Bensley, 1994) and both single parents and adolescent mothers are at greater risk of using more negative, coercive parenting behaviors (Berger, Paxson, & Waldfogel, 2009; Spieker, Larson, Lewis, Keller, & Gilchrist, 1999). Moreover, such risk factors have been linked to the likelihood of being exposed to CM (Abajobir, Kisely, Williams, Strathearn, & Najman, 2018; Bailey et al., 2017; Font & Maguire-Jack, 2016; Madigan et al., 2014). Presently, studies will be coded for socioeconomic risk, defined as adolescent or single motherhood, and low income to examine the potential moderating effect of this important aspect of the developmental ecology on the CM–parenting association.

Maternal age. Relatedly, the association between CM and parenting may be linked to maternal age across its continuum. The age when mothers have their child may be linked to the manner in which CM exposure may manifest itself in parenting. For example, it is well established that adolescent mothers, who are more likely to have been exposed to sexual abuse (Madigan et al., 2014), tend to display less sensitive behaviors, are more likely to ignore or neglect the infants needs, and use more coercive and punitive parenting practices than their adult counterparts (Spieker et al., 1999). Thus, we hypothesized that the association between CM and parenting would be stronger for younger compared to older mothers.

Child age. The association between maternal CM and parenting may vary as a function of child age. Parenting demands vary greatly as a function of the developmental challenges that children of different ages present. Studies have shown that whereas positive interactive behaviors remain largely unchanged in their frequency during early childhood, as the child gains both motor and cognitive competence, parents engage in more frequent limit setting and negative, coercive behaviors with their children (Anderson et al., 2013; Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). It is possible that such challenges may draw out CM effects on parenting behavior because they overextend parenting competence or revive past trauma and feelings of loss of control and helplessness, as has been suggested by Moehler, Resch, Cierpka, and Cierpka (2001). We thus hypothesized that the association between CM and parenting would be greater in studies involving older children.

Child gender. The association between CM and parenting may also be moderated by child gender. Some studies have shown that parenting behavior differs as a function of child gender (Leaper, Anderson, & Sanders, 1998; Shanahan, McHale, Crouter, & Osgood, 2007), and in light of the frequently documented association between child gender and externalizing behavior (King et al., 2018), it is possible that boys would more often elicit more controlling or otherwise negative parental behaviors from their parents, possibly increasing the CM–parental behavior association (Cross et al., 2016). Indirect support of this possibility comes from the observation that boys are more often exposed to emotional and physical abuse than girls (Government of Canada, 2012). Thus, we hypothesize that the association between CM and parenting behaviors is greater for samples that contained a higher percentage of boys.

Method

Study selection

Pertinent studies were collected using three search strategies. First, a computerized literature search within PsycINFO, MEDLINE, EMBASE, and Francis was performed on the topic of CM and parenting. Database-specific subject headings were selected for the concepts of « childhood relational traumatic experiences » and « parenting » (see Appendix A). All terms relating to relational trauma were combined first using the Boolean « OR ». All terms related to parenting were also combined using a Boolean « OR ». These two sets of terms were then combined with the Boolean « AND ». When appropriate, truncation symbols were used in word searches to capture variant endings or spellings of a word. Date and language restrictions were applied, confining the search to only French and English papers that were published prior to December 31, 2017.

https://doi.org/10.1017/S0954579418001542 Published online by Cambridge University Press

Inclusion and exclusion criteria

Two authors reviewed the titles and abstracts identified in the search strategy. To be included, a study had to: (a) include an assessment of maternal CM; (b) include an assessment of maternal parenting between child ages of 0 and 6; and (c) report on the association between the previous two criteria. Authors of studies reporting on both CM and parenting without reporting a statistical relation between the two variables were contacted and asked to retrieve the necessary information. Studies that had not been subjected to peer review were also excluded (e.g., theses, dissertations, and book chapters). The second study selection strategy consisted of searching reference lists of relevant studies and reviews that were gleaned in the first step. As a third and final search strategy method, we contacted authors considered to be specialists in this area and asked them for pertinent references on the subject. Any pertinent reference was investigated and added if it met selection criteria.

The literature review and reasons for exclusion are summarized in Figure 1. A total of 8,928 independent titles/abstracts were examined. Articles were excluded for the following reasons: no CM (including cases where mothers reported on a trauma that did not fit the present description), no parenting measure, different participant characteristics (i.e., took part in an intervention that focused on past trauma or on their parenting, were not parents, were represented in two different studies, or child age >6) or missing effect size index. In total, 32 articles describing 27 samples and presenting 41 different effect sizes were retained for analyses. These studies involved 17,932 participants, with sample sizes varying from 35 to 8,292 participants. Study characteristics are presented in Table 1.

Coding of studies and data extraction

Studies meeting inclusion criteria were coded as a function of the characteristics of four items: (a) type of parenting behavior; (b) parenting measure informant; (c) type of CM; and (d) study characteristics, including sample size, psychosocial risk (absent or present), child and mother age at the time of the study, child gender, and publication year. A standard data extraction form was developed to extract all relevant information. Two aspects of parenting were coded. First, parenting

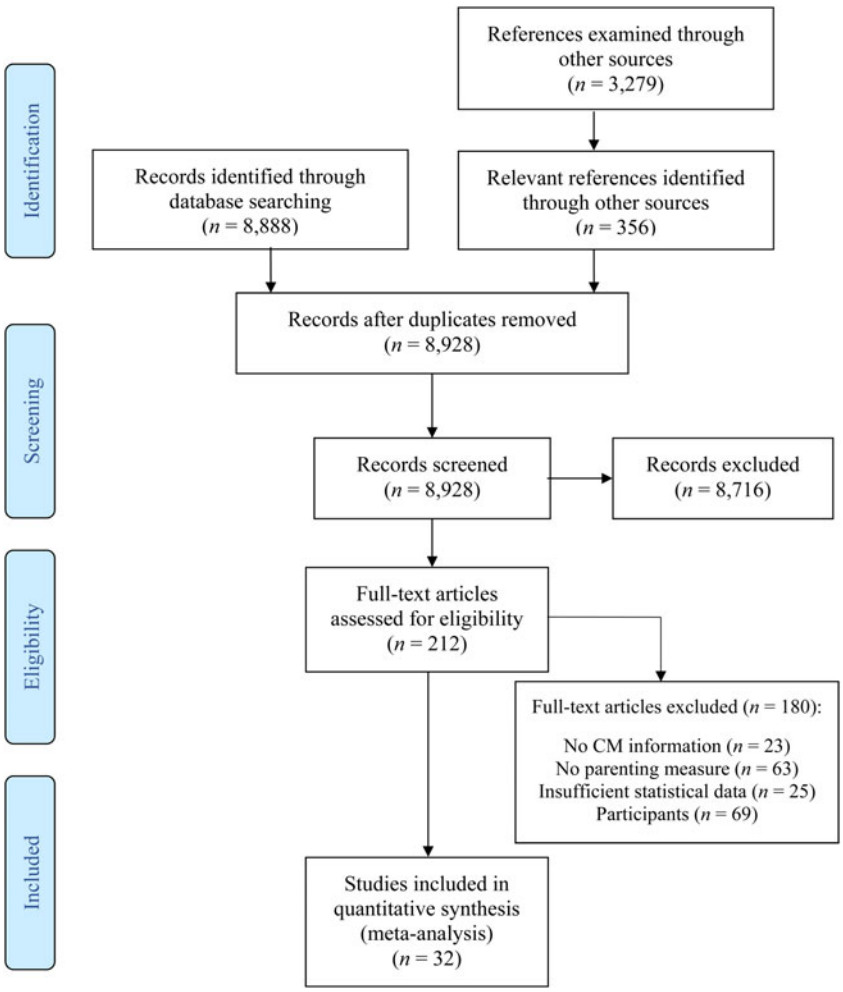

Figure 1. Flow diagram for selection of articles

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Table 1. *Studies included in meta-analysis*

Authors (year)	*N*	Child age (months)	Mother age (years)	Parenting category	CM type	Parenting informant	Risk level
Bailey et al. (2012)	82	61	31	Positive Negative	Combined[b]	Observer	High
Barrett (2010)	483	60	29	Positive Negative	Combined[b]	Self-reported	High
Beckerman et al. (2017)	53	44	34	Negative	Combined[b]	Self-reported	Low
Bernstein et al. (2013)	96	5	25	Positive	Combined[b]	Observer	High
Bert et al. (2009)	681	6	20	Positive Negative	Combined[b]	Self-reported	High
Buist (1998)	56	4	20	Relationship	CPEA CSA	Observer	High
Chung et al. (2009)	1265	3–11	24	Negative	Combined[b]	Self-reported	High
Dayton et al. (2016)	120	Several[a]	26	Positive	Combined[b]	Observer	High
Dubowitz et al. (2001)	354	59	30	Negative	Combined[b]	Self-reported	High
Ensink et al. (2016)	88	6;16	31	Positive Negative Relationship	Combined[b]	Observer	Low
German Longitudinal Study (2) (Fuchs et al., 2015; Moehler, Biringen, & Poustka, 2007)	120	Several[a]	32	Positive	Combined[b]	Observer	Low
Gonzalez et al. (2012)	89	4	32	Positive	Combined[b]	Observer	Low
Harmer et al. (1999)	46	62	29	Positive	Combined[b]	Self-reported	High
Kim et al. (2010)	488	Several[a]	24	Negative	CSA	Self-reported	High
Lounds et al. (2006)	100	3–5	21	Relationship	Neglect	Observer	High
MACY project (3) (Martinez-Torteya et al., 2014; Muzik et al., 2013; Stacks et al., 2014)	184	Several[a]	29	Positive Negative Relationship	Combined[b]	Observer Self-reported	Low
Madigan et al. (2015)	490	19	33	Positive	Combined[b]	Observer	Low
Milan et al. (2004)	203	4	18	Relationship	CPEA	Self-reported	High
National Archive on Child Abuse and Neglect (2) (Renner et al., 2015; Schuetze et al., 2005)	263	32	27	Negative Relationship	CSA	Self-reported	High
Nuttall et al. (2015)	374	Several[a]	21	Positive	Combined[b]	Observer	High
Pasalich et al. (2016)	112	54	22	Negative	CPEA CSA CPEA and CSA	Observer	High
Pereira et al. (2012)	291	16	33	Positive Relationship	Combined[b]	Observer	Low
Rijlaarsdam et al. (2014)	3212	37	31	Negative	Combined[b]	Self-reported	Low
Roberts et al. (2004)	8292	33	*N/A*	Relationship	CSA	Self-reported	Low
Sexton et al. (2017)	173	6	29	Positive Negative	Combined[b]	Observer	Low
Webster-Stratton & Hammond (1988)	95	59	32	Negative	Combined[b]	Observer	Low
Zvara et al. (2; 2015 and 2017)	204	Several[a]	26	Positive Negative Relationship	CSA	Observer	High

Note: CPEA, child physical or emotional abuse. CSA, child sexual abuse. [a]Data gathered at more than one time.
[b]Different or general exposure to maltreatment.

measures were classified in three different categories, derived from the constructs assessed within studies: (a) positive parenting; (b) negative or potentially abusive parenting; or (c) relationship-based measures. The different constructs included in each category are summarized in Table 2. Second, parenting measures were coded as being either observational or maternal self-report. In addition, studies were coded for whether mothers reported being exposed to neglect, physical, emotional, and/or sexual abuse. When studies reported associations between different types of CM and parenting for the same individuals, an average effect size was calculated to avoid overrepresentation of participants in moderation analy-

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Table 2. *Parenting aspects/behaviors in function of their category of belonging*

Positive parenting	Negative parenting	Relationship based
Empathy	Abusive discipline/corporal punishment	Attachment between mother and child
Engagement	Critical statements/meanness	Bonding scores
Nonviolent discipline	Extreme insensitivity/disruptive behaviors	Boundary dissolution
Positive affect	Harsh parenting	Disconnected behavior
Quality of assistance	Hostility (verbal, physical)	Dysfunctional interactions
Responsivity	Intrusiveness	Impaired bonding
Scaffolding	Neglect/laxness	Mother–infant interaction
Sensitivity	Overcontrol	Mother–infant relationship difficulty
Structuring	Psychological aggression	Positive and negative emotions regarding relationship with child
Supportive presence	Rejection	
Warmth	Scolding	Positivity and negativity in relationship with child
	Threatening	

ses. In such cases, as well as in cases where global scores were used (e.g., a composite score for all types of CM exposure), CM was identified as "combined" (see Table 1).

A second coder reviewed 9 studies for interrater reliability (29%). There was 100% interrater agreement on the following variables: type of CM, parenting measure informant, psychosocial risk, child and mother age, and gender. Coders agreed on type of parenting 8 times out of 9, the resulting disagreement being resolved through consensus coding.

Statistical analyses

The meta-analysis was conducted using Comprehensive Meta-Analysis Version 3.0 (CMA; Borenstein, Hedges, Higgins, & Rothstein, 2009). Studies reported on the association between CM and parenting through different indices. It was thus necessary to convert all of the effect sizes to a common index before comparing them with each other. An effect size (Pearson's r) was calculated for each sample. Pearson's r statistic was chosen due to the nature of the present research question as we are looking to document the association between two variables, rather than, for example, differences between groups or intervention effects. The conversion from different indices of effect size to Pearson's r is conducted with CMA.

Each sample was represented by a single mean effect size. If a sample was presented in more than one study, the most comprehensive presentation of that sample was kept for analysis. In an effort to report as much of the information as possible, when a sample presented data concerning more than one moderator, different effect sizes were calculated for use in moderator analyses. This was especially important when considering differences in parenting informant and type of parenting behavior, where several studies provided multiple effect sizes. In the two cases where samples were divided as a function of CM type (i.e., Buist, 1998; Pasalich et al., 2016), each subsample was considered independently for moderation analysis involving type of CM. In all other cases, a mean effect size was calculated. When running analyses, CMA transforms the correlation to Fisher's z scale and uses Fisher's z variance to yield summary effect and confidence intervals. Effect sizes are then weighted by the inverse of their variance, allowing for studies with larger sample sizes to be given greater weight, thus leading to more precise estimates. Finally, Fisher's z is reverted back to correlations for presentation and interpretation.

Specific attention had to be given to determine the valence of effect sizes linking CM to parenting category. With respect to positive parenting and relationship-based assessments of parenting, a negative valence indicated that greater levels of CM were inversely linked to indices of parenting quality. The same kind of association linking CM with negative, potentially abusive parenting would lead to a positive effect size, where exposure to CM is linked to more problematic parenting. To ensure that the direction of all effect sizes was coherently considered within the meta-analysis, CM-negative parenting effect sizes were inversed.

Tests of significance and analyses to assess the effects of various moderators were conducted using a random-effects model. The random-effects approach is more conservative than the fixed-effects approach and should be used when there is variability in study characteristics. Moreover, random effects provide for greater control for differences in sample sizes when estimating effect sizes (Borenstein, Hedges, Higgins, & Rothstein, 2010).

Publication bias, outliers, and heterogeneity. The presence of a publication bias was assessed by employing the *trim-and-fill* procedure (Duval & Tweedie, 2000). This procedure allows researchers to detect publication bias by using the mean effect estimate as a fixed point to test which studies with positive effect sizes have no mirror image counterparts with negative effect sizes and vice versa. When such asymmetry is observed, the procedure computes a corrected effect size obtained through an iterative process of imputation of the studies and their lacking counterparts. To test for the presence of outlier data, a Fisher's Z score was calculated for each study and then compared to the normal distribution (Z has to be less than –3.29 or greater than 3.29 to be considered an outlier; Tabachnik & Fidell, 2007).

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Two procedures were used to provide information about between-study heterogeneity. First, the Q statistic was used to test for the heterogeneity of effect sizes across studies. Heterogeneity of results was assumed if Q was significant at the $p < .05$ level. Second, the I^2 statistic was used to document the percentage estimate of the amount of total variability in effect size estimates that can be attributed to heterogeneity among the true effects (Huedo-Medina, Sánchez-Meca, Marín-Martínez, & Botella, 2006).

Results

Main effect

A small but significant association between CM and parenting emerged, $r = –.13$ ($k = 27$, $p < .001$, 95% confidence interval [CI] [–.17, –.09]). Effect size estimates for each study, confidence intervals, and forest plot are presented in Figure 2. The *trim-and-fill* procedure (Duval & Tweedie, 2000) revealed a publication bias where two studies required adjustment, yielding a bias-adjusted effect size of $r = –.12$ ($Q' = 117.26$, 95% CI [–0.16, –0.08]). No outliers were found. High heterogeneity in effect sizes was found between studies ($Q' = 111.67$, $p < .001$. $I^2 = 76.72\%$), and potential moderators were explored.

Moderator analyses

Moderator analyses are presented in Table 3.

Parenting category. A significant difference emerged in the association between CM and parenting as a function of different parenting categories ($Q' = 7.55$, $p < .05$). Although all three types of measures were significantly linked to CM, associations with positive measures ($r = –.07$, $p < .01$, $k = 14$) were weaker than with negative ($r = –.15$, $p < .001$, $k = 18$; $Q' = 4.97$, $p < .05$) and relationship-based measures ($r = –.20$, $p < .001$, $k = 9$; $Q' = 4.64$, $p < .05$). Effect sizes for the link between CM and negative parenting and CM and relationship quality were not significantly different from each other ($Q' = 0.71$, $p = .40$).

Type of maltreatment exposure. Only 10 studies reported on specific forms of CM with enough accuracy to allow for a moderator analysis to be performed, as many studies used generic measures of maltreatment that did not permit specific coding. Among these 10, only 1 reported on the association between child neglect and parenting, making it impossible to include this subgroup in the analysis. Table 3 reports on the CM–parenting association for general, combined measures of CM. As well, Table 3 reports effect sizes for studies that reported on specific experiences of emotional and/or physical abuse, as well as exposure to sexual abuse. Parenting was not statistically different as a function of the type of CM experiences, though a marginally significant tendency emerged ($Q' = 3.12$, $p < .10$). The effect size for the experiences of emotional and/or physical abuse ($r = –.23$, $p < .001$, $k = 4$) was marginally greater than for exposure to sexual abuse ($r = –.10$, $p < .10$, $k = 5$).

Child gender. A meta-regression revealed that the CM–parenting association was greater for samples that had a higher percentage of boys (slope = –.01, $p = .02$). The greater the number of boys in a sample, the greater the effect size linking CM and parenting.

Publication year. The association between CM and parenting was also moderated by publication year, as shown by a meta-regression (slope = .009, $p = .02$), meaning that older studies reported stronger effect sizes than more recent ones.

Nonsignificant moderators. Parenting behavior informant, exposure to psychosocial risk, as well as maternal and child age did not significantly moderate the CM–parenting link.

Discussion

One of the major hypotheses linking parental antecedents of maltreatment and offspring development is that adults who experienced CM have more difficulty with their parenting behaviors and the quality of their interactions with their child. The purpose of this study was to synthesize research amassed to date that have examined the strength of this association when offspring were under the age of 6. Results reveal a weak but significant association ($r = –.13$) between CM and parenting behavior, suggesting partial support for the proposed hypothesis. Thus, exposure to maltreatment may be considered as a potential risk factor for parenting behavior. However, moderator analyses revealed that the strength of the CM to parenting behavior hypothesis is also influenced by sample and study characteristics.

It is critical to note that CM is one factor, among many, that predicts parenting behaviors and that our understanding of the role of CM depends on our ability to place it within a more global perspective of the developmental ecology. Other variables are involved that may directly or indirectly be linked to CM. For example, CM has been shown to be a risk factor for teenage motherhood (Madigan et al., 2014), and it is well documented that early motherhood is linked to problems in parenting (Tarabulsy et al., 2005). Likewise, it is possible that CM exposed parents experience relationship instability with their partner and that this may affect their ability to provide a stable home environment for their child (Nguyen, Karney, & Bradbury, 2017). CM must be viewed as only one of the numerous characteristics that have a bearing on the quality of parenting behaviors, but its importance varies as a function of the degree to which it is embedded within the more global developmental ecology of the parent–child dyad. Among the more likely moderators and mediators of the impact of CM on parenting are problems in adjustment and mental health that may emerge as a result of such experiences (Berthelot et al., 2015; Gallo, Munhoz, de

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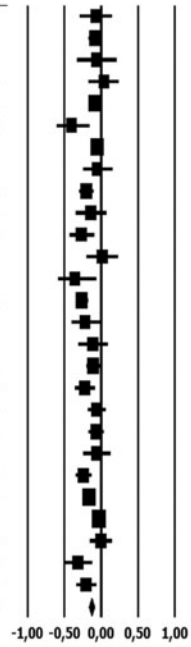
Study name	Parenting category	CM type	Statistics for each sample					r and 95% CI
				95% CI				
			r	LL	UL	*Z*	*p*	
Bailey et al., 2012	Combined	Combined	–.07	–0.28	0.15	–0.63	.53	
Barrett, 2010	Combined	Combined	–.08	–0.16	0.01	–1.68	.09	
Beckerman et al., 2017	Negative	Combined	–.06	–0.33	0.21	–0.42	.67	
Bernstein et al., 2013	Positive	Combined	.04	–0.16	0.24	0.39	.70	
Bert et al., 2009	Combined	Combined	–.08	–0.15	0.00	–2.09	.04	
Buist, 1998	Relationship	Combined	–.40	–0.60	0.15	–3.08	.00	
Chung et al., 2009	Negative	Combined	–.05	–0.11	0.00	–1.81	.07	
Dayton et al., 2016	Positive	Combined	–.05	–0.24	0.15	–0.45	.65	
Dubowitz et al., 2001	Negative	Combined	–.20	–0.30	–0.10	–3.82	.00	
Ensink et al., 2016	Combined	Combined	–.14	–0.34	0.07	–1.27	.20	
German Longitudinal Study	Combined	Combined	–.27	–0.43	–0.09	–2.94	.00	
Gonzalez et al., 2012	Positive	Combined	.02	–0.19	0.23	0.19	.85	
Harmer et al., 1999	Negative	Combined	–.35	–0.58	–0.07	–2.40	.02	
Kim et al., 2010	Negative	CPEA	–.26	–0.34	–0.18	–5.86	.00	
Lounds et al., 2006	Combined	Neglect	–.21	–0.39	–0.02	–2.14	.03	
MACY Project	Combined	Combined	–.11	–0.30	0.09	–1.08	.28	
Madigan et al., 2015	Positive	Combined	–.11	–0.19	–0.02	–2.33	.02	
Milan et al., 2004	Relationship	CPEA	–.22	–0.35	–0.08	–3.16	.00	
NDACAN Study	Combined	CSA	–.05	–0.17	0.07	–0.85	.40	
Nuttall et al., 2015	Positive	Combined	–.06	–0.16	0.04	–1.23	.22	
Pasalich et al., 2016	Negative	Combined	–.06	–0.24	0.13	–0.63	.53	
Pereira et al., 2012	Combined	Combined	–.24	–0.34	–0.13	–4.11	.00	
Rijlaarsdam et al., 2014	Negative	Combined	–.16	–0.19	–0.13	–9.14	.00	
Roberts et al., 2004	Relationship	CSA	–.02	–0.04	0.00	–2.09	.04	
Sexton et al., 2017	Combined	Combined	.00	–0.15	0.15	0.00	1.00	
Webster-Stratton et al., 1988	Negative	Combined	–.31	–0.48	–0.12	–3.07	.00	
Zvara et al., 2015 and 2017	Combined	CSA	–.20	–0.33	–0.06	–2.88	.00	
			–.13	–0.17	–0.09	–6.15	.00	



Note: CM, childhood maltreatment. CI, confidence interval. LL, lower limit. UL, upper limit. CPEA, childhood physical and/or emotional abuse. CSA, childhood sexual abuse. NDACAN, National Data Archive on Child Abuse and Neglect.

Figure 2. Forest plot of included studies

Mola, & Murray, 2018; Guyon-Harris, Ahlfs-Dunn, & Huth-Bocks, 2017; Madigan et al., 2007; Narang & Contreras, 2000). These and others should be the subject of further study in teasing out the role of CM on parenting.

Although CM significantly affects all three types of parenting outcomes, effect sizes are greater when parenting measures are relationship based or focus on more negative, potentially abusive behaviors. The idea that CM may be differentially linked to these categories of parenting behaviors has been suggested by attachment researchers who have shown that past experiences linked to abuse and trauma are associated with later manifestations of atypical or frightening parenting behaviors, observable in the context of play interactions or interactions that focus on emotional regulation (Madigan et al., 2007; Main & Hesse, 1990). It is also coherent with CM experiences being a manifestation of an important breakdown in secure-base, relationship experiences that are so crucial to emotion regulation and development in early childhood (Tarabulsy et al., 2008). In this view, CM is considered as both a marker of potential difficulties and a relationship experience that modifies cognitions regarding different aspects of relationships, including those that involve parenting. The present results are viewed as providing support for basic postulates of attachment theory as to the disruptive influence of CM experiences as they are manifested in parenting behavior.

The CM–parenting behavior association was also moderated by child gender, with effect sizes being greater in samples with a higher proportion of males. There are two possible explanations for these findings. The first is that boys tend to show more externalized behavior early in their development, as early as the preschool years (Broidy et al., 2003; King et al., 2018), and this may test parents' abilities more so than for girls. Support for this hypothesis comes from studies that have examined foster placement stability. Bernedo, Salas, García-Martín, & Fuentes (2012) showed that boys had greater levels of externalized behavioral symptoms and more frequent foster placement instability compared to girls. It is also possible that mothers struggle with male offspring due to the greater likelihood of child maltreatment perpetrators being male. This dynamic creates an additional parenting challenge. The vast majority of parents in the current meta-analysis were mothers, and in the specific case of sexual abuse, mothers are more often abused by male adults and parental figures (US Department of Health and Human Services, 2012). It is possible that having to care for a male child may create more conflict for CM-exposed mothers. This hypothesis merits further investigation.

The association between CM and parenting was also moderated by publication year in that the effect size for the CM–parenting association has decreased over time. It is possible that methodological rigor in terms of CM assessment has improved over time. For example, among the six studies published before 2005, only one (Harmer, Sanderson, & Mertin, 1999) used a validated questionnaire assessment of CM, whereas after 2005, the vast majority of studies used validated

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Table 3. *Association between CM and parenting for all studies and as a function of moderators*

Moderators	*k*	*N*	*r*	95% CI LL	95% CI UL	Contrast *Q'*	Slope
All studies	27	17932	–.13***	–.17	–.09	**111.68*** **	
Parenting category							
Positive	14	3504	–.07**[a]	–.12	–.02		
Negative	18	7922	–.15***[b]	–.20	–.10		
Relationship	9	9700	–.20***[b]	–.30	–.10		
Contrast						**7.55***	
Parenting informant							
Observer	24	2692	–.12***	–.16	–.08		
Self-reported	17	15835	–.14***	–.20	–.09		
Contrast						0.42	
Type of CM							
Combined	19	8296	–.12***	–.15	–.08		
CPEA	4	746	–.23***	–.32	–.12		
CSA	5	8833	–.10†	–.20	.01		
Contrast between CPEA and CSA						**3.12**†	
Risk level							
High	16	4927	–.13***	–.18	–.08		
Low	11	13078	–.13***	–.19	–.06		
Contrast						0.01	
Mother age							–.003
Child age							–.001
Child gender (% of boys)							**–.011***
Publication year							**.009***

Note: CI, confidence interval. LL, lower limit. UL, upper limit. CM, childhood maltreatment. CPEA, childhood physical and/or emotional abuse. CSA, childhood sexual abuse. [a]Significantly different from. [b]As a result of paired comparison. †$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

questionnaires or interviews. Moreover, in light of changes in popular notions regarding maltreatment, parents may not have considered that they had been exposed to maltreatment. It is possible that present definitions of maltreatment are more sensitive in asking about CM, and that the decreased stigmatization around discussing CM experiences has led to an increase in rates of disclosure. Finally, it is also possible that the enormous efforts made over the last half century have led to a better understanding of the deleterious impacts of child maltreatment and, accordingly, to the development and widespread implementation of policies and programs that help support its victims. This systemic change may have reduced the potential impact of CM on parenting and other life history outcomes.

Future directions

Meta-analytic procedures are helpful in drawing general conclusions regarding the validity of research hypotheses. However, several questions remain as a result of the current study. First, while developmentally appropriate, the present focus on the parenting of 0- to 6-year-olds excludes the possibility that CM experiences may affect parental behavior with older children. It is possible that as children gain greater competence and autonomy, they may elicit different kinds of parenting behaviors that are not presently considered.

Second, the high heterogeneity in results presently documented suggests that there are important variations across studies that may not be captured by the moderating analyses that were conducted. Although studies were categorized as a function of numerous factors that were included in moderating analyses, the heterogeneity remains present, suggesting important variations across studies in measures, populations studied, and designs used. Scholarly work in this area, critical for the elaboration of appropriate clinical intervention, will benefit from greater similarity in methods across studies.

Future research will also benefit by addressing a number of other issues that emerged within the present meta-analysis related to the description of maltreatment. There is much speculation in different studies as to how the type of maltreatment, duration, frequency, and intensity of CM experiences relate to development and later parenting (Ethier et al., 2004; Nolin & Ethier, 2007; Putnam, Harris, & Putnam, 2013). Certainly, in the present study, it was not possible to give this question as much attention as it was hoped. More scholarly work on the characteristics of maltreatment will help in understanding

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both the developmental response to adversity and the elaboration of appropriate clinical intervention (Buist, 1998; Pasalich et al., 2016).

Conclusion

In summary, the present meta-analytic results support the hypothesis that CM may affect parenting. The meta-analysis points to type of parenting behavior as a potential moderator, with effects being stronger for negative or potentially abusive behaviors and relationship-based assessments, in comparison to positive parenting behaviors. Moreover, a moderating effect for child gender was noted, also in line with findings suggesting that male offspring may test the limits of parenting resources more than females. Future research should focus on the characteristics of CM, such as severity, duration, and intensity, in order to clarify the role of adversity in developmental processes, enhancing our capacity to identify important targets for intervention.

Funding Statement

This research was supported by a scholarship from the Social Sciences and Humanities Research Council of Canada to the first author and a team grant from the Quebec Fund for Social and Cultural Research to the second author. The authors report no conflict of interest.

References

References marked with an asterisk indicate studies included in the meta-analysis.

Abajobir, A. A., Kisely, S., Williams, G., Strathearn, L., & Najman, J. M. (2018). Risky sexual behaviors and pregnancy outcomes in young adulthood following substantiated childhood maltreatment: Findings from a prospective birth cohort study. *Journal of Sex Research*. Advance online publication. doi:10.1080/00224499.2017.1368975

Alink, L. R. A., Cicchetti, D., Kim, J., & Rogosch, F. A. (2012). Longitudinal associations among child maltreatment, social functioning, and cortisol regulation. *Developmental Psychology*, *48*, 224.

Anderson, D. I., Campos, J. J., Witherington, D. C., Dahl, A., Rivera, M., He, M., . . . Barbu-Roth, M. (2013). The role of locomotion in psychological development. *Frontiers in Psychology*, *4*.

Appleyard, K., Egeland, B., van Dulmen, M. H. M., & Sroufe, L. A. (2005). When more is not better: The role of cumulative risk in child behavior outcomes. *Journal of Child Psychology and Psychiatry*, *46*, 235–245. doi:10.1111/j.1469-7610.2004.00351.x

*Bailey, H. N., DeOliveira, C. A., Wolfe, V. V, Evans, E. M., & Hartwick, C. (2012). The impact of childhood maltreatment history on parenting: A comparison of maltreatment types and assessment methods. *Child Abuse and Neglect*, *36*, 236–246. doi:10.1016/j.chiabu.2011.11.005

Bailey, H. N., Tarabulsy, G. M., Moran, G., Pederson, D. R., & Bento, S. (2017). New insight on intergenerational attachment from a relationship-based analysis. *Development and Psychopathology*, *29*, 433–448.

*Barrett, B. (2010). Childhood sexual abuse and adulthood parenting: The mediating role of intimate partner violence. *Journal of Aggression, Maltreatment & Trauma*, *19*, 323–346.

*Beckerman, M., van Berkel, S. R., Mesman, J., & Alink, L. R. A. (2017). The role of negative parental attributions in the associations between daily stressors, maltreatment history, and harsh and abusive discipline. *Child Abuse and Neglect*, *64*, 109–116. doi:10.1016/j.chiabu.2016.12.015

Berger, L. M., Paxson, C., & Waldfogel, J. (2009). Mothers, men, and child protective services involvement. *Child Maltreatment*, *14*, 263–276. doi:10.1177/1077559509337255

Bernedo, I. M., Salas, M. D., Garcia-Martin, M. A., & Fuentes, M. J. (2012). Teacher assessment of behavior problems in foster care children. *Children and Youth Services Review*, *34*, 615–621. doi:10.1016/j.childyouth.2011.12.003

*Bernstein, R. E., Laurent, H. K., Musser, E. D., Measelle, J. R., & Ablow, J. C. (2013). In an idealized world: Can discrepancies across self-reported parental care and high betrayal trauma during childhood predict infant attachment avoidance in the next generation? *Journal of Trauma & Dissociation*, *14*, 529–545.

*Bert, S. C., Guner, B. M., & Lanzi, R. G. (2009). The influence of maternal history of abuse on parenting knowledge and behavior. *Family Relations*, *58*, 176–187. doi:10.1111/j.1741-3729.2008.00545.x

Berthelot, N., Ensink, K., Bernazzani, O., Normandin, L., Luyten, P., & Fonagy, P. (2015). Intergenerational transmission of attachment in abused and neglected mothers: The role of trauma-specific reflective functioning. *Infant Mental Health Journal*, *36*, 200–212. doi:10.1002/imhj.21499

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Chichester, UK: Wiley.

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods*, *1*, 97–111. doi:10.1002/jrsm.12

Bowlby, J. (1969). *Attachment and loss: Attachment V*. New York: Basic Books.

Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., . . . Vitaro, F. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology*, *39*, 222–245. doi:10.1037/0012-1649.39.2.222

Bronfman, E., Madigan, S., & Lyons-Ruth, K. (1992–2009). *Atypicial Maternal Behavior Instrument for Assessment and Classification (AMBIANCE): Manual for coding disrupted affective communication*. Unpublished manuscript, Harvard Medical School, Cambridge, MA.

*Buist, A. (1998). Childhood abuse, postpartum depression and parenting difficulties: A literature review of associations. *Australian and New Zealand Journal of Psychiatry*, *32*, 370–378.

*Chung, E. K., Mathew, L., Rothkopf, A. C., Elo, I. T., Coyne, J. C., & Culhane, J. F. (2009). Parenting attitudes and infant spanking: The influence of childhood experiences. *Pediatrics*, *124*, e278–e286. doi:10.1542/peds.2008-3247

Cicchetti, D., & Toth, S. L. (2016). Child maltreatment and developmental psychopathology: A multilevel perspective. In *Developmental psychopathology: Maladaptation and psychopathology* (Vol. 3, 3rd ed., pp. 457–512). Hoboken, NJ: Wiley.

Cross, D., Kim, Y. J., Vance, L. A., Robinson, G., Jovanovic, T., & Bradley, B. (2016). Maternal child sexual abuse is associated with lower maternal warmth toward daughters but not sons. *Journal of Child Sexual Abuse*, *25*, 813–826. doi:10.1080/10538712.2016.1234532

Cyr, C., Euser, E. M., Bakermans-Kranenburg, M. J., & van Ijzendoorn, M. H. (2010). Attachment security and disorganization in maltreating and high-risk families: A series of meta-analyses. *Development and Psychopathology*, *22*, 87–108. doi:10.1017/S0954579409990289

*Dayton, C. J., Huth-Bocks, A. C., & Busuito, A. (2016). The influence of interpersonal aggression on maternal perceptions of infant emotions: Associations with early parenting quality. *Emotion*, *16*, 436–448. doi:10.1037/emo0000114

*Dubowitz, H., Black, M. M., Kerr, M. A., Hussey, J. M., Morrel, T. M., Everson, M. D., & Starr, R. H. (2001). Type and timing of mothers' victimization: Effects on mothers and children. *Pediatrics (Evanston)*, *107*, 728–735.

Duval, S., & Tweedie, R. (2000). Trim and fill: A simple funnel-plot–based method of testing and adjusting for publication bias in meta-analysis. *Biometrics*, *56*, 455–463.

*Ensink, K., Normandin, L., Plamondon, A., Berthelot, N., & Fonagy, P. (2016). Intergenerational pathways from reflective functioning to infant attachment through parenting. *Canadian Journal of Behavioural Science*, *48*, 9–18. doi:10.1037/cbs0000030

Ethier, L. S., Couture, G., & Lacharite, C. (2004). Risk factors associated with the chronicity of high potential for child abuse and neglect. *Journal of Family Violence*, *19*, 13–24.

Fearon, R. P., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Lapsley, A.-M., & Roisman, G. I. (2010). The significance of insecure attachment and disorganization in the development of children's externalizing behavior: A meta-analytic study. *Child Development*, *81*, 435–456. doi:10.1111/j.1467-8624.2009.01405.x

Feeney, B. C., & Woodhouse, S. S. (2016). Caregiving. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 827–851). New York: Guilford Press.

Font, S. A., & Maguire-Jack, K. (2016). Pathways from childhood abuse and other adversities to adult health risks: The role of adult socioeconomic conditions. *Child Abuse & Neglect*, *51*, 390–399. doi:10.1016/j.chiabu.2015.05.013

Fraiberg, S., Adelson, E., & Shapiro, V. (1975). Ghosts in the nursery. *Journal of the American Academy of Child Psychiatry*, *14*, 387–421.

Freisthler, B., Merritt, D. H., & LaScala, E. A. (2006). Understanding the ecology of child maltreatment: A review of the literature and directions for future research. *Child Maltreatment*, *11*, 263–280.

*Fuchs, A., Moehler, E., Resch, F., & Kaess, M. (2015). Impact of a maternal history of childhood abuse on the development of mother–infant interaction during the first year of life. *Child Abuse & Neglect*, *48*, 179–189. doi:10.1016/j.chiabu.2015.05.023

Gallo, E. A. G., Munhoz, T. N., de Mola, C. L., & Murray, J. (2018). Gender differences in the effects of childhood maltreatment on adult depression and anxiety: A systematic review and meta-analysis. *Child Abuse & Neglect*, *79*, 107–114. doi:10.1016/j.chiabu.2018.01.003

George, C., & Solomon, J. (2008). The caregiving system: A behavioral systems approach to parenting. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 833–856). New York: Guilford Press.

Goldberg, S., Benoit, D., & Blokland, K. (2003). Atypical maternal behavior, maternal representations, and infant disorganized attachment. *Development and Psychopathology*, *15*, 239–257.

*Gonzalez, A., Jenkins, J. M., Steiner, M., & Fleming, A. S. (2012). Maternal early life experiences and parenting: The mediating role of cortisol and executive function. *Journal of the American Academy of Child & Adolescent Psychiatry*, *51*, 673–682.

Government of Canada. (2012). *Child maltreatment in Canada*. Retrieved from https://www.canada.ca/en/public-health/services/health-promotion/stop-family-violence/prevention-resource-centre/children/child-maltreatment-canada.html

Guyon-Harris, K. L., Ahlfs-Dunn, S., & Huth-Bocks, A. (2017). PTSD symptom trajectories among mothers reporting interpersonal trauma: Protective factors and parenting outcomes. *Journal of Family Violence*, *32*, 657–667. doi:10.1007/s10896-017-9934-3

*Harmer, A. L. M., Sanderson, J., & Mertin, P. (1999). Influence of negative childhood experiences on psychological functioning, social support, and parenting for mothers recovering from addiction. *Child Abuse & Neglect*, *23*, 421–433.

Huedo-Medina, T. B., Sánchez-Meca, J., Marín-Martínez, F., & Botella, J. (2006). Assessing heterogeneity in meta-analysis: Q statistic or I^2 index? *Psychological Methods*, *11*, 193–206. doi:10.1037/1082-989X.11.2.193

Kaufman, J., & Zigler, E. (1987). Do abused children become abusive parents? *American Journal of Orthopsychiatry*, *57*, 186–192. doi:10.1111/j.1939-0025.1987.tb03528.x

*Kim, H. K., Pears, K. C., Fisher, P. A., Connelly, C. D., & Landsverk, J. A. (2010). Trajectories of maternal harsh parenting in the first 3 years of life. *Child Abuse & Neglect*, *34*, 897–906.

King, K. M., Luk, J. W., Witkiewitz, K., Racz, S., McMahon, R. J., & Wu, J. (2018). Externalizing behavior across childhood as reported by parents and teachers: A partial measurement invariance model. *Assessment*, *25*, 744–758. doi:10.1177/1073191116660381

Koehn, A. J., & Kerns, K. A. (2018). Parent-child attachment: Meta-analysis of associations with parenting behaviors in middle childhood and adolescence. *Attachment and Human Development*, *20*, 378–405. doi:10.1080/14616734.2017.1408131

Leaper, C., Anderson, K. J., & Sanders, P. (1998). Moderators of gender effects on parents' talk to their children: A meta-analysis. *Developmental Psychology*, *34*, 3–27.

*Lounds, J. J., Borkowski, J. G., & Whitman, T. L. (2006). The potential for child neglect: The case of adolescent mothers and their children. *Child Maltreatment*, *11*, 281–293.

Lyons-Ruth, K., & Block, D. (1996). The disturbed caregiving system: Relations among childhood trauma, maternal caregiving, and infant affect and attachment. *Infant Mental Health Journal*, *17*, 257–275.

Madigan, S., Bakermans-Kranenburg, M. J., van Ijzendoorn, M. H., Moran, G., Pederson, D. R., & Benoit, D. (2007). Unresolved states of mind, anomalous parental behavior, and disorganized attachment: A review and meta-analysis of a transmission gap. *Attachment & Human Development*, *8*, 89–111. doi:10.1080/14616730600774458

Madigan, S., Cyr, C., Eirich, R., Fearon, R. M. P., Ly, A., Rash, C., . . . Alink, L. (2019). Testing the cycle of maltreatment hypothesis: Meta-Analytic evidence of the intergenerational transmission of child maltreatment. *Development & Psychopathology*, 23–51.

*Madigan, S., Wade, M., Plamondon, A., & Jenkins, J. (2015). Maternal abuse history, postpartum depression, and parenting: Links with preschoolers' internalizing problems. *Infant Mental Health Journal*, *36*, 146–155. doi:10.1002/imhj.21496

Madigan, S., Wade, M., Tarabulsy, G., Jenkins, J. M., & Shouldice, M. (2014). Association between abuse history and adolescent pregnancy: A meta-analysis. *Journal of Adolescent Health*, *55*, 151–159. doi:10.1016/j.jadohealth.2014.05.002

Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 161–182). Chicago: University of Chicago Press.

*Martinez-Torteya, C., Dayton, C. J., Beeghly, M., Seng, J. S., McGinnis, E., Broderick, A., . . . Muzik, M. (2014). Maternal parenting predicts infant biobehavioral regulation among women with a history of childhood maltreatment. *Development and Psychopathology*, *26*, 379–392. doi:10.1017/S0954579414000017

*Milan, S., Lewis, J., Ethier, K., Kershaw, T., & Ickovics, J. R. (2004). The impact of physical maltreatment history on the adolescent mother-infant relationship: Mediating and moderating effects during the transition to early parenthood. *Journal of Abnormal Child Psychology*, *32*, 249–261.

*Moehler, E., Biringen, Z., & Poustka, L. (2007). Emotional availability in a sample of mothers with a history of abuse. *American Journal of Orthopsychiatry*, *77*, 624–628. doi:10.1037/0002-9432.77.4.624

Moehler, E., Resch, F., Cierpka, A., & Cierpka, M. (2001). The early appearance and intergenerational transmission of maternal traumatic experiences in the context of mother-infant interaction. *Journal of Child Psychotherapy*, *27*, 257–271. doi:10.1080/00754170110087540

Moran, G., Forbes, L., Evans, E., Tarabulsy, G. M., & Madigan, S. (2008). Both maternal sensitivity and atypical maternal behavior independently predict attachment security and disorganization in adolescent mother–infant relationships. *Infant Behavior and Development*, *31*, 321–325.

*Muzik, M., Bocknek, E. L., Broderick, A., Richardson, P., Rosenblum, K. L., Thelen, K., & Seng, J. S. (2013). Mother-infant bonding impairment across the first 6 months postpartum: The primacy of psychopathology in women with childhood abuse and neglect histories. *Archives of Women's Mental Health*, *16*, 29–38. doi:10.1007/s00737-012-0312-0

Narang, D. S., & Contreras, J. M. (2000). Dissociation as a mediator between child abuse history and adult abuse potential. *Child Abuse & Neglect*, *24*, 653–665. doi:10.1016/S0145-2134(00)00132-0

Nguyen, T. P., Karney, B. R., & Bradbury, T. N. (2017). Childhood abuse and later marital outcomes: Do partner characteristics moderate the association? *Journal of Family Psychology*, *31*, 82.

Nolin, P., & Ethier, L. (2007). Using neuropsychological profiles to classify neglected children with or without physical abuse. *Child Abuse & Neglect*, *31*, 631–643. doi:10.1016/j.chiabu.2006.12.009

Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. *PLOS Medicine*, *9*, e1001349. doi:10.1371/journal.pmed.1001349

*Nuttall, A. K., Valentino, K., Wang, L., Lefever, J. B., & Borkowski, J. G. (2015). Maternal history of parentification and warm responsiveness: The mediating role of knowledge of infant development. *Journal of Family Psychology*, *29*, 863–872. doi:10.1037/fam0000112

*Pasalich, D. S., Cyr, M., Zheng, Y., McMahon, R. J., & Spieker, S. J. (2016). Child abuse history in teen mothers and parent–child risk processes for offspring externalizing problems. *Child Abuse & Neglect*, *56*, 89–98. doi:10.1016/j.chiabu.2016.04.011

Pederson, D. R., & Moran, G. (1995). A categorical description of infant-mother relationships in the home and its relation to Q-sort measures of

infant-mother interaction. *Monographs of the Society for Research in Child Development*, *60*(2–3), 111–132. doi:10.2307/1166174
*Pereira, J., Vickers, K., Atkinson, L., Gonzalez, A., Wekerle, C., & Levitan, R. (2012). Parenting stress mediates between maternal maltreatment history and maternal sensitivity in a community sample. *Child Abuse & Neglect*, *36*, 433–437. doi:10.1016/j.chiabu.2012.01.006
Plant, D. T., Jones, F. W., Pariante, C. M., & Pawlby, S. (2017). Association between maternal childhood trauma and offspring childhood psychopathology: Mediation analysis from the ALSPAC cohort. *British Journal of Psychiatry*, *211*, 144–150.
Putnam, K. T., Harris, W. W., & Putnam, F. W. (2013). Synergistic childhood adversities and complex adult psychopathology. *Journal of Traumatic Stress*, *26*, 435–442. doi:10.1002/jts.21833
*Renner, L. M., Whitney, S. D., & Easton, S. D. (2015). Profiles of self-reported parenting competence and stress among women with/without histories of childhood sexual abuse. *Journal of Child and Family Studies*, *24*, 749–761. doi:10.1007/s10826-013-9886-z
*Rijlaarsdam, J., Stevens, G. W. J. M., Jansen, P. W., Ringoot, A. P., Jaddoe, V. W. V., Hofman, A., . . . Tiemeier, H. (2014). Maternal childhood maltreatment and offspring emotional and behavioral problems: Maternal and paternal mechanisms of risk transmission. *Child Maltreatment*, *19*, 67–78.
*Roberts, R., O'Connor, T., Dunn, J., & Golding, J. (2004). The effects of child sexual abuse in later family life; mental health, parenting and adjustment of offspring. *Child Abuse & Neglect*, *28*, 525–545. doi:10.1016/j.chiabu.2003.07.006
*Schuetze, P., & Eiden, R. D. (2005). The relationship between sexual abuse during childhood and parenting outcomes: Modeling direct and indirect pathways. *Child Abuse & Neglect*, *29*, 645–659. doi:10.1016/j.chiabu.2004.11.004
*Sexton, M. B., Davis, M. T., Menke, R., Raggio, G. A., & Muzik, M. (2017). Mother–child interactions at six months postpartum are not predicted by maternal histories of abuse and neglect or maltreatment type. *Psychological Trauma*, *9*, 622–626. doi:10.1037/tra0000272
Shanahan, L., McHale, S. M., Crouter, A. C., & Osgood, D. W. (2007). Warmth with mothers and fathers from middle childhood to late adolescence: Within- and between-families comparisons. *Developmental Psychology*, *43*, 551–563. doi:10.1037/0012-1649.43.3.551
Smith, C., Calkins, S. D., Keane, S. P., Anastopoulos, A. D., & Shelton, T. L. (2004). Predicting stability and change in toddler behavior problems: Contributions of maternal behavior and child gender. *Developmental Psychology*, *40*, 29–42.
Spieker, S. J., & Bensley, L. (1994). Roles of living arrangements and grandmother social support in adolescent mothering and infant attachment. *Developmental Psychology*, *30*, 102.
Spieker, S. J., Larson, N. C., Lewis, S. M., Keller, T. E., & Gilchrist, L. (1999). Developmental trajectories of disruptive behavior problems in preschool children of adolescent mothers. *Child Development*, *70*, 443–458.
Sroufe, L. A., & Fleeson, J. (1986). Attachment and the construction of relationships. *Relationships and Development*, *51*, 72.
Stack, D. M., Serbin, L. A., Girouard, N., Enns, L. N., Bentley, V. M. N., Ledingham, J. E., & Schwartzman, A. E. (2012). The quality of the mother-child relationship in high-risk dyads: Application of the Emotional Availability Scales in an intergenerational, longitudinal study. *Development and Psychopathology*, *24*, 93–105. doi:10.1017/S095457941100068X
*Stacks, A. M., Muzik, M., Wong, K., Beeghly, M., Huth-Bocks, A., Irwin, J. L., & Rosenblum, K. L. (2014). Maternal reflective functioning among mothers with childhood maltreatment histories: Links to sensitive parenting and infant attachment security. *Attachment & Human Development*, *16*, 515–533. doi:10.1080/14616734.2014.935452
Stith, S. M., Liu, T., Davies, L. C., Boykin, E. L., Alder, M. C., Harris, J. M., . . . Dees, J. E. M. E. G. (2009). Risk factors in child maltreatment: A meta-analytic review of the literature. *Aggression and Violent Behavior*, *14*, 13–29. doi:10.1016/j.avb.2006.03.006
Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R. A., & van Ijzendoorn, M. H. (2015). The prevalence of child maltreatment across the globe: Review of a series of meta-analyses. *Child Abuse Review*, *24*, 37–50. doi:10.1002/car.2353
Tabachnik, B., & Fidell, L. (2007). *Using multivariate statistics*. Boston: Pearson Education.
Tarabulsy, G. M., Bernier, A., Provost, M. A., Maranda, J., Larose, S., Moss, E., . . . Tessier, R. (2005). Another look inside the gap: Ecological contributions to the transmission of attachment in a sample of adolescent mother-infant dyads. *Developmental Psychology*, *41*, 212.
Tarabulsy, G. M., Pascuzzo, K., Moss, E., St.-Laurent, D., Bernier, A., & Cyr, C. (2008). Attachment-based interventions for maltreating families. *American Journal of Orthopsychiatry*, *78*, 322–332.
Troy, M., & Sroufe, L. A. (1987). Victimization among preschoolers: Role of attachment relationship history. *Journal of the American Academy of Child & Adolescent Psychiatry*, *26*, 166–172. doi:10.1097/00004583-198703000-00007
US Department of Health and Human Services. (2012). *Child maltreatment*. Retrieved from http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment
*Webster-Stratton, C., & Hammond, M. (1988). Maternal depression and its relationship to life stress, perceptions of child behavior problems, parenting behaviors, and child conduct problems. *Journal of Abnormal Child Psychology*, *16*, 299–315. doi:10.1007/BF00913802
World Health Organization. (2006). *Preventing child maltreatment: A guide to taking action and generating evidence*. Geneva, Switzerland: Author.
World Health Organization. (2016). *Child maltreatment: Fact sheet*. Retrieved from http://www.who.int/mediacentre/factsheets/fs150/en/
*Zvara, B. J., Mills-Koonce, W. R., Appleyard Carmody, K., & Cox, M. (2015). Childhood sexual trauma and subsequent parenting beliefs and behaviors. *Child Abuse & Neglect*, *44*, 87–97. doi:10.1016/j.chiabu.2015.01.012
*Zvara, B. J., Mills-Koonce, W. R., & Cox, M. (2017). Maternal childhood sexual trauma, child directed aggression, parenting behavior, and the moderating role of child sex. *Journal of Family Violence*, *32*, 219–229. doi:10.1007/s10896-016-9839-6

Appendix A

Search Terms

((maternal or mother or history or past)) AND (((((((((child or childhood)) AND (trauma or neglect or abuse or maltreatment or loss or incest)) AND (parenting or sensitiv* or emotional availability))))))