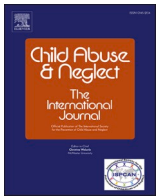




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## Disrupted parental behaviors in maltreating and high-risk families: The roles of maternal childhood maltreatment, psychological distress, and child gender

Solène Cognard-Bessette<sup>a</sup>, Gabrielle Myre<sup>a</sup>, George Tarabulsky<sup>b,f</sup>, Annie Bernier<sup>c,f</sup>,  
Diane St-Laurent<sup>d,f,h</sup>, Karine Dubois-Comtois<sup>d,e,h</sup>, Chantal Cyr<sup>a,g,\*</sup>

<sup>a</sup> Université du Québec à Montréal, Canada

<sup>b</sup> Université Laval, Canada

<sup>c</sup> Université de Montréal, Canada

<sup>d</sup> Université du Québec à Trois-Rivières, Canada

<sup>e</sup> Centre de recherche du CIUSSS du Nord-de-l'Île-de-Montréal, Canada

<sup>f</sup> Centre de Recherche Universitaire sur les jeunes et les familles du CIUSSS de la Capitale-Nationale, Canada

<sup>g</sup> Institut-Universitaire Jeunes en Difficulté du CIUSSS Centre-Sud-de-l'Île-de-Montréal, Canada

<sup>h</sup> Centre d'études interdisciplinaires sur le développement de l'enfant et la famille, Canada

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### ABSTRACT

**Background:** Maltreating parents and those at high-risk of maltreating their children are likely to display disrupted behaviors during parent-child interactions. Identifying risk factors associated with these behaviors can support tailored assessments and interventions in applied settings.

**Objective:** This study examines potential intervening factors linking maternal childhood maltreatment to disrupted parental behaviors, focusing on the indirect role of maternal psychological distress and the moderating role of child gender.

**Participants and setting:** The sample included 88 mothers and their children (12 to 72 months) recruited through child protection or community services due to substantiated CPS maltreatment reports or a high potential for maltreatment.

**Method:** Mothers completed questionnaires and participated in a filmed interaction with their child. Disrupted parental behaviors were coded using the AMBIANCE-Brief.

**Results:** Regression analyses showed that parental psychological distress was linked with increased disrupted behaviors, and that mothers exhibited more of these behaviors with their daughters than sons. There was no direct effect of maternal childhood maltreatment on disrupted behaviors, but childhood maltreatment was indirectly related with these behaviors through maternal psychological distress. The interaction between childhood maltreatment and child gender was not significant.

**Conclusions:** Targeting parental psychological distress may help reduce disrupted parental behaviors. Child gender may evoke different maternal responses to child needs and distress. The relevance of both trauma- and gender-sensitive intervention approaches with high-risk mothers is highlighted. Findings support the clinical utility of the AMBIANCE-Brief.

\* Corresponding author at: Université du Québec à Montréal, C.P. 8888, Succ. Centre-ville, Montréal, QC, H3C 3P8, Canada.  
E-mail address: [cyr.chantal@uqam.ca](mailto:cyr.chantal@uqam.ca) (C. Cyr).

Abuse and neglect severely impact children's emotional, social and cognitive development (e.g., Cicchetti & Valentino, 2015). These adverse effects often persist into adulthood, increasing the risk of mental health disorders, substance abuse, and perpetuation of maltreating behaviors, thus continuing the cycle of maltreatment across generations (Gilbert et al., 2009; Madigan et al., 2019; St-Laurent et al., 2019). In the province of Quebec (Canada) in 2024–2025, 141,622 reports of maltreatment were filed to Child Protection Services (CPS). Of these, 29.3% were substantiated following investigation (Directors of Youth Protection/ Provincial Directors, 2025). These numbers highlight the urgent need to improve the assessment and understanding of caregiving difficulties presented by abusive and neglectful parents. This is critical given that substantiated instances of maltreatment represent only the visible portion of a broader spectrum of problematic, sometimes subtle and insidious, parenting behaviors and pervasive family dysfunction. Indeed, non-maltreating, yet frightening or dysregulated parental behaviors likely characterize the moment-to-moment dynamics of everyday interaction between high-risk parents and their children. According to Lyons-Ruth et al. (2015), in addition to maltreatment, disrupted parental behaviors such as withdrawal, negativity-intrusiveness, and role confusion can exert a lasting influence on children's developmental outcomes.

The present study addresses potential underlying processes linking parental childhood maltreatment to disrupted parental behaviors, focusing on the indirect role of psychological distress and the moderating role of child gender. Examining risk factors associated with disrupted parental behaviors in a sample of parents reported for maltreatment or at elevated risk for maltreatment may inform more targeted and effective interventions with these parents.

## 1. Parental disrupted behaviors

According to Hesse and Main (1999, 2006), parental frightening and frightened (FR) behaviors stem from memories and emotions associated with unresolved or unintegrated traumatic experiences (e.g., parental loss, abuse). These authors suggested that parents who have experienced childhood traumatic experiences may be particularly vulnerable to becoming overwhelmed by attachment-related cues, such as their children's attachment needs and distress, echoing their own traumatic relational experiences (Main & Hesse, 1990). The reminders of past traumatic events, along with the accompanying emotional and physiological burden that is difficult to manage, may result in psychological “disconnection” or dissociation, altering parental behaviors (Main & Hesse, 1992). FR behaviors are not overt abuse or neglect and should not be considered indicators of child maltreatment, yet they can significantly impact the quality of parent-child communication and contribute to dysfunctions in interactions. These behaviors are believed to activate the paradox of “fear without solution” (Hesse & Main, 2006), whereby the child is simultaneously driven to seek proximity to the parent for comfort while being alarmed by the parent's FR behaviors. As a result, the child's attachment system remains chronically activated, increasing disorganized attachment behaviors (Cyr et al., 2010).

Lyons-Ruth et al. (1999) further suggested that children's attachment-related fear and dysregulation may arise not only from overtly FR parental behaviors, but also from parents' failure to respond to their needs for comfort. When a parent's responses are contradictory or mismatch the child's emotional signals or if the parent gives self-referential responses that focus on their own needs rather than those of the child, miscommunication errors occur, leaving the child feeling confused, fearful, or emotionally unsupported. Although miscommunication errors, such as withdrawing from the child or asking the child for affection when he or she seeks comfort, may not be directly frightening, they contrast with the child's needs and expectations of support from the caregiver to such a degree that they can alarm the child and disrupt the organization of the attachment system (Lyons-Ruth et al., 1999).

FR and disrupted behaviors have been assessed with three main observational systems: 1) the *Frightened, Threatening and Dissociative parental behavior* (FR; Main & Hesse, 1992); 2) the *Atypical Maternal Behavior Instrument for Assessment and Classification* (AMBIANCE; Bronfman et al., 2009–2014); and 3) the *Disconnected and Extremely Insensitive Parenting* (DIP; Out et al., 2009), including items from both the FR and AMBIANCE systems. These systems have mostly been used for research purposes and require extensive training, inter-rater reliability, and labor-intensive coding, typically based on video-recorded interactions, which coders can review as needed. As a result, they remain largely inaccessible to practitioners. Madigan et al. (2018) validated a short version, the AMBIANCE-Brief, for use in applied settings. Coded by trained students or researchers, the AMBIANCE-Brief was validated with parents showing diverse socioeconomic risks (Abdelmaseh, 2020; Cooke et al., 2020; Haltigan et al., 2019). Results showed good convergent validity with the full AMBIANCE measure and child attachment disorganization (Cooke et al., 2020; Haltigan et al., 2019). The AMBIANCE-Brief was also strongly and negatively correlated with maternal sensitivity among pregnant mothers with psychological distress (Holopainen et al., 2025) or socioeconomic risk (Abdelmaseh, 2020), although it was not associated with depressive and anxiety symptoms (Holopainen et al., 2025).

Further research is needed to clearly establish the potential of the AMBIANCE-Brief to help practitioners identify disrupted parenting behaviors in high-risk and maltreating parents and to inform more targeted maltreatment prevention interventions. To date, one study with high-risk and maltreating parents (Cognard-Bessette et al., 2026) based on the same sample as the present study, showed convergent validity of the AMBIANCE-Brief with its full version. Associations with child attachment were also shown, indicating that parents of children with disorganized attachment displayed higher levels of disrupted behaviors, whereas parents of securely attached children exhibited the lowest levels. However, in contrast with Holopainen et al. (2025) and Abdelmaseh (2020), results revealed no significant association with parental sensitivity. In the Cognard-Bessette et al.'s (2026) study, associations between the AMBIANCE-Brief and child characteristics were not examined, nor were parental risk factors, such as psychological distress and childhood maltreatment, which have shown to characterize highly vulnerable parents (Jaffee et al., 2013; van der Asdonk et al., 2021).

## 2. Disrupted parental behaviors: parent childhood maltreatment and psychological distress

Previous research has tested the theoretical assumption that FR and disrupted parental behaviors arise from childhood experiences of maltreatment and attachment-related unresolved trauma (Hesse & Main, 2006; Lyons-Ruth et al., 1999). Results have shown that childhood maltreatment is associated with FR, disconnected, extremely insensitive, or disrupted (measured with the Full AMBIANCE) behaviors toward children (Bennett et al., 2006; Burtchen et al., 2022; Evans, 2008; Guyon-Harris et al., 2020; Jacobvitz et al., 2006; Khoury et al., 2022; van Ee et al., 2016). Findings from a longitudinal study with pregnant women further indicated that mothers with more severe exposure to multiple forms of childhood maltreatment exhibited higher levels of disrupted behaviors overall, particularly more role confusion and affective communication errors (Guyon-Harris et al., 2020). Also, mothers who experienced multiple types of childhood maltreatment were more withdrawn with their infants than other mothers (Khoury et al., 2022). However, a study by Nyström-Hansen et al. (2019), among mothers with severe psychiatric diagnoses (i.e., schizophrenia, bipolar or major depressive disorder) and their infants, found no association between childhood maltreatment and disrupted behaviors. More studies are needed to understand the association between childhood maltreatment and disrupted behaviors, and if this association may be moderated by other factors.

Maternal mental health problems or psychological distress, generally referring to elevated symptoms of depression and anxiety, have been associated with child maltreatment and disrupted parental behaviors. A meta-analysis found that maternal mental health issues in the first year postpartum increased the risk of child maltreatment by approximately three times, particularly in high-risk samples (Ayers et al., 2019). Similarly, a systematic review reported that a parental history of mental health problems was associated with a heightened risk of child maltreatment recurrence (White et al., 2015). However, research on the associations between parental psychological distress and disrupted behaviors has yielded mixed findings. In studies involving families receiving clinical services for concerns about the potential for child maltreatment or family violence, Schechter et al. (2008, 2010) found no significant correlation between maternal depressive or post-traumatic stress disorder (PTSD) symptoms and parental overall level of disrupted behaviors, though mothers with a greater number of PTSD symptoms exhibited more withdrawal. In contrast, in other studies, higher levels of maternal depressive, anxiety or PTSD symptoms were associated with increased negative behaviors, fearful responses, and overall level of disrupted behaviors (Burtchen et al., 2022; Lyons-Ruth et al., 2002).

Childhood maltreatment and adverse childhood experiences are well-established risks for the development of psychological distress in adulthood, including anxiety and PTSD (Lewis et al., 2019; Liu et al., 2025). Meta-analyses have shown that individuals with a history of childhood maltreatment are more than twice as likely to develop depressive symptoms in adulthood compared to those without such experiences (Li et al., 2016) and are at greater risk for chronic depressive episodes (Nanni et al., 2012). Finch et al. (2024) showed that a higher number of adverse childhood experiences, including childhood maltreatment, predicted increased psychological distress in individuals receiving forensic mental health care. Altogether, these findings suggest that childhood maltreatment may indirectly affect parental disrupted behaviors through its impact on psychological distress. This pathway could be particularly relevant among maltreating parents, who are more likely to have experienced childhood maltreatment and to report mental health problems (Jaffee et al., 2013; van der Asdonk et al., 2021).

## 3. Gender differences

Child gender may elicit different parental responses. A meta-analysis by Endendijk et al. (2016) found that parents use more controlling strategies with boys than girls (though differences were small), while (in studies published since 1990) they display more autonomy-supportive behaviors toward girls than boys. Also, in a study conducted in nine low- to high-income countries, parents more frequently used corporal punishment with their sons than their daughters (Lansford et al., 2010). In an earlier study, Muller (1995) observed that parents with histories of childhood physical abuse were more likely to have been maltreated by a same-gender parent. Among maltreating parents, those who had experienced same-gender maltreatment reported feeling less shame when punishing their own children. Negative parental behavior may be more readily transmitted within same-gender parent-child relationships, particularly in samples involving high potential for maltreatment or CPS maltreatment reports, where mothers may be more negative toward their daughters, and fathers toward their sons.

However, findings of more recent studies are mixed. Schechter et al. (2002) reported that mothers who experienced sexual abuse during childhood displayed greater hostility toward their daughters than their sons aged 1 to 9 years. Cross et al. (2016) found that high-risk mothers with a history of child sexual abuse were less warm toward their daughters than their sons aged 8 to 12 years. However, Zvara et al. (2017) reported that high-risk mothers were less aggressive and more sensitive toward their daughters than their sons aged 36 to 60 months. Notably, none of these samples involved children at high-risk of maltreatment or with CPS maltreatment reports. In sum, these mixed gender-related patterns underscore the need for further investigation into how gender interacts with disrupted behaviors and childhood maltreatment.

## 4. The present study

The primary objective of this study was to examine, in a sample of mothers with CPS maltreatment reports or at high-risk for maltreatment, whether maternal psychological distress and child gender are intervening factors linking childhood maltreatment to parental disrupted behaviors measured with the AMBIANCE-Brief. Based on previous research, we hypothesized that mothers' experiences of childhood maltreatment would have an indirect effect, through increased psychological distress, on parental disrupted behaviors. We also examined whether child gender moderated the association between childhood maltreatment and parental

disrupted behaviors. Given the inconsistent findings in prior research, we did not formulate a hypothesis.

## 5. Method

### 5.1. Participants

The final sample included 88 mothers ( $M = 27.09$  years,  $SD = 7.66$ ) and their children aged between 12 and 72 months ( $M = 33.57$ ,  $SD = 18.67$ ; 51 boys). Families were part of a larger sample recruited for a randomized controlled trial testing the efficacy of the Attachment Video-feedback Intervention, a parent-child intervention targeting parental sensitivity and designed for high-risk and CPS-referred families. Only the data collected at the pre-test phase of this intervention study (in which 74% of the families assessed for eligibility agreed to participate; Moss et al., 2011) were used in the current study. Families were recruited through CPS due to child abuse and neglect ( $n = 66$ ) or through community agencies providing services for parents at high-risk for maltreatment ( $n = 22$ ). To be eligible for participation, mothers had to be the primary caregiver of the child and receiving services from CPS or a community agency due to maltreatment or a high potential of abuse and neglect. Mothers from community agencies were also required to present at least four risk factors across at least two of three domains (sociodemographic, relational, medical), as assessed using Ethier et al.'s (2004) screening tool for identifying families with a high potential of child abuse and neglect. At the time of the study, none of the community agency children were receiving services from CPS.

Among children recruited through CPS ( $n = 66$ ), 7.6% were physically abused, 15.2% physically abused and neglected, 3.0% sexually abused, and 74.2% neglected. Mothers were identified as the perpetrators of child maltreatment, except for two cases involving only sexual abuse in which the perpetrator was no longer in contact with the child. At the time of the study, only three children recruited through CPS were in out-of-home placement (time in placement ranged from 4 to 24 months) and had supervised or unsupervised visits with their mother. All study measures for these children were completed with their mother. The families in this study were also at high socioeconomic risk: 1) 65.9% of the mothers had not completed high school; 2) 64.8% of the families had a gross income of less than 20,000\$ per year; 3) 46.6% of the children were from single-mother families; and 4) 28.4% of mothers were teenagers at the time of the child's birth. Finally, ethnicity or racial data were unavailable due to non-systematic reporting.

### 5.2. Procedure

Mothers were initially approached by their caseworker (e.g., social worker or other practitioner, none of whom had a psychotherapeutic role). Those interested in the project were then referred to the research coordinator, who provided detailed information on the project to the mothers. Participation was entirely voluntary and mothers were explicitly informed that their decision to accept or decline participation would not affect the services they were already receiving from CPS or the community agency. Mothers were also informed that no data collected by the research team would be shared with caseworkers or other practitioners at any point. In addition, they were informed that all families enrolled in the study, beyond receiving regular services from CPS or community agencies, would receive the target intervention, as those randomly assigned to the control group were placed on a waitlist.

The mother and child dyad participated in two 1-h pre-test visits, scheduled approximately two weeks apart. During a 1-h home visit, mothers completed questionnaires with the help of a research assistant and participated in observational tasks with their child. During a 1-h lab visit, the Strange Situation procedure (SSP) was conducted. Two research assistants were present during the lab visit, with one of them explaining the different steps of the procedure and the other acting as the stranger during the Strange Situation. The research protocol was approved by the Ethics committee of the Research Institute of the Child Protection Services of Quebec and the Centre Institutionnel d'éthique de la recherche avec des êtres humains (UQAM).

### 5.3. Instruments

#### 5.3.1. Socio-demographic characteristics

Mothers filled out a questionnaire on sociodemographic variables during the first pre-test (home) visit. This questionnaire included questions on the child's age and gender, family structure, and the child's medical history.

#### 5.3.2. Maltreatment or high potential for maltreatment

Under the supervision of CPS, children's CPS files were consulted by a research assistant to document types of maltreatment and placement history. For children recruited through community agencies, Ethier et al.'s (2004) screening questionnaire was used to identify parents with a high potential for child abuse or neglect. It comprises 22 items (yes/no) pertaining to sociodemographic, relational, and medical risk factors. Two items assess children's presence/absence of prior CPS maltreatment reports and placement in a foster family. This screening questionnaire was completed by the family's caseworker, based on information documented in the child's community agency file.

#### 5.3.3. Mothers' childhood maltreatment

The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) was filled out by mothers. This self-reported questionnaire comprises 28 items rated on a 5-point scale ranging from never true to very often true. The CTQ includes five subscales: 1) physical abuse, 2) sexual abuse, 3) emotional abuse, 4) physical neglect, and 5) emotional neglect. Each subscale ranges from 5 to 25 and has its own cut-off score, which categorizes the severity of maltreatment exposure into four levels: none (to minimal), minimal (to moderate),

moderate (to severe), and severe (to extreme). For descriptive purposes, the current study reports the percentages of participants with at least moderate (to severe) scores on each subscale. The cut-off scores for moderate (to severe) levels are: physical abuse  $\geq 10$ , sexual abuse  $\geq 8$ , emotional abuse  $\geq 13$ , physical neglect  $\geq 10$ , and emotional neglect  $\geq 15$ . Cronbach alpha's internal consistency coefficients were 0.97, 0.86, 0.88, 0.66, 0.88, for each subscale respectively. Given that the subscales were moderately to highly interrelated ( $r$ s between 0.38 and 0.73), we calculated a total score by summing the five subscales to reflect overall severity of maltreatment exposure. The CTQ has been used in many studies with high-risk families (e.g., Bert et al., 2009; Cicchetti et al., 2006).

#### 5.3.4. Mothers' psychological distress

The Symptoms Check List (SCL-90-R; Derogatis, 1994) assesses psychological distress experienced by mothers in the past seven days. This self-report measure includes 90 items rated on a 5-point scale ranging from not at all to excessively. This questionnaire yields 9 symptoms subscales (somatization, obsessive-compulsive, interpersonal sensitivity, hostility, depression, anxiety, phobic anxiety, paranoid ideation, psychoticism) and one global severity index scale. In this study, the global severity index scale was used for analyses. It is calculated by summing the scores of the items and dividing by the total number of items answered by the participant. Raw scores are converted to T scores, where values  $\geq 63$  indicate a clinical level of psychological distress. Cronbach alpha's coefficients for the subscales ranged between 0.76 and 0.90, and it was 0.97 for the global severity index score. The SCL-90-R has been used in many studies with high-risk samples (e.g., Asner-Self et al., 2006).

#### 5.3.5. Disrupted parental behaviors

The Atypical Maternal Behavior Instrument for Assessment and Classification - Brief measure (AMBIANCE-Brief; Madigan et al., 2018) was used to assess disrupted maternal behaviors during the SSP. The SSP consists of two separation-reunion episodes between the caregiver and the child. In the present study, we used the SSP for children aged 12 to 24 months (Ainsworth et al., 1978) and the preschool version for children aged 24 to 72 months (Cassidy & Marvin, 1992). Both procedures have been extensively validated (Deneault et al., 2023; Madigan et al., 2023), are conceptually and technically compatible, and have been used within a single sample comprising infants and preschoolers (e.g., Zephyr et al., 2021). The preschool version is adapted to children's more advanced development by including 5-min, rather than 3-min, separation and reunion episodes, making the presence of the stranger optional, and not providing caregivers with specific instructions regarding reunion behavior. In this study, a stranger was present at the first reunion-separation only. The same laboratory room was used for both SSP versions and children were provided with age-appropriate toys. Previous studies have used free-play and separation-reunion procedures to score items of the Full AMBIANCE system with children aged between 11 months and 7 years (e.g., Ballen et al., 2010; Madigan et al., 2011).

The AMBIANCE-Brief includes 45 items selected from the original 150-item full AMBIANCE version. It yields an overall continuous score and a dichotomous score of disrupted versus non-disrupted parental behavior. The AMBIANCE-Brief assesses disrupted parental behaviors along five dimensions: 1) affective communication errors (contradictory responses or lack of or inappropriate responses to infant cues); 2) role/boundary confusion (prioritizing parental needs over the infant's or treating the child as a sexual/spousal partner); 3) fearful/disoriented behaviors (hypervigilance, dissociation or disorganized behaviors); 4) intrusiveness/negativity (physical or verbal intrusiveness, negative attribution to the child); 5) withdrawal (creating distance with the child through physical or verbal means). Based on the frequency and intensity of observed behaviors, an overall score is assigned using a 7-point rating scale (1 = sensitive and positive communication; 3 = some evidence of disrupted communication; 5 = distinct disrupted communication; 7 = highly disrupted communication with no improvement over the course of the interaction). Mothers with scores of 4 and below are classified as having a non-disrupted communication pattern and those with scores of 5 and above are classified as having a disrupted communication pattern. In this study, three coders assessed parental behavior during the SSP. They were unaware of participants' scores on other measures. They were all trained by an expert (S. Madigan), with whom they achieved excellent inter-rater agreement on a separate sample. Inter-rater agreement between the three coders on 20% of available cases of this sample was excellent for both the overall score (ranging from  $r_{icc} = 0.95$  to 0.98) and the non-disrupted vs. disrupted classification (ranging from  $k = 0.83$  to 1.00).

#### 5.4. Analytic plan

IBM SPSS Statistics software (version 29; 2022) was used to handle continuous missing data, verify assumptions of normality and homogeneity, and conduct data analyses. Missing data were handled using the Expectation-Maximisation likelihood algorithm. Preliminary correlations examined whether sociodemographic variables (e.g., maternal and child age, family income) were significantly associated with the overall score of disrupted behaviors, which was used as the dependent variable in the present study. Sociodemographic variables that were found significant were included as covariates in the main analyses. Also, bivariate correlations examined associations among study variables (parental childhood maltreatment, psychological distress, disrupted behaviors, and child gender [1 = girls, 2 = boys]).

Main regression analyses were conducted using the SPSS PROCESS Plug-in, Model 5 (Hayes, 2018), which allows to test for indirect (mediation) and moderation effects between the independent and dependent variables. Specifically, regressions examined whether parental childhood maltreatment was associated with disrupted behaviors through parental psychological distress, and whether the direct association between childhood maltreatment and disrupted behaviors was moderated by child gender.

## 6. Results

Given the skewed distribution of family income, a logarithmic transformation was applied to meet the assumption of normality.

Also, due to missing data in the sociodemographic questionnaire or the children's CPS files, or due to technical problems with some videos, a complete dataset of 63 families was available (missing data ranged from 0% to 24.5%). To maximize our sample size and preserve statistical power, the missing values were replaced using the Expectation-Maximisation algorithm. Little's Missing Completely At Random Test was not significant ( $\chi^2(162) = 149.05, p = .76$ ), indicating that data were missing completely at random.

### 6.1. Preliminary analyses

Descriptive statistics (based on imputed data) for the whole sample and as a function of recruitment source are reported in Table 1. Results indicate that the two recruitment groups did not differ on any of the study variables ( $t$  between 0.22 and 1.32, and  $X^2$  between 0.01 and 3.52), except for one CTQ subscale, where parents recruited through CPS reported more severe emotional abuse ( $t = -2.14, p = .035$ ) in the moderate to severe levels ( $X^2 = 3.91, p = .048$ ) than those recruited from community agencies. Considering the overall similarity between the groups, all families were treated in a single group.

Potential sociodemographic covariates (child age and parental education, income, and age) were examined in relation to disrupted parental behavior, psychological distress, and severity of childhood maltreatment (see Table 2). Child gender was not examined as a potential covariate, as it was instead included as a moderator in the main analyses. Significant associations were found between disrupted parental behaviors and both child age ( $r = -0.27, p = .013$ ) and parental age ( $r = -0.23, p = .032$ ). No other significant correlations were found ( $r$ s between  $-0.01$  and  $0.19$ ). As a result, only parental and child age were covaried in the main analyses.

Bivariate correlations among study variables (childhood maltreatment, psychological distress, disrupted behaviors and child gender), indicated significant correlations between psychological distress and childhood maltreatment ( $r = 0.22, p = .042$ ). Child gender was also associated with disrupted behaviors ( $r = -0.26, p = .014$ ), with mothers showing more disrupted behaviors toward their daughters than sons. No other associations were significant.

### 6.2. Main analyses

#### 6.2.1. Direct effects

An initial set of regressions was conducted with child age and parent age as covariates. As neither covariate was not significant in the final regression model, a second set of regressions was performed without these variables to yield a more parsimonious model. Results of this second model showed that the direct link between childhood maltreatment and psychological distress was significant,  $F(1,86) = 4.25, p = .042$ . The regression model predicting parental disrupted behaviors was also significant,  $F(4,83) = 4.30, p = .003$ , accounting for 17.2% of the variance. Significant direct effects were found for parental psychological distress ( $b = 0.03, p = .009$ ) and child gender ( $b = -0.64, p = .006$ ). Mothers exhibited more disrupted behaviors with their daughters than their sons. Childhood

**Table 1**  
Descriptive statistics for the study variables.

| Variables                                          | Total sample (N = 88) |                    | CPS group (N = 66) |                    | High-risk community group (N = 22) |                    |
|----------------------------------------------------|-----------------------|--------------------|--------------------|--------------------|------------------------------------|--------------------|
|                                                    | M (SD)                | %                  | M (SD)             | %                  | M (SD)                             | %                  |
| Socio-demographic variables                        |                       |                    |                    |                    |                                    |                    |
| Child sex (boys)                                   | –                     | 57.5%              | –                  | 59.1%              | –                                  | 54.5%              |
| Child age (months)                                 | 33.57 (18.67)         | –                  | 34.29 (17.74)      | –                  | 31.41 (21.51)                      | –                  |
| Parent age (years)                                 | 27.09 (7.66)          | –                  | 27.16 (8.08)       | –                  | 26.90 (6.42)                       | –                  |
| Parent education (no high school diploma)          | –                     | 65.9%              | –                  | 71.2%              | –                                  | 50.0%              |
| Single mother headed families                      | –                     | 46.6%              | –                  | 51.5%              | –                                  | 40.9%              |
| Family income (less than 20,000\$)                 | –                     | 64.8%              | –                  | 69.7%              | –                                  | 50.0%              |
| Parental variables                                 |                       |                    |                    |                    |                                    |                    |
| Disrupted behaviors (overall score)                | 4.72 (1.12)           | 53.4% <sup>1</sup> | 4.81 (1.16)        | 54.5% <sup>1</sup> | 4.49 (1.00)                        | 50.0% <sup>1</sup> |
| Severity of childhood maltreatment (overall score) | 51.38 (20.81)         | 65.9% <sup>2</sup> | 53.21 (21.86)      | 70.0% <sup>2</sup> | 45.86 (16.53)                      | 55.0% <sup>2</sup> |
| Physical abuse                                     | 8.31 (4.68)           | 26.1% <sup>2</sup> | 8.70 (5.10)        | 27.3% <sup>2</sup> | 7.18 (2.92)                        | 22.7% <sup>2</sup> |
| Sexual abuse                                       | 9.35 (6.64)           | 36.4% <sup>2</sup> | 9.67 (6.88)        | 37.9% <sup>2</sup> | 8.41 (5.90)                        | 31.8% <sup>2</sup> |
| Emotional abuse                                    | 12.78 (6.12)          | 45.5% <sup>2</sup> | 13.58 (6.45)       | 51.5% <sup>2</sup> | 10.41 (4.34)                       | 27.3% <sup>2</sup> |
| Physical neglect                                   | 7.93 (3.63)           | 28.4% <sup>2</sup> | 8.05 (3.68)        | 30.3% <sup>2</sup> | 7.59 (3.55)                        | 22.7% <sup>2</sup> |
| Emotional neglect                                  | 12.99 (5.66)          | 36.4% <sup>2</sup> | 13.23 (5.89)       | 37.9% <sup>2</sup> | 12.27 (4.97)                       | 31.8% <sup>2</sup> |
| Psychological distress (Glogal severity index)     | 58.00 (9.97)          | 30.6% <sup>3</sup> | 58.54 (10.16)      | 22.7% <sup>3</sup> | 56.36 (9.40)                       | 18.2% <sup>3</sup> |
| Somatization                                       | 55.82 (10.39)         | 21.6% <sup>3</sup> | 56.30 (10.46)      | 24.2% <sup>3</sup> | 54.38 (10.29)                      | 13.6% <sup>3</sup> |
| Obsessive-compulsiveness                           | 56.01 (9.81)          | 21.6% <sup>3</sup> | 56.44 (9.50)       | 24.2% <sup>3</sup> | 54.72 (9.70)                       | 13.6% <sup>3</sup> |
| Interpersonal sensitivity                          | 56.39 (10.20)         | 22.7% <sup>3</sup> | 56.76 (10.54)      | 25.8% <sup>3</sup> | 55.31 (9.28)                       | 13.6% <sup>3</sup> |
| Depression                                         | 57.25 (8.68)          | 22.7% <sup>3</sup> | 57.41 (9.24)       | 22.7% <sup>3</sup> | 56.77 (6.89)                       | 22.7% <sup>3</sup> |
| Anxiety                                            | 53.90 (11.59)         | 25.0% <sup>3</sup> | 54.58 (11.83)      | 27.3% <sup>3</sup> | 51.88 (10.82)                      | 18.2% <sup>3</sup> |
| Hostility                                          | 56.34 (9.87)          | 21.6% <sup>3</sup> | 56.21 (9.64)       | 22.7% <sup>3</sup> | 56.76 (10.78)                      | 18.2% <sup>3</sup> |
| Phobic anxiety                                     | 53.06 (9.87)          | 18.2% <sup>3</sup> | 53.79 (10.00)      | 21.2% <sup>3</sup> | 50.87 (9.44)                       | 9.1% <sup>3</sup>  |
| Paranoid ideation                                  | 58.58 (9.73)          | 26.1% <sup>3</sup> | 58.97 (10.09)      | 28.8% <sup>3</sup> | 57.42 (8.66)                       | 9.1% <sup>3</sup>  |
| Psychoticism                                       | 57.53 (10.98)         | 38.6% <sup>3</sup> | 58.03 (11.37)      | 27.3% <sup>3</sup> | 56.03 (9.80)                       | 42.4% <sup>3</sup> |

<sup>1</sup> Percentage of disrupted communication vs non-disrupted communication.

<sup>2</sup> Parents in the moderate (to severe) and severe (to extreme) categories of the CTQ Questionnaire.

<sup>3</sup> Parents above the clinical threshold on the SCL-90-R questionnaire.

**Table 2**  
Correlations between study variables and sociodemographic characteristics.

|                                               | 1      | 2     | 3     | 4     | 5      | 6      | 7    | 8      |
|-----------------------------------------------|--------|-------|-------|-------|--------|--------|------|--------|
| 1. Disrupted behaviors                        |        |       |       |       |        |        |      |        |
| 2. Severity of childhood maltreatment         | −0.07  |       |       |       |        |        |      |        |
| 3. Psychological distress                     | 0.20   | 0.22* |       |       |        |        |      |        |
| 4. Child gender <sup>1</sup>                  | −0.26* | −0.11 | 0.02  |       |        |        |      |        |
| 5. Parent education                           | −0.16  | −0.11 | 0.03  | 0.15  |        |        |      |        |
| 6. Parent age (years)                         | −0.23* | 0.04  | −0.01 | −0.05 | 0.30** |        |      |        |
| 7. Child age (months)                         | −0.27* | 0.05  | 0.03  | 0.17  | 0.18   | 0.40** |      |        |
| 8. Parental income <sup>2</sup>               | −0.19  | −0.19 | −0.18 | 0.08  | 0.25*  | 0.03   | 0.05 |        |
| 9. Single mother headed families <sup>3</sup> | 0.17   | 0.05  | 0.14  | 0.01  | 0.11   | 0.17   | 0.12 | −0.43* |

Note.  $N = 88$ .

<sup>1</sup> Girls = 1 and boys = 2.

<sup>2</sup> Parental income was log transformed.

<sup>3</sup> Couple = 0 and Single = 1.

\*  $p < .05$ .

\*\*  $p < .01$ .

maltreatment was not a significant predictor of parental disrupted behavior ( $b = 0.02$ ,  $p = .195$ ; see Table 3 and Fig. 1).

### 6.2.2. Indirect and moderation effects

The indirect effect of parental childhood maltreatment on disrupted behaviors through psychological distress was significant ( $b = 0.01$ , Boot SE = 0.01, 95% CI [0.0001, 0.0083]). The interaction between childhood maltreatment and child gender in predicting disrupted parental behavior only reached marginal significance ( $b = -0.02$ ,  $p = .061$ ; see Table 3 and Fig. 1).

## 7. Discussion

The present study investigated maternal psychological distress and child gender as potential intervening factors between childhood maltreatment and disrupted parental behaviors, focusing on the indirect role of psychological distress and the moderating role of child gender. The results indicate that childhood maltreatment was significantly associated with maternal psychological distress, which, in turn, was significantly related to disrupted maternal behavior. While childhood maltreatment did not show any direct effect on disrupted parental behaviors, it had a significant indirect effect through psychological distress. Moreover, child gender was not a moderator of the association between childhood maltreatment and disrupted maternal behavior, but mothers exhibited higher levels of disrupted behaviors with their daughters than their sons. These findings support the hypothesis that psychological distress serves as a mechanism through which childhood maltreatment is associated with problematic parental behaviors. Notably, the current study is among the first to investigate correlates of disrupted parental behavior as identified using the AMBIANCE-Brief measure in a sample of mothers who have maltreated their children or are at elevated risk for child maltreatment.

### 7.1. Childhood maltreatment, maternal psychological distress, and disrupted behaviors

The finding that childhood maltreatment is associated with maternal psychological distress is consistent with a substantial body of research, including meta-analyses that have documented associations between childhood maltreatment and later psychopathology symptoms, such as depressive and anxiety symptoms, and post-traumatic stress disorder (e.g., Lewis et al., 2019; Liu et al., 2025; Mandelli et al., 2015). Moreover, our finding that maternal psychological distress was significantly associated with disrupted maternal behaviors also contributes to the scarce literature showing associations between parental psychological difficulties and disrupted behaviors measured with the Full AMBIANCE (Burtchen et al., 2022; Lyons-Ruth et al., 2002). In these studies, elevated levels of

**Table 3**  
Regressions predicting levels of disrupted parental behavior from childhood maltreatment, psychological distress, and child gender.

|                                                     | $R^2$ | $F (df)$      | $b$     | $se$ |
|-----------------------------------------------------|-------|---------------|---------|------|
| Model predicting psychological distress             | 0.047 | 4.25* (1,86)  |         |      |
| Severity of childhood maltreatment                  |       |               | 0.10*   | 0.05 |
| Final model predicting disrupted parental behaviors | 0.17  | 4.30** (4,83) |         |      |
| Severity of childhood maltreatment                  |       |               | −0.01   | 0.01 |
| Psychological distress                              |       |               | 0.03**  | 0.01 |
| Child gender <sup>1</sup>                           |       |               | −0.64** | 0.23 |
| Severity of childhood maltreatment X gender         |       |               | −0.02†  | 0.01 |

<sup>1</sup> Girls = 1 and boys = 2.

†  $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

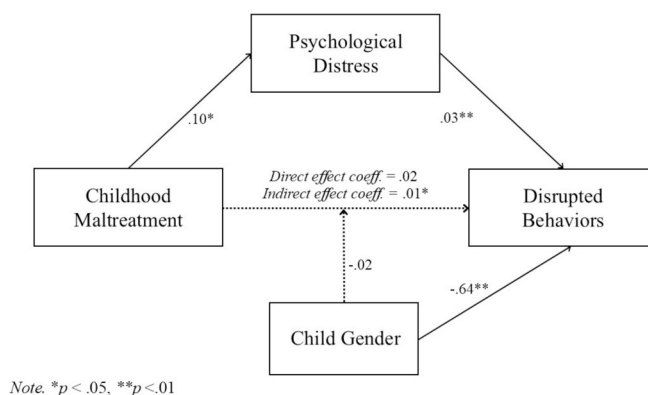


Fig. 1. Regressions predicting levels of disrupted parental behavior from childhood maltreatment, psychological distress, and child gender.

psychological distress were associated with increased expressions of negative behaviors, fearful responses and overall disrupted behaviors.

Particularly, our study found an indirect pathway, whereby parental psychological distress acts as a mechanism of risk transmission. While consistent with a prior systematic review showing that childhood maltreatment is indirectly associated with reduced positive parenting through mothers' mental health (Greene et al., 2020), the present finding extends this literature by highlighting maternal psychological distress as a mechanism of risk transmission associated with specific negative parental behaviors. Early maltreatment can lead to long-lasting emotional and psychological difficulties (Jensen et al., 2021), which may compromise parents' emotion regulation and increase withdrawal, hostility, and inconsistency (Burtchen et al., 2022; Lyons-Ruth et al., 2002), hallmarks of disrupted behaviors. These behaviors, in turn, have important implications for children's developmental outcomes. A recent systematic review identified caregiver mental health and parenting behaviors as key mediators linking parental trauma to children's emotional and behavioral outcomes (Mottley et al., 2025). Future research could examine whether specific emotion regulation strategies or other resilience processes (e.g., social support) buffer the association between psychological distress and disrupted behavior. Identifying protective factors may inform preventive interventions supporting parents with psychological distress and help attenuate or interrupt the intergenerational transmission of risk.

Finally, the absence of a direct association between childhood maltreatment and disrupted behavior is consistent with Nystrom-Hansen et al. (2019), who used the Full AMBIANCE in a sample of mothers with psychiatric diagnoses. Using overall scores for childhood maltreatment and disrupted behaviors may have obscured the unique associations between specific types of maltreatment and dimensions of specific disrupted behavior. In the present study, reliance on the AMBIANCE-Brief limited our ability to examine such differential patterns. Evidence suggests that associations may be stronger for more severe or specific forms of childhood maltreatment or types of disrupted parental behaviors. For example, Guyon-Harris et al. (2020) reported that over 60% of mothers exposed to severe emotional abuse, physical abuse or physical neglect were classified as disrupted, increasing to over 80% among those exposed to severe sexual abuse or emotional neglect. Similarly, physical abuse has been linked to greater negative/intrusive behaviors, whereas physical neglect has been associated with more role confusion (Khoury et al., 2022), and greater maltreatment severity with parental withdrawal (Nystrom-Hansen et al., 2019). Future research should examine maltreatment severity and types separately, as well as distinct types of disrupted parental behaviors. Studies using the AMBIANCE-Brief could also explore whether factor-analytic approaches, based on observed individual behaviors, identify meaningful behavioral dimensions that enhance the assessment of disrupted caregiving.

## 7.2. Associations with child gender

The results showed that the interaction between childhood maltreatment and child gender in the prediction of disrupted parental behavior was not significant. However, a direct effect of child gender was found, indicating that mothers exhibited more disrupted behaviors with daughters than with sons. This is in contrast with Zvara et al. (2017), who found that mothers with a history of child sexual abuse were more sensitive and less aggressive with their daughters than their sons. However, our results concur with those of other studies showing that mothers who experienced sexual violence during childhood displayed greater hostility or less warmth toward their daughters than their sons (Cross et al., 2016; Schechter et al., 2002). These results are consistent with Muller (1995), who observed that mothers with abuse histories were more likely to have experienced maltreatment from their mothers rather than their fathers. It is possible that mothers in our sample, two-thirds of whom reported at least moderate (to severe) childhood maltreatment, perceived their daughters as reflections of their vulnerable, younger selves, triggering painful memories of unresolved trauma and leading to more disrupted behaviors, such as fearfulness or withdrawal. Cross et al. (2016) suggested that mothers with abuse histories may display increased hostility toward their daughters, potentially to shield them from harmful environments and to cope with the emotional pain linked to their own maltreatment.

### 7.3. Strengths, limitations, and future research

This study is among the first to evaluate the AMBIANCE-Brief in a sample of mothers at high-risk for maltreatment or with CPS maltreatment reports. A notable strength is the use of this observational measure to assess parental behavior and for which high inter-rater reliability was achieved. This supports the robustness and validity of the AMBIANCE-Brief system for use with this population. Another strength is the focus on both families at high-risk for maltreatment and with substantiated CPS reports, which enhances the ecological validity of the findings and their applicability to families receiving services through CPS or community agencies.

However, this study has limitations. The cross-sectional design limits the ability to draw causal inferences. Future longitudinal research or randomized controlled trials could help understand the temporal dynamics and potential causal pathways underlying these associations. Moreover, the relatively small sample size reduced statistical power, potentially limiting the detection of more subtle effects (e.g., the marginally significant interaction effect). The lack of information on participants' ethnicity and race restricts the extent to which the findings can be generalized across ethnic groups. Finally, although families at high-risk for maltreatment and those with CPS maltreatment reports were generally similar on study variables, future studies focusing exclusively on CPS-involved families may yield more nuanced insights into the differential associations between specific types of maltreatment and disrupted parental behaviors.

### 7.4. Clinical implications

The findings of this study carry significant clinical implications for professionals working with maltreating parents and those at elevated risk for child maltreatment. First, the identification of maternal psychological distress as a mechanism linking childhood maltreatment to maternal disrupted behaviors highlights a critical intervention target. Addressing parental distress should be prioritized when working with high-risk families (Muzik et al., 2015). As well, integrating trauma-informed care and psychological support into parenting programs may help reduce disrupted behaviors and improve child outcomes. Second, the observed child gender differences in parenting underscore the need for gender-sensitive approaches in interventions with high-risk mothers. These findings suggest that child gender may elicit distinct parental responses to child needs and distress, and interventions should be tailored to account for these dynamics to enhance their effectiveness. Third, the study supports the clinical utility of the AMBIANCE-Brief as an observational tool for assessing disrupted parental behaviors. Its concise format and practicality make it well-suited for use in applied settings (Eirich et al., 2024), such as with parents receiving services through CPS or community agencies. It is important to note, however, that parental disrupted behaviors are not maltreating behaviors, therefore, the AMBIANCE-Brief should not be used to assess the risk of maltreatment or as a screening tool for maltreatment. Rather, it can facilitate early identification of relational disturbances and support individualized trauma-informed interventions aimed at enhancing parent-child interaction quality.

Overall, the results advocate for the adoption of an integrative clinical framework that considers the interplay between parental history of maltreatment, psychological distress, child gender, and parenting behavior. Such a framework can enhance practitioners' ability to assess parenting more comprehensively and respond more effectively to the complex needs of high-risk families. Findings also emphasize the value of training CPS and frontline practitioners in the AMBIANCE-Brief and in understanding the factors associated with disrupted parenting. Enhancing practitioners' awareness and capacity can lead to more targeted, responsive interventions and ultimately promote healthier parent-child relationships in vulnerable families.

### 7.5. Conclusion

This study investigated key mechanisms underlying parental disrupted behaviors among mothers reported or at elevated risk for maltreatment. Findings revealed that childhood maltreatment is associated with maternal psychological distress, which, in turn, is associated with maternal disrupted behavior, highlighting the importance of considering mental health, such as depressive and anxious symptoms, as a pathway through which past experiences of maltreatment may affect parental behaviors. Moreover, findings indicate that mothers exhibited more disrupted behaviors with their daughters than sons, suggesting gender-specific patterns of parenting in high-risk families. Together, these findings emphasize the need for trauma-informed and gender-sensitive approaches in interventions with high-risk families. They also contribute to the validation of the AMBIANCE-Brief with high-risk families and its value for assessing early relational disturbances and informing more targeted intervention strategies. Future longitudinal research (or RCT) with larger samples should focus on further understanding the associations between childhood maltreatment types and the different dimensions of disrupted behaviors.

### CRediT authorship contribution statement

**Solène Cognard-Bessette:** Writing – review & editing, Writing – original draft, Validation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Gabrielle Myre:** Writing – review & editing, Data curation. **George Tarabulsky:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Annie Bernier:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Diane St-Laurent:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Karine Dubois-Comtois:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Chantal Cyr:** Writing – review & editing, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

## Ethics

This research was approved by the Ethics committee of the *Comité Institutionnel d'éthique de la recherche avec des êtres humains* and written consent was obtained from participants.

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## Declaration of competing interest

The authors declare no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

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## Data availability

The data that has been used is confidential.

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