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Article abstract

Objectives: This prospective longitudinal study aimed to explore the role of family relationships (romantic satisfaction and mother-infant bonding) and psychological distress in the associations between four child maltreatment (CM) subtypes (sexual, physical, and emotional abuse, neglect) and early child abuse potential in young mothers.

Methods: A sample of 85 pregnant mothers (18-29 years old) was recruited to complete an online survey at Time 1 (T1); 57 mothers participated at T2 (3 months postpartum). The survey documented experiences of CM, prenatal romantic satisfaction, postnatal psychological distress, mother-infant bonding, and child abuse potential using validated questionnaires.

Results: Four sequential mediation models were tested, one for each CM subtype. Results show that a maternal history of CM (all subtypes) was indirectly associated with heightened child abuse potential three months postpartum. All CM subtypes were negatively related to prenatal romantic satisfaction, which was in turn negatively associated with postnatal psychological distress. Postnatal psychological distress was related to lower mother-infant bonding which, in turn, was related to increased child abuse potential. The complete sequential model was significant for physical, sexual, and emotional abuse, while a partial sequence was identified with neglect.

Implications: Our results are consistent with theoretical models and empirical findings demonstrating the importance of relational factors and mental health in the intergenerational continuity of CM. While our findings await replication, they emphasize the need to intervene early - during the perinatal period - on mental health and family relationships to interrupt intergenerational cycles of CM in at-risk families.

Exploring the Prospective Role of Relationships and Psychological Distress in Postpartum Risk of Intergenerational Continuity of Child Maltreatment

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Abstract

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Keywords: Intergenerational continuity; child maltreatment; psychological distress; romantic satisfaction; early attachment.

Introduction

Child maltreatment (CM; physical, sexual, and emotional abuse, neglect, exposure to partner violence) is a highly prevalent public health concern experienced by a quarter to a third of adults in high-income countries (Afifi et al., 2014). CM represents one of the greatest threats to positive adaptation throughout the lifespan as it has been associated with many short- and long-term psychological and physical health problems, including depression, anxiety, posttraumatic stress, substance abuse, sexual dysfunctions, obesity, diabetes, and chronic pain (Gilbert et al., 2009; Leeb et al., 2011; Vachon et al., 2015). CM is also associated with relationship functioning, including insecure attachment patterns in childhood (with parents) and adulthood (with romantic partners and one's own children), a greater risk of peer victimization, and lower social support and satisfaction in romantic relationships (Cyr et al., 2010; Goemans et al., 2021; Marshall et al., 2022; River et al., 2020). Therefore, the prevention of CM and the efficient treatment of the associated consequences is highly relevant to ensuring resilient functioning and positive relationships in affected individuals. Furthermore, as CM tends to show intergenerational continuity, wherein parents with a history of CM are at greater risk of having a child who will also suffer CM (Berzenski et al., 2014; Langevin et al., 2021), documenting risk and protective factors involved in this intergenerational continuity appears essential. As stated by Sperlich et al. (2017), "Pregnancy is a crucial point of intersection between generations during which cycles of childhood maltreatment and psychiatric vulnerability are transmitted" (p. 379). Therefore, the perinatal period appears particularly relevant for studying mechanisms underlying the intergenerational continuity of CM. Thus, in line with theoretical models and past empirical findings on this phenomenon (Langevin et al., 2021; Marshall et al., 2022), the present longitudinal study aimed to explore the prospective role of family relationships (i.e., prenatal romantic satisfaction and early mother-infant bonding) and postpartum psychological distress in the associations between four CM subtypes (i.e., sexual, physical, and emotional abuse, neglect) and early CM potential in young mothers.

Intergenerational continuity of child maltreatment

The exact prevalence of the intergenerational continuity of CM remains unknown, as studies have found rates ranging from 7 to 88% depending on the design, the sample, the CM subtypes considered, the measures used (e.g., retrospective self-report, official records), and other methodological characteristics (see Langevin et al., 2021 for a review). One of the most rigorous studies currently available documented the intergenerational continuity of reported CM in the five years following childbirth using a populational birth cohort of teen mothers from California (Putnam-Hornstein et al., 2015). This study found that children of teen mothers with childhood histories of substantiated and unsubstantiated reports of CM were more than twice as likely to have child protection services involvement than their peers born to teen mothers without such histories (44.1% for substantiated CM; 35.9% for unsubstantiated CM; 17.4% for mothers without CM histories). While further studies are necessary to confirm the exact rates of CM continuity, its existence is not debated among experts and studies aiming to better understand its underlying mechanisms are essential.

A recent systematic review of theoretical models used to explain the intergenerational continuity of CM, specifically victim-to-victim cycles of CM wherein the maltreated parents are not the perpetrator of their child's abuse, highlighted that the impacts of CM on individuals' neurobiology, attachment representations, and mental health, as well as the subsequent influence of these factors on parenting and the familial environment (e.g., socioeconomic factors), might be key mechanisms of continuity (Marshall et al., 2022). A systematic review of the psychosocial risk and protective factors involved in the intergenerational continuity of CM (victim-to-victim and victim-to-perpetrator cycles) shows that empirical findings tend to confirm these theoretical pathways (Langevin et al., 2021). Indeed, the most documented factors across studies were those related to maternal mental health (e.g., anxiety, depression), maternal age, and the quality of the relationships that mothers have with their romantic partners and children. Specifically, Dixon and colleagues (Dixon, Browne, et al., 2005; Dixon et al., 2009; Dixon, Hamilton-Giachritsis, et al., 2005) demonstrated that a history of mental illness and substance use was associated with a heightened risk of intergenerational continuity of CM in mothers of newborn infants. Similarly, Yang et al. (2018) found that the association between maternal history of childhood neglect or physical abuse and mothers' perpetration of physical abuse was mediated by their depressive symptoms. As a final example, Grunsfeld (2018) indicated that maternal mental health and problematic substance use were associated with the intergenerational continuity of child sexual abuse in early-to-middle childhood.

Conversely, several empirical studies documented the protective role of relational factors. Conger et al. (2013) found that warmth and positive communication between the parents or the parent and their romantic partner was protective against the intergenerational continuity of harsh parenting. Egeland and colleagues (1988) report that

positive, satisfying, and stable relationships between the mother and her romantic partner, in addition to emotional support from the partner, acted as a buffer against the intergenerational continuity of CM in the first years of life. The protective effect of positive inter-adult relationships was also noted by Thornberry and Henry (2013). In addition to this protective effect of positive adult relationships, Jaffee and al. (2013) documented the protective role of maternal warmth. Similarly, Thornberry et al. (2013) noted that positive intimate relationships between adults were protective factors, as were positive adult-child relationships, attachment to the child (e.g., enjoying the child, getting along, being proud), and satisfaction with parenthood. Taken together, past findings and theoretical models support the notion that the impact of CM on individuals' mental health and ability to form positive relationships with their romantic partners and children is central to understanding the intergenerational continuity of CM.

Current study

The available literature on the intergenerational continuity of CM is limited in many ways, such as a lack of prospective longitudinal studies, the consideration of single CM subtypes or of a few subtypes only, the secondary use of data originally collected for other purposes, and the use of unvalidated measures (Langevin et al., 2021). Furthermore, few studies have used path models to examine the pathways underlying the association between a history of CM in mothers, relational and mental health variables, and second-generation's CM. To fill some of these gaps, this longitudinal study aimed to explore the prospective role of family relationships and psychological distress in the associations between a history of physical, sexual, and emotional abuse or neglect and postpartum child abuse potential in young mothers. A recent study by River et al. (2020) demonstrated that the lower romantic satisfaction of adults with a history of CM mediated the association between CM and prenatal mental health symptoms. Furthermore, maternal mental health problems, in addition to being associated with a higher risk of CM (Ayers et al., 2019), have been shown to negatively impact early mother-infant bonding in many studies (Tichelman et al., 2019). Thus, the current study aimed to test a model wherein romantic satisfaction during pregnancy, postpartum psychological distress, and early mother-infant bonding sequentially mediated the associations between abuse and neglect in mothers' childhood and early child abuse potential. We expect that a history of CM will be associated with lower prenatal romantic satisfaction, which will be related to higher postpartum psychological distress, which, in turn, will be associated with lower mother-infant bonding. Finally, this lower bonding will be associated with greater child abuse potential. Material deprivation was used as a control variable as low socioeconomic status is a known risk factor for the intergenerational continuity of CM (Langevin et al., 2021), as well as psychological distress (Lepièce et al., 2015), and poor attachment quality (van IJzendoorn & Bakermans-Kranenburg, 2010).

Method

Participants

A sample of 98 pregnant women was recruited in 2020-2021 across Canada through postings on social media and community locations serving vulnerable mothers from a metropolitan area. Participants were included if they were between 18 and 29 years old and at least 16 weeks pregnant. Relatively young mothers (national average age at first child's birth is around 28 years old; Statistics Canada, 2014) were targeted in the hopes of obtaining a more homogenous and at-risk sample (e.g., lower socioeconomic background, higher CM rates) (Langevin et al., 2021; Roode et al., 2017). As another strategy to recruit an at-risk sample, our recruitment ads mentioned our interest in understanding the impact of difficult experiences in childhood. Furthermore, being at least 16 weeks pregnant increased the likelihood that participants initiated prenatal care and reduced the risks of miscarriages after entering the study (less than 1% of miscarriages occur after 16 weeks of gestation) (Mukherjee et al., 2013). Participants were excluded if they 1) did not reside in the target areas for recruitment ($n = 2$); 2) did not meet our inclusion criteria for age or weeks pregnant ($n = 3$); or 3) displayed careless responding of completion ($n = 8$; e.g., completed the survey in less than half the modal time; i.e., modal time = 18 minutes) and incorrectly answered two out of three attention check questions (e.g., "Did you select *often* to show that you're paying attention?"). The final sample at Time 1 (T1) was composed of 85 participants.

Participants were again solicited three months after their due dates for the follow-up survey (T2); 57 mothers completed T2 for a retention rate of 67%. Thus, the sample for the current analyses included 57 mothers. On average, participants completed the T2 survey 184 days (approximately 6 months) after T1 (range from 93 to 334 days - approximately 3 to 11 months). At T1, participants with complete data did not differ from participants who dropped out on age ($t(86) = -1.88, p = .06$), ethnicity ($\chi^2(6, N = 87) = 1.85, p = .93$), education ($\chi^2(4, N = 88) = 9.20, p = .06$), occupation ($\chi^2(6, N = 88) = 6.38, p = .38$), family status ($\chi^2(3, N = 87) = 3.27, p = .35$), family income ($\chi^2(6, N = 85) = 7.12, p = .31$), material deprivation ($t(85) = 1.51, p = .14$), CM scores (neglect: $t(85) = 1.71, p = .09$; physical abuse: $t(85) = -0.06, p = .95$; emotional abuse: $t(85) = 0.04, p = .97$; sexual abuse: $t(85) = 0.145, p = .89$), and psychological distress ($t(85) = 1.96, p = .05$). However, participants with complete data presented higher romantic satisfaction ($t(83) = -2.65, p = .01; M = 16.66$ vs. 14.72) and were more advanced in their pregnancy at T1 ($t(85) = -3.57, p = .001; M = 27.78$ vs. 22.77 weeks) than participants that discontinued their participation - which reduced the delay between T1 and T2.

Participants all identified as women. At T1, 54 of them (96.4%) reported being in a relationship with a man and two in a relationship with a woman (3.6%). One participant declined to answer this question. The other sociodemographic characteristics of participants are presented in Table 1. Most participants identified as White, had a university-level education, worked either full- or part-time at T1, and were still in a relationship with their child's other parent at T2. The annual family incomes were distributed with approximately 50% reporting incomes under \$60,000 CAN. As a reference, the low-income cut-offs for 2021 for families including three to five members were between \$40,444 and \$55,594 annually (Statistics Canada, 2022). Half the participating mothers were having their first child at the time of their involvement in the study. Finally, rates of CM were relatively high in this sample, and 40.4% of mothers scored in the moderate- or high-risk range for child abuse potential (see Table 1).

Table 1. Sociodemographic characteristics of participants with T1 and T2 data ($n = 57$)

Characteristics	<i>M or n</i>	<i>SD or %</i>
Age in years (T2)	26.14	2.34
Weeks pregnant (T1)	27.78	6.85
Number of children		
First pregnancy	28	49.1
More than one child	29	50.9
Infant age in months (T2)	3.00	0.32
Ethnicity ($n = 56$)		
White	44	78.6
Black	2	3.6
Indigenous	4	7.1
Asian	2	3.6
Mixed	2	3.6
Other	2	3.6
Education (T1)		
Elementary school or less	1	1.8
High school	13	22.8
Pre-university or professional school	3	5.3
Undergraduate	34	59.6
Graduate	6	10.5
Occupation (T1)		
Working full-time	25	43.9
Working part-time	8	14.0
Unemployed or fulfilling domestic tasks	13	22.8
Student	7	12.3
On leave	4	7.0
Family status (T2)		
With the parent of their child(ren)	43	75.4
With the parent of one of their children	12	21.1
Separated or divorced	1	1.8
Other	1	1.8
Annual family income (T1) ($n = 55$)		
< \$20,000	5	9.1
\$20,000-\$39,999	10	18.2
\$40,000-\$59,999	12	21.8
\$60,000-\$79,999	5	9.1
\$80,000-\$99,999	10	18.2
\$100,000-\$119,999	5	9.1
≥ \$120,000	8	14.5
Child maltreatment (yes)		
Neglect	28	49.1
Physical abuse	34	59.6
Emotional abuse	33	57.9
Sexual abuse	26	45.6
Child abuse potential		
High risk	16	28.1
Moderate risk	7	12.3
Low risk	34	59.6

Procedures

All measures were collected online via the secure platform Qualtrics. After participants provided their consent, they were directed to the T1 questionnaires, which took approximately 30 minutes to complete. Participants were sent a personalized email invitation three months after their due date to complete the T2 consent and survey (approximately 20 minutes). A unique participant identification number was used to match T1 and T2 data. After completing T2, participants received a \$30 gift card. The present study obtained ethical approval from the Research Ethics Board at McGill University (REB File #108 0719). Mothers were provided with a list of resources at the beginning and end of the survey given the sensitive topics covered.

Measures

Sociodemographic characteristics. The sociodemographic characteristics of participants were collected at T1 (e.g., education, income, ethnicity, age, gender, family status) and T2 (e.g., family status, age, partner gender) using forced-choice and open-ended self-report questions. Mothers also completed the *Canadian Survey of Economic Well-Being – Index of Material Deprivation* (Statistics Canada, 2013), a 17-item measure assessing one's ability to afford basic necessities. This survey is an appropriate measure for most of the Canadian population (Rheault & Crespo, 2015). Participants answered yes or no to statements such as "Can you afford to pay your bills on time?" and "Can you afford to buy some small gifts for family or friends at least once a year?". A continuous sum score reflective of the number of unmet needs was calculated ($\alpha = .83$); a higher score reflects higher material deprivation.

History of child maltreatment. CM (before the age of 18) was self-reported at T1 using the *ISPCAN Child Abuse Screening Tool* (ICAST; 5 items assessing physical/supervisory neglect; ISPCAN, 2015) and the *Early Trauma Inventory Self-Report – Short Form* (ETI-SR-SF; 5 items for physical abuse; 5 items for emotional abuse; 6 items for sexual abuse; Bremner et al., 2007). The ICAST was elaborated through a Delphi study and field-tested; internal consistencies were moderate-to-high ($\alpha = .61$ to $.82$) (Dunne et al., 2009). The ETI-SR-SF is a validated measure with adequate internal consistencies in the development sample ($\alpha = .78$ – $.90$; Bremner et al., 2007). Sample items are: "Have you ever not been given food to eat and/or drink even though your parent(s) or caretaker(s) could afford it?" (neglect), "Were you ever pushed or shoved by a parent or caregiver?" (physical abuse), and "Did anyone ever have genital sex with you against your will?" (sexual abuse). Participants responded in a yes/no format, and a count score ranging from 0-5 or 0-6, reflective of the number of maltreating/neglectful acts endured, was computed for each CM subtype. A dichotomous score was also computed and participants checking yes on at least one of the items were considered to have endured that subtype of CM in their childhood.

Dyadic adjustment The *Dyadic Adjustment Scale - 4* (DAS-4; Sabourin et al., 2005), a validated abbreviated version of the original 32-item DAS, was used to assess mothers' romantic satisfaction at T1. Mothers answered on a 6-point Likert scale ranging from *all the time* to *never* for the first three questions (e.g., "In general, how often do you think that things between you and your partner are going well?"). The last question asks participants to describe their degree of happiness in their relationship with choices ranging from *extremely unhappy* to *perfect*. A sum score ranging from 0 to 21 and reflecting increasing levels of satisfaction was calculated ($\alpha = .69$).

Psychological distress. Mothers' psychological distress was assessed at T2 using the *Psychiatric Symptom Index* (PSI; Prévaille et al., 1992), a validated 14-item self-report measure assessing irritability, depression, anxiety, and cognitive symptoms in the past week (e.g., "Did you feel bored or have little interest in things?", "Did you feel easily annoyed or irritated?"). Symptoms are rated on a 4-point Likert scale ranging from *never* to *very often*. A global score of psychological distress (0-100) was computed ($\alpha = .93$); higher scores reflect higher levels of distress.

Early mother-infant bonding. The 19-item *Maternal Postnatal Attachment Scale* (MPAS; Condon & Corkindale, 1998) was used to assess mothers' early feelings of bonding with their infant at T2. Three subscales are derived from this instrument: 1) Quality of Attachment (9 items; e.g., "Over the last 2 weeks, I would describe my feelings for the baby as: dislike, no strong feelings, slight affection, moderate affection, or intense affection" and "I now think of the baby as: very much my own baby, a bit like my own baby, or not yet really my own baby"); 2) Absence of Hostility (5 items; e.g., "When I am caring for the baby, I get feelings of annoyance or irritation." with response choices ranging from *never* to *very frequently*); and 3) Pleasure in Interaction (5 items; e.g., "I try to involve myself as much as I possibly can playing with the baby" with response choices being *true* or *untrue*). Reliability and construct validity of this measure have been established (Condon & Corkindale, 1998; Condon et al., 2008). In the current study, we used the Quality of Attachment subscale only ($\alpha = .82$), with sum scores reflecting increasing levels of positive mother-infant bonding.

Child abuse potential. The *Brief Child Abuse Potential Inventory* (BCAPI; Ondersma et al., 2005), a validated 33-item version of the original 160-item *Child Abuse Potential Inventory*, was completed by the mothers at T2. This questionnaire documents risk factors associated with the perpetration of child abuse without asking direct questions about abusive behaviours; while it was originally developed to assess the risk of physical abuse perpetration, it was found to predict future reports to child protection services for both physical abuse and neglect (Ondersma et al., 2005). BCAPI scores were also found to correlate with scores of emotional and sexual abuse (Lee & Sung, 2022). It includes 24 items on abuse risk to which participants respond *agree* or *disagree* (e.g., "I sometimes act without thinking", "I am a happy person", "Children should never disobey", "My family fights a lot"). The total sum score was used in the current study ($\alpha = .91$), with higher scores reflecting increased child abuse potential. BCAPI scores lower than nine are

considered low risk, scores ranging from nine to 11 are considered moderate risk, and scores higher than 11 are considered high risk.

Statistical analyses

SPSS with the PROCESS macro (Hayes, 2013) was used for the statistical analyses. Only participants with complete T1 and T2 data were kept for the main analyses. Preliminary analyses were conducted to compare participants with complete data to participants that dropped out of the study on sociodemographic factors and variables of interest collected at T1 (e.g., CM, dyadic adjustment at T1). The bivariate correlations were run to examine the associations among study variables. Multicollinearity among study variables was tested with Variance Inflation Factors (VIF). VIFs greater than 10 represent critical levels of multicollinearity requiring corrective measures (Miles, 2014). The sequential mediation analyses, conducted separately for the four CM subtypes, were run with 95% bias-corrected bootstrap (5,000 samples) confidence intervals (CI) while controlling for the impact of material deprivation on scores of child abuse potential.

Results

Preliminary analyses

The means and standard deviations on the main variables, as well as correlations among study variables, are presented in Table 2. CM subtypes were highly correlated with one another, indicating substantial levels of polyvictimization in the sample. CM also correlated positively with psychological distress, child abuse potential, and material deprivation; it correlated negatively with romantic satisfaction. Romantic satisfaction was negatively associated with psychological distress, child abuse potential, and material deprivation. Psychological distress correlated positively with child abuse potential and material deprivation; child abuse potential and material deprivation were also positively correlated. The early bonding measure correlated less strongly with the other variables; it was negatively correlated with neglect, psychological distress, child abuse potential and material deprivation, but was not correlated with the other study variables.

The high correlation ($r = .788$) between psychological distress and child abuse potential raised concerns about potential multicollinearity. However, all VIF statistics were below the critical threshold, ranging from 1.26 to 2.14. Thus, corrective measures were deemed unnecessary.

Table 2. Means, standard deviations, and correlations among study variables

Variable	M	SD	Range	1	2	3	4	5	6	7	8
1. Neglect	0.93	1.15	0-4	--							
2. Physical abuse	1.42	1.55	0-5	.742***	--						
3. Emotional abuse	2.02	2.07	0-5	.724***	.691***	--					
4. Sexual abuse	1.44	1.93	0-6	.499***	.578***	.339*	--				
5. Romantic satisfaction T1	16.66	3.24	5-21	-.310*	-.395**	-.351**	-.331*	--			
6. Psychological distress T2	35.46	20.28	2.38-80.95	.368**	.375**	.467***	.299*	-.493***	--		
7. Early bonding T2	39.30	5.12	22.5-45	-.280*	-.132	-.228	-.208	.184	-.408**	--	
8. Child abuse potential T2	7.42	5.98	0-20	.465***	.434**	.556***	.323*	-.468***	.788***	-.517***	--
9. Material deprivation T1	2.77	3.04	0-10	.503***	.584***	.408**	.399**	-.352**	.409**	-.371**	.585***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. T1 = Time 1, T2 = Time 2

Sequential mediation models

Results for the sequential mediation models are presented in Tables 3 and 4 and visually represented in Figure 1. In all four models, prenatal romantic satisfaction was associated with lower postnatal psychological distress. Postnatal psychological distress was associated with lower quality of early mother-infant bonding and heightened child abuse potential. Early bonding was associated with reduced child abuse potential, while prenatal material deprivation was associated with heightened child abuse potential. The specific findings for CM subtypes are presented below.

Table 3. Direct effects in the sequential mediation models

Outcome variable	Child maltreatment		Romantic satisfaction T1		Psychological distress T2		Early bonding T2		Material deprivation T1		R ²
	B	SE	B	SE	B	SE	B	SE	B	SE	
Neglect											
Romantic satisfaction T1	-0.914*	0.378									9.94%
Psychological distress T2	4.604*	2.240	-2.620**	0.773							30.04%
Early bonding T2	-0.804	0.632	-0.083	0.232	-0.092*	0.038					19.31%
Child abuse potential T2	0.418	0.483	-0.093	0.162	0.170***	0.028	-0.201*	0.099	0.431*	0.188	73.21%
Physical abuse											
Romantic satisfaction T1	-0.884**	0.277									16.12%
Psychological distress T2	3.305	1.774	-2.517**	0.806							29.09%
Early bonding T2	0.026	0.502	-0.033	0.241	-0.106**	0.038					16.75%
Child abuse potential T2	0.120	0.410	-0.097	0.165	0.171***	0.028	-0.212*	0.101	0.463*	0.207	72.85%
Emotional abuse											
Romantic satisfaction T1	-0.571**	0.205									12.78%
Psychological distress T2	3.51**	1.209	-2.333**	0.757							34.93%
Early bonding T2	-0.157	0.372	-0.052	0.235	-0.099*	0.040					17.04%
Child abuse potential T2	0.516*	0.254	-0.071	0.157	0.156***	0.028	-0.210*	0.095	0.402*	0.173	74.91%
Sexual abuse											
Romantic satisfaction T1	-0.579*	0.224									11.23%
Psychological distress T2	1.776	1.376	-2.776**	0.797							26.71%
Early bonding T2	-0.327	0.374	-0.082	0.237	-0.099**	0.037					17.98%
Child abuse potential T2	-0.059	0.270	-0.112	0.165	0.173***	0.278	-0.208*	0.099	0.507**	0.181	72.83%

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. T1 = Time 1, T2 = Time 2

Table 4. Significant indirect effects of child maltreatment subtypes on child abuse potential

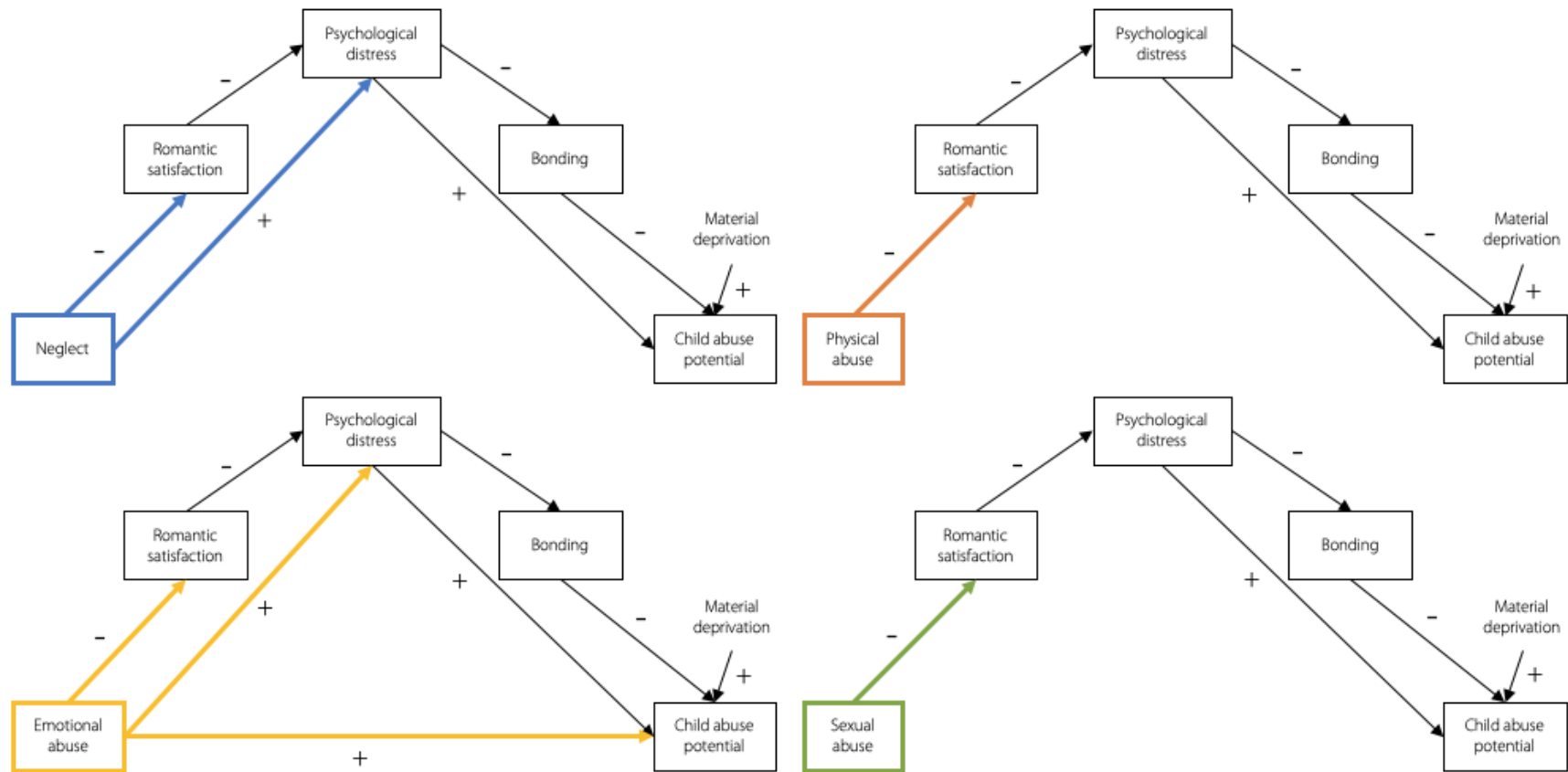
Indirect path	B	95% BC bootstrapped CI
Neglect		
Romantic satisfaction - Psychological Distress	0.406	[0.073, 0.967]
Psychological Distress	0.780	[0.056, 2.012]
Psychological Distress - Early Bonding	0.085	[0.001, 0.489]
Physical abuse		
Romantic satisfaction - Psychological Distress	0.381	[0.125, 0.851]
Romantic satisfaction - Psychological Distress - Early Bonding	0.050	[0.002, 0.230]
Emotional abuse		
Romantic satisfaction - Psychological Distress	0.208	[0.060, 0.480]
Romantic satisfaction - Psychological Distress - Early Bonding	0.028	[0.002, 0.134]
Psychological Distress	0.549	[0.172, 1.006]
Psychological Distress - Early Bonding	0.073	[0.003, 0.280]
Sexual abuse		
Romantic satisfaction - Psychological Distress	0.278	[0.073, 0.694]
Romantic satisfaction - Psychological Distress - Early Bonding	0.033	[0.001, 0.171]

Note. BC = Bias Corrected; CI = Confidence Intervals.

Neglect. A history of childhood neglect was associated with lower romantic satisfaction during pregnancy and more psychological distress postnatally. Indirect effects analyses revealed three significant indirect paths from childhood neglect to postnatal child abuse potential: 1) through romantic satisfaction and psychological distress; 2) through psychological distress only; and 3) through psychological distress and mother-infant bonding. The sequential model with neglect as the independent variable explained 73.21% of the variance of early child abuse potential.

Physical abuse. A history of physical abuse was associated with lower romantic satisfaction during pregnancy. Indirect effects analyses revealed two significant indirect paths from childhood physical abuse to child abuse potential postnatally: 1) through romantic satisfaction and psychological distress; and 2) through romantic satisfaction, psychological distress, and mother-infant bonding. Hence, the complete sequential model was significant, revealing that physical abuse was associated with child abuse potential via its negative association with prenatal

Figure 1. Visual representation of the results of the sequential mediation models.



Note. Only significant paths are represented. The colours highlight the findings that are specific to the CM subtypes.

romantic satisfaction, which, in turn, was negatively associated with postnatal psychological distress, which was negatively associated with the early mother-infant bonding, which, finally, was associated with child abuse potential. The sequential model with childhood physical abuse as the independent variable explained 72.85% of the variance of early child abuse potential.

Emotional abuse. A history of emotional abuse was associated with lower romantic satisfaction during pregnancy and heightened psychological distress and child abuse potential postnatally. Indirect effects analyses revealed four significant indirect paths from childhood emotional abuse to child abuse potential: 1) through romantic satisfaction and psychological distress; 2) through romantic satisfaction, psychological distress, and mother-infant bonding - the complete sequential model; 3) through psychological distress only; and 4) through bonding only. This model explained 74.91% of the variance of early child abuse potential.

Sexual abuse. Finally, a history of child sexual abuse was associated with lower prenatal romantic satisfaction. Indirect effects analyses revealed two significant indirect paths from childhood sexual abuse to child abuse potential: 1) through romantic satisfaction and psychological distress; and 2) through romantic satisfaction, psychological distress, and mother-infant bonding - the complete sequential model. This model explained 72.93% of the variance of early child abuse potential postnatally.

Discussion

The current longitudinal study spanning from pregnancy to three months postpartum has major implications for the prevention of CM and for intergenerational resilience. It aimed to explore the role of romantic and mother-infant relationships and psychological distress in the association between maternal histories of neglect, as well as physical, emotional, and sexual abuse in childhood and early child abuse potential. Identifying the mechanisms involved in the continuity of CM, especially during the sensitive perinatal period (Sperlich et al., 2017), is necessary to enhance our ability to intervene early and efficiently to alleviate the risk and bolster the protective factors in at-risk families. The clinical significance of this study is even higher given that many existing psychosocial interventions are effective in fostering positive family relationships and improving psychological distress, which were the main mechanisms explored here. Our hypotheses were mostly supported for all forms of abuse (physical, emotional, sexual); maternal history of CM was indirectly associated with heightened child abuse potential three months postpartum. Our sequential mediation models showed that CM was first negatively related to prenatal romantic satisfaction, which was in turn negatively associated with postnatal psychological distress. Postnatal psychological distress was related to lower mother-infant bonding, which, in turn, was related to increased child abuse potential. With neglect, as opposed to with the other CM subtypes, the significant indirect effects involved the three postulated mediators, but not in a complete sequence. There was a significant indirect association through prenatal romantic satisfaction and postnatal psychological distress or through postnatal psychological distress and bonding only. Our results are consistent with theoretical models and previous empirical findings demonstrating the importance of relational factors and mental health in the intergenerational continuity of CM (Langevin et al., 2021; Marshall et al., 2022). However, this study furthers our understanding of patterns of intergenerational continuity as it provides preliminary evidence of the possible pathways through which these risk and protective factors relate to cycles of CM. Overall, our models explained high proportions of the variance in early child abuse potential (72.83 - 74.91%), but caution is warranted in the interpretation given the strong correlation found between psychological distress and child abuse potential scores.

Another contribution of this study is the inclusion of four universally recognized subtypes of CM (World Health Organization, 2020). Interestingly, only minor variations across models were found, supporting the notion that all four subtypes of CM are similarly associated with child abuse potential through relational factors and mental health symptoms. Specifically, the models with physical and sexual abuse were the same, showing a direct association of these CM subtypes only with prenatal romantic satisfaction and indirect associations with the other variables in the model. However, emotional abuse and neglect were both directly associated with postnatal psychological distress and prenatal romantic satisfaction, with indirect associations to early mother-infant bonding. Emotional abuse was the only CM subtype directly associated with child abuse potential in the mediation model, indicating that other mechanisms might need to be considered to fully understand how childhood emotional abuse may lead to early child abuse potential. A recent study identified romantic attachment and emotion dysregulation as mechanisms underlying the associations between a history of emotional abuse and depression and couples' functioning in the transition to parenthood (Cao et al., 2020). Emotion dysregulation was also identified as a mediator in the association between childhood emotional abuse and emerging adults' relationship satisfaction while controlling for other forms of abuse

(physical abuse and neglect, sexual abuse) (Bradbury & Shaffer, 2012). Therefore, the consideration of emotion dysregulation and romantic attachment might be warranted in future studies.

This study has several strengths, including a prospective longitudinal design, the inclusion of four CM subtypes, the use of validated measures, and the reliance on robust statistical analyses. Nevertheless, some limitations must be acknowledged and warrant that these findings be considered preliminary evidence requiring replication. Fathers were not included in the current study despite their important role in the perinatal period and beyond. The sample size was small, preventing the inclusion of all CM subtypes in the same model, which would have allowed controlling for their co-occurrence and investigating their unique contributions. The sample also represents at-risk young mothers, given the high proportion of mothers with CM histories (approximately 45-60% depending on the subtype) and who are considered at moderate-to-high risk of maltreating their infants (approximately 40%). Our sample also displays high levels of postnatal psychological distress on average based on the IDP scores, the mean score (35.46) being over the clinical cut-off of 26 or 28 (depending on the age of participants). It is worth noting, though, that IDP scores had a large standard deviation around the mean, reflecting great variability in the participating mothers. The sample is also not culturally diverse, with almost 80% of women identifying as White. While our aim was to recruit an at-risk sample, our sample characteristics indicate that our findings might not be generalizable to all young mothers but represent a specific subpopulation of vulnerable mothers. The retention rate (67%) was acceptable, especially given the at-risk nature of the sample, but it still resulted in the loss of a significant number of mothers, particularly those with lower romantic satisfaction at T1. Therefore, results might have been slightly different if all mothers had participated at T2. Another limitation is the sole reliance on single-informant and self-report measures that could have inflated the covariance between the variables and the high explained variances of the models. Finally, exposure to intimate partner violence was not documented as a CM subtype in the current study.

Future studies should replicate our findings with larger and more representative samples and include a measure of childhood exposure to intimate partner violence. A larger sample would allow including all CM subtypes in the same model. A multi-method, multi-informant approach to measurement is recommended (e.g., using official CM records, observational measures for early attachment, dyadic measurement of couples' satisfaction, and structured interviews for mental health). Prospective longitudinal studies involving fathers, covering a more extended period - ideally the 0-18 years old period for the children - and measuring both pre- and post-natal distress and dyadic satisfaction, as well as change over time in key variables, would be highly informative. Studies with larger samples and more time points could incorporate other relevant factors such as substance use, emotion dysregulation, romantic attachment, and other variables highlighted in the CM continuity literature (e.g., neurobiological variables, community-level variables, children's characteristics). Finally, qualitative studies could provide an in-depth and contextualized understanding of the subjective role of relationships and psychological distress in the early risk of intergenerational continuity of CM.

Implications

While our findings need replication, some practical implications can be highlighted. All mediators involved in the models are amenable to change and could be the target of interventions to help reduce the risk of intergenerational continuity of CM and foster resilience in at-risk families. Prenatal supportive interventions for parents with a history of childhood trauma, such as STEP (Berthelot et al., 2021), could promote resilience. Couple therapy (e.g., Behavioural Couple Therapy, Emotionally Focused Couple Therapy) to help couples affected by histories of CM achieve more satisfying relationships could help prevent postpartum psychological distress and indirectly impact the quality of the mother-infant relationship and child abuse potential (Rathgeber et al., 2019). Individual or group therapy with young mothers suffering from postpartum psychological distress could also indirectly reduce child abuse potential through a positive impact on the early bonding capacities of these mothers (Cuijpers et al., 2008). Furthermore, mother-infant psychotherapy and attachment-based interventions might be promising to reduce maternal distress (Huang et al., 2020) and the risks of intergenerational continuity of CM (O'Hara et al., 2019). Finally, given that many relationships from the family system appear relevant to early child abuse potential, systemic interventions (e.g., parent training programs, relationship education, family therapy) might be an option to consider (Stith et al., 2022).

To conclude, given the central role of relationships and mental health in the intergenerational continuity of CM and the devastating consequences of CM on lifespan development, intervening early - in the perinatal period - to interrupt intergenerational cycles of CM through high-quality and affordable services for at-risk families is essential and might contribute to facilitating intergenerational resilience.

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Conflict of interest

The authors have no conflict of interest to disclose.

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