Psychology of Violence

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Online First Publication, January 10, 2022. http://dx.doi.org/10.1037/vio0000409

AMERICAN PSYCHOLOGICAL ASSOCIATION

Psychology of Violence

ISSN: 2152-0828

https://doi.org/10.1037/vio0000409

Intergenerational Continuity of Child Maltreatment: The Role of Maternal Emotional Dysregulation and Mother–Child Attachment

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Objective: Child maltreatment is a prevalent problem, and a lot remains unknown regarding the prevalence and mechanisms involved in its intergenerational continuity. The present study examines the sequential role of maternal emotional dysregulation and mother-to-child attachment in the intergenerational continuity of specific maltreatment types (Objective 1) as well as cumulative child maltreatment (Objective 2) among mother–young adult dyads. ***Method:*** A sample of 186 mothers and their young adult children (18–25 years old) completed an online survey measuring child maltreatment, attachment, maternal emotional dysregulation, and sociodemographic characteristics. The Canadian Survey of Economic Well-Being—Index of Material Deprivation was used to document mothers' material deprivation. ***Results:*** Path analyses revealed that physical neglect was the maltreatment type in the mothers' childhood that was the most consistently associated with their emotional dysregulation, attachment, and maltreatment in the next generation. Direct trajectories elucidating the homotypic and heterotypic continuity of child maltreatment were identified. A multigroup analysis revealed significant differences between the nondeprived and deprived groups for Objective 1. Regarding Objective 2, indirect paths indicated that an increase in the number of child maltreatment types that were experienced by mothers was associated with increased emotional dysregulation, which was negatively associated with attachment. In turn, attachment was negatively associated with cumulative child maltreatment in young adults. ***Conclusions:*** The present study highlights the importance of including neglect in studies of intergenerational continuity and of exploring the role of material deprivation in depth. The damage caused by cumulative child maltreatment is supported by our findings. Screening for past maltreatment experiences and their impacts on maternal functioning may be warranted when working with distressed families.

Keywords: intergenerational continuity, child maltreatment, emotional dysregulation, attachment, material deprivation

Intergenerational continuity of child maltreatment (CM; physical, sexual, or emotional maltreatment, neglect, and exposure to domestic violence) refers to situations in which a parent with a history of CM has a child who experiences CM as well, regardless of whether the parent is involved as a perpetrator (Berlin et al., 2011). The actual prevalence of the intergenerational continuity of CM is unknown, as rates range from 7% to 88% depending on the study design, sample, CM types included, the period covered for second generation CM, etc. (Langevin et al., 2019). Additionally, there is still much to uncover regarding patterns of intergenerational continuity such as homotypic and heterotypic trajectories (i.e., both generations experiencing the same type of CM or not) as well as potential trajectories of cumulative CM, their respective prevalence, and their associated risk and protective factors (Bartlett et al., 2017; Berzenski et al., 2014; Madigan et al., 2019). While there is no widely accepted theoretical model of the mechanisms involved in the intergenerational continuity of CM, the impacts of CM on 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) are proposed as key mechanisms of continuity that should be further explored (Marshall et al., in press). Empirical studies have supported the importance of these multilevel risk and protective factors (see Langevin et al., 2019 for a review). As such, the aim of the present study is to further examine the role of maternal emotional dysregulation, a transdiagnostic feature involved in many psychopathologies (Aldao et al., 2010), and mother–child attachment in the intergenerational continuity of specific types of CM and cumulative CM in mother–young adult dyads. This clinically relevant study will advance our understanding of the role of these key variables in

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This research was supported by grants from the Social Sciences and Humanities Research Council of Canada and the Fonds de recherche du Québec—Société & Culture obtained by Rachel Langevin. Marie-Emma Gagné also received financial support from the Équipe Violence Sexuelle et Santé for her participation in this manuscript. We wish to thank the participating families without whom this project would not have been possible.

The authors have no conflict of interest to declare.

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homotypic and heterotypic trajectories of intergenerational CM, as well as in intergenerational cycles of cumulative CM, while accounting for socioeconomic status.

Child Maltreatment and Emotion Regulation

Emotion regulation skills develop in the context of responsive caregiving in early life (Dvir et al., 2014). Given that CM is a complex trauma that is interpersonal in nature and involves high levels of betrayal from a caregiver, studies have consistently shown that it is associated with lifelong difficulties with emotion regulation, otherwise known as emotional dysregulation (Bonet et al., 2020; Cabecinha-Alati et al., 2020). Neurobiological effects of CM—such as alterations in the stress response system cascading into negative impacts on myelination, neuronal morphology, neurogenesis, and synaptogenesis—lead to functional changes in the brain and are believed to underlie these emotion regulation difficulties (Dvir et al., 2014). When compared to nonbetrayal traumas, betrayal traumas (i.e., occurring in the context of close relationships) were associated with greater difficulties identifying and describing emotional experiences (Goldsmith et al., 2012). Similarly, Ehring and Quack (2010) found that compared to other trauma types (noninterpersonal, late interpersonal, and early single interpersonal traumas), early chronic interpersonal trauma—including (cumulative) CM—was associated with greater emotional dysregulation. Thus, when compared to other types of traumatic events, CM in particular is highly detrimental to emotion regulation.

Additionally, some types of CM may be more damaging to emotion regulation than others, which points to the necessity of looking at their impacts separately instead of considering CM as a broad category as in most studies (Dvir et al., 2014). Investigations of this nature would have immense clinical significance in terms of assessment and treatment planning, allowing for a more nuanced understanding of clients' presenting problems. Oshri et al. (2015) found that emotional and sexual—but not verbal and physical—abuse was related to emotional dysregulation in young adults. While verbal and emotional abuse are not usually distinguished from one another and were highly correlated in their study ($r = .75$), authors operationalized verbal abuse as parents being verbally abusive (e.g., yelling, name-calling) and emotional abuse as relating to the emotional climate of the family (e.g., feeling unwanted, disliked). In their sample of older adults, Briere and Rickards (2007) also found that child sexual abuse and emotional abuse were related to emotional dysregulation, while physical abuse, adult victimization, and noninterpersonal traumas were not. Studies looking at polyvictimization, or cumulative CM (i.e., multiple types), found a dose-response effect such that a greater number of victimization types was associated with greater emotional dysregulation and psychopathology in youth and adults (Finkelhor et al., 2015; Putnam et al., 2013). This finding held even when contrasting polyvictimization with single forms of chronic CM experienced by youth (Finkelhor et al., 2015). Notably, Putnam et al. (2013) found synergistic effects of polyvictimization in adults such that the cumulative impact of two or more types of victimization was greater than the sum of their individual effects. Given the differential impact of CM types and their frequent co-occurrence (Hamby & Grych, 2013; Turner et al., 2010), there is a pressing need for studies including multiple forms of CM in single models of intergenerational continuity. Such an approach, in addition to contributing to an enhanced knowledge base, will provide invaluable information for clinicians working with survivors of CM.

Emotion Regulation, Attachment, and Intergenerational Continuity of Child Maltreatment

Emotional dysregulation in mothers with a history of CM, either cumulative or single type, could negatively impact their relationship with their child (Brenning et al., 2020; Cabecinha-Alati et al., 2020; Rutherford et al., 2015). There is also evidence that suggests that emotional dysregulation is associated with increased child abuse potential (Lowell & Renk, 2017; Miragoli et al., 2020). Parental emotion regulation has been proposed as crucial for optimal parenting (Cabecinha-Alati et al., 2020; Rutherford et al., 2015). Indeed, being well-regulated is a necessary condition for being able to sensitively respond to a child's emotional needs (Rutherford et al., 2015), and parental sensitivity is a key ingredient in the development of secure attachment relationships (Ainsworth, 1979). Moreover, while more studies are needed to confirm this association, parent–child attachment and attachment-related constructs have been theoretically and empirically linked to intergenerational patterns of CM (Alexander, 2015; Langevin et al., 2019; Marshall et al., in press). For example, Jaffee et al. (2013) found that mothers who broke the cycle of intergenerational CM, when compared to those who did not, showed higher levels of maternal warmth toward their child. Similarly, Thornberry et al. (2013) found that parents' attachment to their child was protective against intergenerational continuity of CM. Interestingly, the reverse was not true, as attachment to a parental figure in adult offspring was not associated with intergenerational CM (Thornberry et al., 2013). Given the hypothesized role of emotional dysregulation and parent-to-child attachment in the intergenerational continuity of CM, and the susceptibility of these constructs to targeted interventions, confirming these associations is an avenue worthy of further investigation that could have major implications for practice (e.g., Facompré et al., 2018; Grecucci et al., 2017).

Gaps in the Scientific Literature and the Present Study

Based on past literature documenting the theoretical and empirical associations between CM, emotional dysregulation, parent-to-child attachment, and intergenerational continuity of CM, the present study proposes to test the sequential role of maternal emotional dysregulation and mother-to-child attachment quality in the continuity of specific CM types (Objective 1) and cumulative CM (Objective 2) in mother–young adult dyads, while accounting for the potential role of socioeconomic status. A dyadic approach was selected as it allows for each generation to report on their own histories of CM, thereby minimizing issues related to shared variance and increasing the probability of accurate and complete reports. The inclusion of young adults for the second generation is a strength, as it will allow for the inclusion of the complete age range of 0–18 years old for both generations while minimizing the risk of recall bias in the second generation. This is in line with Thornberry et al.'s (2013) recommendation of using valid and reliable measures—as proposed in this study—and different reporters of maltreatment in each generation, something that is highly lacking in the current literature on the intergenerational continuity of CM (Langevin et al., 2019). This study will also fill gaps in the literature by documenting

the role of key mechanisms of intergenerational continuity for specific types of CM that will be included simultaneously in one statistical model, therefore accounting for their co-occurrence and allowing for a detailed exploration of homotypic and heterotypic trajectories. The examination of cumulative CM as it relates to intergenerational continuity is also essential in light of past findings on the synergistic effects of childhood adversities (Putnam et al., 2013). Finally, our consideration of the potential role of socioeconomic status is innovative, as this factor is rarely included in studies of intergenerational continuity of CM, even though it is a known risk factor for CM, emotional dysregulation, and poor attachment quality (Langevin et al., 2019; Marshall et al., in press; Martin & Ochsner, 2016; van Ijzendoorn & Bakermans-Kranenburg, 2010).

The hypotheses for Objective 1 are congruent with past findings (Briere & Rickards, 2007; Oshri et al., 2015). First, it is expected that there will be differential impacts of CM types in mothers' histories, with emotional and sexual abuse showing stronger associations to maternal emotional dysregulation (Hypothesis 1). It is also hypothesized that a cascading effect will be identified in that mothers' history of CM will be linked to maternal emotional dysregulation, which in turn, will be negatively associated with mother-to-child attachment quality. Further, these variables are expected to be sequentially associated with an increased risk of CM in the second generation (Hypothesis 2). Regarding Objective 2, it is expected that maternal histories of cumulative CM will be associated with more emotional dysregulation and that maternal emotional dysregulation will be negatively related to mother-to-child attachment, which in turn, will be associated with an increased risk of cumulative CM in the second generation (Hypothesis 3). No specific hypothesis is offered regarding the potential role of socioeconomic status, which is operationalized through a measure of material deprivation.

Method

Participants

A sample of mother–young adult (18–25 years old) dyads was recruited from across Canada. Mothers ($M = 51.16$ years old, $SD = 5.82$) and young adults (90% women; $M = 20.87$, $SD = 2.17$) completed an online survey individually. The initial sample included 1,218 individuals (409 mothers and 809 young adults). Several measures were put in place to screen out careless responders. Participants were excluded if they did not provide a valid identification number ($n = 39$), if they completed less than 75% of the survey ($n = 36$), if they answered "no" to a question that asked directly whether their data should be considered valid ($n = 38$), if they were duplicate responses ($n = 68$), if their age did not match our inclusion criteria ($n = 68$), if they did not answer at least 3/5 directed questions correctly ($n = 121$), and if they completed the survey in less than half the modal time ($n = 17$). Our final sample included 253 mothers, 578 young adults, and 186 complete dyads. Only complete dyads are included in the present study. Sociodemographic characteristics are presented in Table 1.

Table 1
Sociodemographic Characteristics of the Sample

Characteristic	*n*	%
Youth		
Gender		
Men	16	8.6
Women	167	89.8
Other	3	1.6
Ethnicity		
Caucasian	125	67.2
Black	4	2.2
Asian	34	18.3
Hispanic	3	1.6
Indigenous	2	1.1
Arab	4	2.2
Other	14	7.5
Education		
High school	63	33.9
Pre-university or professional school	25	13.4
University	98	52.7
Family of origin status		
Parents still together	125	68.3
Parents separated	52	28.4
Other	9	4.9
Mother		
Ethnicity		
Caucasian	127	69.8
Black	4	2.2
Asian	34	18.7
Hispanic	3	1.6
Indigenous	3	1.6
Arab	3	1.6
Other	8	4.4
Education		
High school or less	34	18.4
Pre-university or professional school	42	22.8
University	108	58.7
Annual family income (CAN)		
Less than $40,000	22	13.4
$40,000–$79,999	39	23.8
$80,000–$119,999	50	30.5
$120,000 or more	53	32.3
Relational status		
Living with partner	145	78.4
In a relationship, not living with partner	8	4.3
Not in a relationship	32	17.3

Procedure

The participating dyads were recruited online from across Canada through various means (e.g., social media, universities, and advertisements in nonprofit organizations). Both English- and French-speaking individuals were included. The survey was done completely online via a secure survey platform. Participants were first directed to a consent form and prompted to provide the email address of their mother or young adult child. The other member of the dyad then received an email briefly describing the project and providing a link to the consent form and questionnaire. Mothers and young adults were instructed not to discuss their answers together. All participants were entered into a draw for a chance to win one of two iPads, and members of complete dyads each received a $5 e-gift card. Procedures were approved by the Research Ethics Board of the primary researcher's institution.

Measures

Child Maltreatment

Each member of the dyad (mother and young adult) was responsible for self-reporting their own CM histories before 18 using "yes"

or "no" answers. Physical/supervisory neglect (hereafter referred to as physical neglect) was measured using the 5-item subscale of the ISPCAN Child Abuse Screening Tool (ICAST) (International Society for the Prevention of child Abuse & Neglect [ISPCAN], 2015). A sample item is: "Were you ever not taken care of by your parent(s) or caregivers(s) when you were sick or injured even though they could afford it?" The ICAST was elaborated through a Delphi study and subjected to a field test in which the internal consistencies were moderate-to-high (α = .61 to .82) (Dunne et al., 2009). The Early Trauma Inventory Self-Report—Short Form (ETI-SR-SF) (Bremner et al., 2007) was used to assess reports of childhood physical (five items), sexual (six items), and emotional maltreatment (five items). Examples of questions are: "Before the age of 18, were you often put down or ridiculed?" and "[. . .] were you ever hit with an object that was thrown at you by a parent or caregiver?" The ETI-SR is a valid measure of early trauma as shown by adequate internal consistencies in the development sample (α = 0.78–0.90; Bremner et al., 2007). Finally, exposure to domestic violence was measured using three items modified from the Short-Revised Conflict Tactics Scales (CTS2S; Straus & Douglas, 2004), which covers exposure to psychological and physical interparental violence. An example of an item is: "In your childhood, have you seen your mother or father destroy an object belonging to their partner intentionally, criticize them on their appearance, threaten to hit them, or throw something at them?" The CTS2S has been found to have adequate construct and concurrent validities (r = .65 to .89; Straus & Douglas, 2004). All CM types, except for sexual abuse, must have occurred within a caregiver–child relationship to be considered; the question labels explicitly mentioned this criterion. For all five types of CM, count scores were computed to reflect the number of neglectful or abusive acts reported for each category of maltreatment (which ranged from 0–3 to 0–6, respectively). Internal consistencies were generally adequate, ranging from α = .73 to .90 with the exception of young adults' neglect, which was acceptable (α = .67). Cumulative CM was calculated by dichotomizing the scores on each CM type (i.e., checked yes to a least one item = 1) and summing the dichotomous scores for all five types of CM (ranging from 0 = no CM to 5 = all five types of CM endorsed). Internal consistency for the measure of cumulative CM in this sample was α = .68 for the young adults and α = .76 for the mothers.

Mother–Child Attachment

Mothers completed the Revised Inventory of Parent Attachment (R-IPA; Johnson et al., 2003), a 30-item modified version of the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987), which assesses the perceived quality of attachment toward one's child. Two dimensions are covered and can be combined into a total sum score encompassing: degree of mutual trust/extent of alienation (23 items; e.g., "My child expects too much of me."), and quality of communication (7 items; e.g., "I can count on my child when I need to get something off my chest."). A 5-point Likert-type scale is used (1 = *almost never or never true*, 5 = *almost always or always true*) and a higher score reflects better attachment quality. The R-IPA was found to have adequate psychometric properties, with reliability coefficients in the development sample ranging from α = .72 to α = .91(Johnson et al., 2003). In the present study, the total sum score was used (α = .92).

Maternal Emotional Dysregulation

Mothers completed the Difficulties in Emotional Regulation Scale (DERS—18; Victor & Klonsky, 2016), which is an 18-item measure assessing the severity of emotional dysregulation based on six subscales: emotional awareness (three items; e.g., "When I'm upset, I acknowledge my emotions"), clarity (three items; e.g., "I have no idea how I am feeling"), and acceptance (three items; e.g., "When I'm upset, I become embarrassed for feeling that way"), as well as impulsivity (three items; e.g., "When I'm upset, I have difficulty controlling my behaviors"), access to effective emotion regulation strategies (three items; e.g., "When I'm upset, I believe that I will remain that way for a long time"), and goal-directed behaviors (three items; e.g., "When I'm upset, I have difficulty getting work done."). Answers are recorded on a 5-point Likert-type scale (1 = *almost never*, 5 = *almost always*) and summed to create a total score, with higher scores reflecting higher dysregulation. The DERS − 18 had good internal consistencies (α = .77 to .90 in the development sample) and is a reliable and valid measure of emotional dysregulation (Victor & Klonsky, 2016). In the present study, the total score for emotional dysregulation was used (α = .85).

Demographics

Mothers and young adults reported on various demographic characteristics including their age, ethnicity, as well as annual income and level of education. Mothers completed the Canadian Survey of Economic Well-Being—Index of Material Deprivation (Statistics Canada, 2013), which assesses one's ability to afford basic necessities, using 17 items. Participants answered "yes" or "no" to statements such as: "Can you afford to replace or have repaired broken or damaged appliances such as a vacuum or a toaster?" A total sum score ranging from 0 to 17 unmet needs was calculated (α = .88), reflecting higher levels of material deprivation in the family. This survey has been found to be a valid measure for the bulk of the Canadian population (RHEAULT, Sylvie, et Stéphane CRESPO, 2015). To identify the most deprived subgroup of dyads, material deprivation scores were dichotomized to create two groups: a deprived group (4th quartile) and a nondeprived group (1st through 3rd quartile). This approach was used given the overall low numbers of unmet needs reported in our sample.

Analytic Strategy

Descriptive and preliminary analyses were conducted using SPSS. Path models were tested using Mplus Version 8.6. The Full Information Maximum Likelihood, a state-of-the-art procedure to handle missing data (Little et al., 2014), was used for endogenous variables. Bootstrapping with 95% bias-corrected confidence intervals (CI) was used for testing the significance of the indirect effects. Based on Kenny's (2020) recommendations, goodness of fit was assessed using several indices. A nonsignificant Chi-Square Test of Model Fit, a Root Mean Square Error of Approximation (RMSEA) of .08 or less, a Comparative Fit Index (CFI) greater than 0.90, and a Standardized Root Mean Square Residual (SRMR) smaller than .08 were considered good fit. The model addressing Objective 1 included scores for each CM type as reported by the mothers (exogenous variables) and young adults (endogenous variables). The model addressing Objective 2 included scores of cumulative

CM for both the mothers and the young adults as exogenous and endogenous variables, respectively. In both models, endogenous variables were allowed to covary and total scores for attachment and maternal emotional dysregulation were treated as sequential mediators. Finally, multigroup analyses were conducted (chi-square difference) to test whether material deprivation would modify the associations found in the models (Caron, 2018).

Two different power analysis procedures were used for the models testing Objectives 1 and 2. For the first model (Objective 1), we used WebPower (Zhang & Yuan, 2018), a flexible tool designed to estimate power for path models based on RMSEA (MacCallum et al., 1996). It was determined that with a sample size of 186 participants, 24 degrees of freedom, a RMSEA for H0 of 0 and for H1 of .08, and a significance level of .05, we had sufficient power (0.91) for the model. For the second model (Objective 2), we used Schoemann et al.'s (2017) Monte Carlo Power Analysis for Indirect Effects as it was available to determine power for the type of model tested and Monte Carlo power analyses are best practices for determining power in mediation analyses. With a sample size of 186, anticipated correlations among study variables ranging from .30 to .45, and at a significance level of .05, we had sufficient power to detect the sequential indirect effect of interest (0.96).

Results

Preliminary Analyses

Descriptive statistics and correlations between study variables are presented in Table 2. Overall, CM scores correlated positively with one another within each member of the dyad, and between the members of a dyad, reflecting potential polyvictimization and intergenerational continuity. CM types experienced by the mothers (predictors for Objective 1) correlated strongly with one another, but none of the correlations reached the critical threshold of $r > .70$ for multicollinearity. Maternal emotional dysregulation correlated positively with all study variables except for young adults' sexual abuse. Attachment correlated negatively with all study variables. Material deprivation correlated with all study variables except maternal history of emotional maltreatment and young adults' history of sexual abuse. Emotional dysregulation, attachment, and cumulative CM scores were normally distributed; however, scores of CM types were not. Thus, the MLR estimator was used in the subsequent Mplus analyses.

Emotional Dysregulation and Attachment in the Continuity of Specific CM Types (Objective 1)

Results for the first sequential mediation model controlling for material deprivation are presented in Table 3 and Figure 1. The specified model had acceptable fit indices: a chi-square of 3.824 ($p = .575$), a RMSEA of .000, a CFI of 1.000, and a SRMR of .01. In terms of direct effects, only a maternal history of physical neglect was associated with greater emotional dysregulation and lower attachment. Maternal histories of physical and sexual abuse and of exposure to domestic violence were associated with greater scores for physical abuse in young adults, while a maternal history of emotional maltreatment was negatively associated with physical abuse. Maternal emotional maltreatment was also negatively related to young adults' sexual abuse, while maternal histories of sexual abuse were related to greater scores for sexual abuse in young adults.

Table 2
Descriptive Statistics and Correlations

Variables	*M* (*SD*)	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Physical abuse—m	0.96 (1.40)	.697***	.411***	.554***	.591***	.804***	.467***	.280***	.153*	.411***	.325***	.381***	.456***	−.362***	.165*
2. Emotional malt.—m	1.18 (1.71)	—	.303***	.532***	.596***	.795***	.266***	.231**	.030	.238**	.266***	.245**	.435***	−.326**	.023
3. Sexual abuse—m	0.81 (1.57)		—	.235**	.297***	.510***	.390***	.213**	.281***	.306***	.416***	.344***	.298***	−.177*	.212**
4. Exposure to DV—m	0.63 (1.07)			—	.451***	.657***	.395***	.205**	.087	.351***	.308***	.276***	.276***	−.218**	.156*
5. Neglect—m	0.52 (1.02)				—	.689***	.372***	.326***	.104	.364***	.478***	.358***	.462***	−.467***	.204**
6. Cumulative CM—m	1.69 (1.65)					—	.402***	.274***	.115	.345***	.360***	0.370***	.420***	−.337***	.149*
7. Physical abuse—y	0.81 (1.18)						—	.591***	.244**	.558***	.532***	.695***	.305***	−.455***	.232**
8. Emotional malt.—y	1.35 (1.77)							—	.280***	.503***	.536***	.723***	.171*	−.398***	.237**
9. Sexual abuse—y	0.69 (1.40)								—	.151*	.337***	.466***	.094	−.150*	.138
10. Exposure to DV—y	0.56 (0.92)									—	.481***	.668***	.262***	−.279***	.271***
11. Neglect—y	0.62 (0.96)										—	.715***	.275***	−.332***	.157*
12. Cumulative CM—y	1.88 (1.59)											—	.270***	−.406***	.261***
13. Emotional dysregulation—m	38.19 (9.70)												—	−.471***	.206**
14. Attachment—m	118.72 (18.02)													—	−.240**
15. Material deprivation—m (yes)	48 (25.8%)														—

Note. m = mother; y = youth; CM = child maltreatment; DV = domestic violence; malt. = maltreatment.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3
Estimation of the Sequential Mediators Model for CM Types

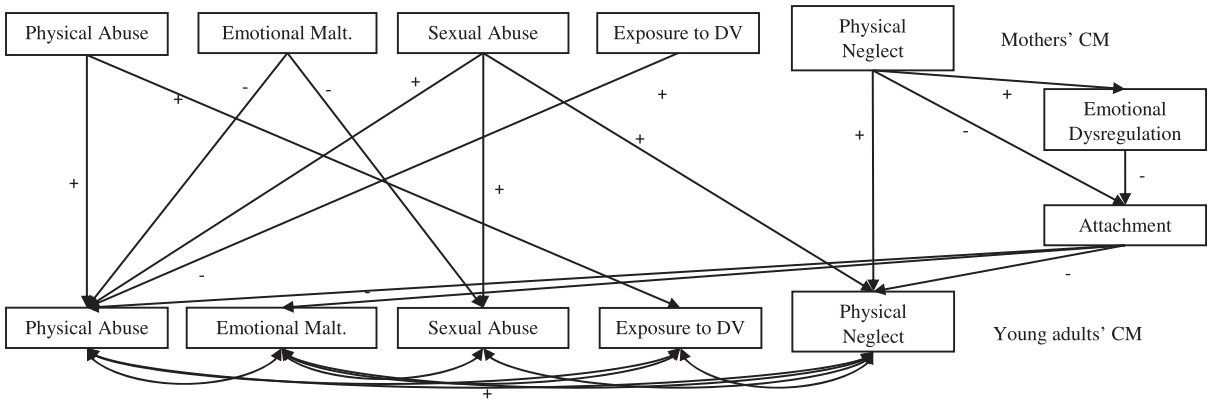
Predictor variable	Emotional dysregulation β	*SE*	Attachment β	*SE*	Physical abuse—y β	*SE*	Emotional maltreatment—y β	*SE*	Sexual abuse—y β	*SE*	Exposure to DV—y β	*SE*	Neglect—y β	*SE*
Complete model														
Physical abuse—m	.168	.100	−.072	.101	.238*	.106	.051	.133	.109	.078	.255*	.111	−.059	.114
Emotional maltreatment—m	.178	.114	−.010	.079	−.236*	.101	.012	.131	−.173*	.086	−.186	.119	−.135	.097
Sexual abuse—m	.094	.067	.046	.080	.225**	.071	.085	.079	.254*	.102	.134	.075	.317***	.087
Exposure to DV—m	−.057	.099	.049	.074	.230**	.088	.040	.095	.031	.077	.179	.093	.142	.084
Neglect—m	.231**	.085	−.289**	.088	.018	.093	.086	.089	−.006	.098	.135	.103	.374***	.102
Emotional dysregulation	—	—	−.303**	.088	—	—	—	—	—	—	—	—	—	—
Attachment	—	—	—	—	−.325***	.069	−.286***	.075	−.109	.078	−.090	.077	−.143*	.066
No deprivation group (n = 137)														
Physical abuse—m	.076	.112	−.036	.114	.425***	.119	.095	.143	.121	.135	.323*	.127	−.005	.130
Emotional maltreatment—m	.295*	.133	.053	.097	−.221	.125	.036	.157	−.159	.113	−.094	.161	−.034	.119
Sexual abuse—m	.014	.075	.045	.098	.170*	.073	.121	.093	.090	.091	.111	.080	.208*	.098
Exposure to DV—m	−.066	.129	.036	.092	.148	.090	.067	.107	.040	.098	.239*	.111	.152	.102
Neglect—m	.117	.110	−.264*	.106	−.049	.113	.044	.102	.006	.110	−.127	.121	.185	.138
Emotional dysregulation	—	—	−.315**	.104	—	—	—	—	—	—	—	—	—	—
Attachment	—	—	—	—	−.397***	.076	−.298**	.087	−.065	.088	−.153	.088	−.159	.080
Deprivation group (n = 48)														
Physical abuse—m	.474**	.163	−.128	.236	−.205	.335	−.001	.378	−.079	.193	.236	.238	−.197	.172
Emotional maltreatment—m	−.079	.188	−.305	.183	−.291	.237	−.134	.347	−.292*	.141	−.406	.227	−.453**	.171
Sexual abuse—m	.154	.142	.141	.164	.465**	.144	.111	.184	.711***	.143	.272	.176	.652***	.104
Exposure to DV—m	−.137	.126	.133	.120	.503*	.205	.042	.226	−.068	.131	.076	.186	.108	.114
Neglect—m	.388**	.118	−.291	.165	.178	.123	.164	.168	.008	.168	.530***	.143	.698***	.094
Emotional dysregulation	—	—	−.246*	.122	—	—	—	—	—	—	—	—	—	—
Attachment	—	—	—	—	−.259*	.117	−.323	.167	−.260	.168	.028	.106	−.161	.091

Note. Standardized estimates are presented. CM = child maltreatment; m = mother; y = youth; DV = domestic violence.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Maternal sexual abuse and physical neglect were associated with increased scores of exposure to domestic violence in young adults. Maternal sexual abuse and physical neglect histories were also related to increased scores of physical neglect in young adults. Finally, maternal emotional dysregulation was negatively associated with mother–young adult attachment, and attachment was negatively associated with young adults' experiences of physical abuse, emotional maltreatment, and physical neglect.

In terms of indirect effects from maternal CM to youth's CM (Table 4), none were found for young adults' experiences of sexual abuse or exposure to domestic violence. However, indirect effects starting with a maternal history of physical neglect and physical abuse and sequentially involving emotional dysregulation and attachment were found for young adults' experiences of physical abuse, emotional maltreatment, and physical neglect. A maternal history of neglect or physical abuse was associated with increased

Figure 1
Visual Representation of the Significant Paths in the Complete Model (N = 185)



Note. This figure only displays the significant paths. For specific estimates, see Table 3. Malt. = maltreatment, DV = domestic violence, CM = child maltreatment.

Table 4
Significant Indirect Effects of Maternal CM Types on Young Adults CM Types

Indirect paths	Estimate	95% BC bootstrap CI	R^2 (%)
Complete model			
Physical abuse—y			40.8
Neglect m—attachment	.094	[.036, .183]	
Neglect m—emotional dysregulation—attachment	.023	[.005, .060]	
Physical abuse m—emotional dysregulation—attachment	.017	[.000, .050]	
Emotional maltreatment—y			22.0
Neglect m—attachment	.083	[.026, .176]	
Neglect m—emotional dysregulation—attachment	.020	[.005, .176]	
Physical abuse m—emotional dysregulation—attachment	.015	[.000, .047]	
Sexual abuse—y			10.6
Exposure to DV—y			27.5
Neglect—y			34.2
Neglect m—attachment	.041	[.007, .106]	
Neglect m—emotional dysregulation—attachment	.010	[.001, .035]	
Physical abuse m—emotional dysregulation—attachment	.007	[.000, .031]	
Emotional maltreatment m—emotional dysregulation—attachment	.008	[.000, .036]	
Sexual abuse m—emotional dysregulation—attachment	.004	[.000, .021]	
No deprivation group (n = 137)			
Physical abuse—y			37.9
Neglect m—attachment	.105	[.016, .222]	
Emotional maltreatment m—emotional dysregulation—attachment	.037	[.004, .104]	
Emotional maltreatment—y			18.2
Neglect m—attachment	.078	[.011, .188]	
Emotional maltreatment m—emotional dysregulation—attachment	.028	[.003, .085]	
Sexual abuse—y			2.7
Exposure to DV—y			19.2
Emotional maltreatment m—emotional dysregulation—attachment	.014	[.000, .060]	
Neglect—y			17.0
Neglect m—attachment	.041	[.002, .123]	
Emotional maltreatment m—emotional dysregulation—attachment	.015	[.000, .065]	
Deprivation group (n = 48)			
Physical abuse—y			51.8
Neglect m—attachment	.076	[.027, .328]	
Neglect m—emotional dysregulation—attachment	.025	[.003, .128]	
Physical abuse m—emotional dysregulation—attachment	.030	[.001, .167]	
Sexual abuse m—emotional dysregulation—attachment	.010	[.000, .125]	
Emotional maltreatment—y			17.8
Neglect m—attachment	.094	[.027, .474]	
Neglect m—emotional dysregulation—attachment	.031	[.009, .132]	
Physical abuse m—emotional dysregulation—attachment	.038	[.005, .199]	
Sexual abuse m—emotional dysregulation—attachment	.012	[.000, .120]	
Sexual abuse—y			36.5
Neglect m—attachment	.076	[.013, .481]	
Neglect m—emotional dysregulation—attachment	.025	[.006, .131]	
Physical abuse m—emotional dysregulation—attachment	.030	[.004, .148]	
Sexual abuse m—emotional dysregulation—attachment	.010	[.000, .163]	
Exposure to DV—y			38.9
Neglect—y			72.9
Neglect m—attachment	.047	[.005, .244]	
Neglect m—emotional dysregulation—attachment	.015	[.001, .078]	
Physical abuse m—emotional dysregulation—attachment	.019	[.000, .114]	

Note. CM = child maltreatment; m = mother; y = youth; DV = domestic violence.

emotional dysregulation, which in turn, was associated with lower attachment. In turn, lower attachment was linked with increased scores of physical abuse, emotional maltreatment, and physical neglect in the second generation. Similar sequential indirect effects were found with maternal histories of emotional maltreatment and sexual abuse and young adults' physical neglect.

Some CM types in young adults covaried, indicating potential polyvictimization. Physical abuse was positively correlated with physical neglect (r = .352, p < .001), exposure to domestic violence (r = .372, p < .001), and emotional maltreatment (r = .483, p < .001). Emotional maltreatment also correlated with physical neglect (r = .457, p < .001), sexual abuse (r = .221, p = .002), and exposure to domestic violence (r = .391, p < .001). Sexual abuse was also correlated with physical neglect (r = .250, p = .001). Finally, exposure to domestic violence and neglect were correlated (r = .325, p < .001). Two nonsignificant correlations were found with sexual abuse: exposure to domestic violence and physical abuse. Table 4 presents the explained variances for young adults' CM scores. The model explained 29.6% of the variance in emotional dysregulation and 31.9% of the variance in attachment.

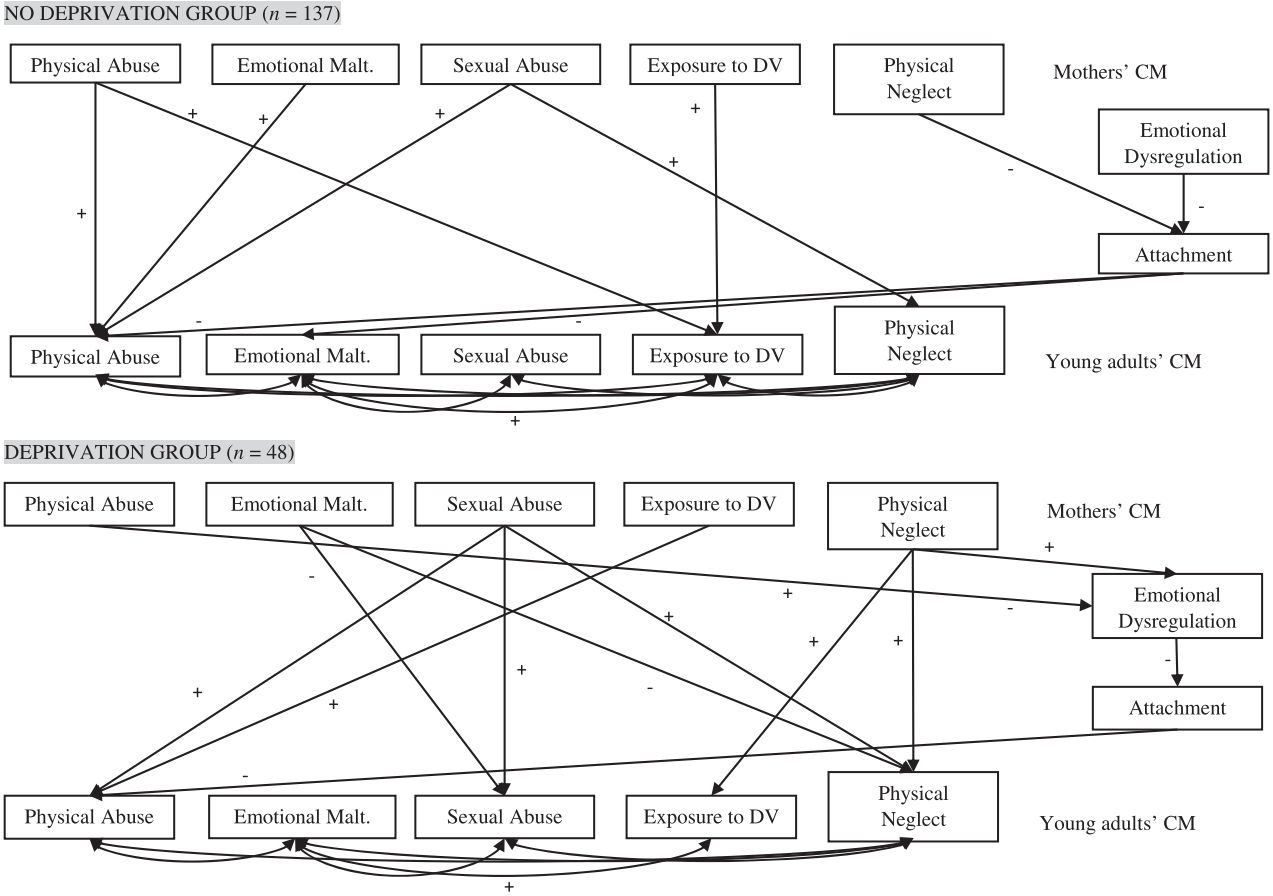
The multigroup analysis based on material deprivation indicated partial invariance; significant differences between the nondeprived and deprived groups appeared in the regression coefficients (χ^2 difference = 83.47; critical threshold = 55.76) and the intercepts (χ^2 difference = 15.13; critical threshold = 14.07), but not in the residual covariances (χ^2 difference = 16.87; critical threshold = 18.31). Tables 3 and 4 and Figure 2 present the models results and indirect effects for the nondeprived and deprived groups. In the nondeprived group, emotional maltreatment in mothers was associated with higher scores of emotional dysregulation, while in the deprived group, it was associated with lower scores of physical abuse and neglect in young adults. Maternal histories of physical neglect were associated with lower scores for attachment in the nondeprived group, but not in the deprived group. Attachment was not a significant predictor of young adults' emotional maltreatment in the deprived group whereas in the other group it was. Direct effects between maternal and the second generation's CM types differed between groups. Furthermore, more significant indirect effects emerged in the deprived group compared to the nondeprived group and explained variances for the deprived group were higher than in the nondeprived group for young adults' CM scores (Table 4). The models explained 16.4% versus 52.2% of the variance of maternal emotional dysregulation and 19.6% versus 47.3% for mother–child attachment in the nondeprived versus deprived groups respectively.

Emotion Regulation and Attachment in the Continuity of Cumulative CM (Objective 2)

The specified model controlling for material deprivation had acceptable fit indices: a chi-square of 0.001 (p = .971), a RMSEA of .000, a CFI of 1.000, and a SRMR of .000. Maternal cumulative CM was positively associated with emotional dysregulation, β = .399, SE = .066, p < .001, and negatively associated with attachment, β = −.158, SE = .077, p = .041. It was also positively associated with young adults' cumulative CM, β = .251. SE = .068, p < .001. Maternal emotional dysregulation was negatively associated with attachment, β = −.376, SE = .083, p < .001. Attachment was negatively related to cumulative CM in young adults, β = −.284, SE = .066, p < .001. Results indicate two indirect paths from maternal history of cumulative CM to young adults' cumulative CM, one through its negative association with attachment only, β = .045, SE = .026,

Figure 2

Visual Representation of the Significant Paths in the Multigroup Models



Note. This figure only displays the significant paths. For specific estimates, see Table 3. Malt. = maltreatment; DV = domestic violence; CM = child maltreatment.

95% CI [.005, .111], and one through its sequential link with emotional dysregulation and attachment, β = .043, *SE* = .018, 95% CI [.018, .090]. Hence, an increase in the number of CM types in mothers' childhoods was associated with greater levels of emotional dysregulation, which in turn was associated with decreased mother–young adult attachment quality, that in turn was associated with greater cumulative CM in young adults' childhoods. The model explained 24.6% of the variance of young adult's cumulative CM, 19.8% of the variance of maternal emotional dysregulation, and 26.4% of the variance of attachment. Multigroup analyses based on material deprivation indicated partial invariance. Only the intercepts differed between the nondeprived and deprived groups (χ^2 difference = 14.70; critical threshold = 7.81).

Discussion

This innovative study aimed to examine the roles of maternal emotional dysregulation and mother-to-child attachment quality in the intergenerational continuity of specific types of CM (Objective 1) and cumulative CM (Objective 2). In addition to its considerable relevance to clinical practice, the present study helps to fill important gaps in the literature through its dyadic design, the integration of multiple types of CM in the same model, the consideration of cumulative CM, and its sensitivity to socioeconomic factors.

Dysregulation and Attachment in the Continuity of Specific CM Types: Neglect as a Focal Point

For Objective 1, differential impacts of CM types in mothers' histories were expected, with emotional and sexual abuse showing stronger associations to maternal emotional dysregulation (Hypothesis 1). Our findings partially supported this hypothesis as differential impacts were found, but with physical neglect instead of the anticipated CM types. Past studies have found that emotional and sexual abuse were more strongly related to emotional dysregulation in adulthood than other forms of abuse (Briere & Rickards, 2007; Oshri et al., 2015). However, these studies did not include neglect as a CM type, which is an unfortunate oversight. Even though it is the most frequent type of CM reported to child protection services (Kim et al., 2017), neglect is highly understudied (McLaughlin et al., 2017) and very few studies have documented the link between neglect and emotion regulation in adulthood. In our multivariate analysis, which included all five types of CM, a maternal history of physical neglect was the only maltreatment type that was significantly related to emotional dysregulation and attachment in the complete model, while physical abuse also predicted emotional dysregulation, but only in the deprived group. Preliminary analyses showed moderate-to-large correlations between all types of CM and maternal emotional dysregulation, but also large correlations between CM types in mothers' histories. These findings emphasize the need to include neglect in CM studies and the importance of using multivariate models to accurately determine if some CM types are more impactful than others.

The second hypothesis for Objective 1 was that mothers' histories of CM would be linked to increased maternal emotional dysregulation, which in turn, would be negatively associated to mother-to-child attachment, and subsequently, to an increased score of CM in the second generation. Results of the complete model partially supported our hypothesis. Eleven indirect paths emerged, six of them starting with maternal histories of physical neglect, three involving maternal histories of physical abuse, one for maternal histories of emotional maltreatment, and one for histories of sexual abuse.

McLaughlin et al. (2017) highlighted that being deprived of a stable, sensitive, and responsive caregiver leads to altered neurodevelopmental processes in neglected children, including atypical limbic system development, which can produce lasting impacts on emotion regulation that occur partly through the development of insecure and disorganized patterns of attachment. Neglectful parents might not appropriately fulfill their role of external regulators and coregulators of emotion in infancy, a key factor in the development of children's later capacity for emotional self-regulation (Kim & Cicchetti, 2010). The limited availability of the caregiver, that is more specific to neglect as a CM type, also leads to wide-ranging implications for cognitive development such as poor associative and implicit learning, declines in cognitive functioning, and deficits in language and executive functioning (McLaughlin et al., 2017), all of which can impact emotion regulation in adulthood (Martin & Ochsner, 2016; Zelazo & Cunningham, 2007). The negative impact of neglect on attachment relationships and neurodevelopmental processes may explain our finding that physical neglect was the CM type that was most strongly and consistently related to emotional dysregulation in mothers across models. However, given the paucity of research on neglect, more studies are required to replicate our findings and explore additional potential mechanisms for this association.

In addition to indirect paths, direct associations between maternal and young adults' histories of CM were uncovered in the complete model (see Figure 1). Our findings coincide with literature on intergenerational continuity of CM, which identified the presence of both heterotypic and homotypic trajectories (Berzenski et al., 2014; Langevin et al., 2019), apart from the negative associations that were found with emotional maltreatment. A systematic review showed inconsistent findings regarding the role of emotional maltreatment in second generation CM or child abuse potential, with some studies finding negative impacts and others finding nonsignificant associations (Hughes & Cossar, 2016). As such, unmeasured mediating and moderating (buffering) factors such as maternal depression or trauma processing might be at play here (Egeland et al., 1988; Langevin et al., 2019; Pears & Capaldi, 2001). Socioeconomic risk should also be considered as the multigroup analysis revealed that while a maternal history of emotional maltreatment was negatively associated with second generation's sexual abuse and neglect in the deprived group, a positive association was found with second generation's physical abuse in the nondeprived group.

MultiGroup Findings: The Intersection Between Material Deprivation and CM

Interestingly, while a maternal history of neglect was important across models, other indirect paths through emotional dysregulation and attachment differed between the nondeprived and deprived groups. Maternal histories of emotional maltreatment emerged as significant in the nondeprived group only. Conversely, maternal histories of physical and sexual abuse were significant only in the deprived group. Mean scores for emotional maltreatment were similar across groups ($M_{\text{nondeprived}}$ = 1.16, *SD* = 1.71; M_{deprived} = 1.25, *SD* = 1.72) and represented the highest CM scores in the

nondeprived group. However, maternal scores and standard deviations for physical and sexual abuse were comparatively higher in the deprived group (physical abuse: $M_{\text{nondeprived}} = 0.83$, $SD = 1.27$ and $M_{\text{deprived}} = 1.35$, $SD = 1.68$; sexual abuse: $M_{\text{nondeprived}} = 0.62$, $SD = 1.31$ and $M_{\text{deprived}} = 1.38$, $SD = 2.06$). This greater variability could explain why physical and sexual abuse only emerged as significant for the deprived group. Higher scores for maternal CM types from the deprived group could also partly explain that more indirect paths (15 vs. 7) and direct paths (8 vs. 6) were significant in the deprived group compared to the nondeprived group. Taken together with the much higher explained variances for the deprived (17.8–72.9%) versus nondeprived group (2.7–37.9%), it appears that our model provides a better explanation of the intergenerational continuity of CM for mothers living in contexts of financial deprivation. The concept of additive and multiplicative synergistic effects of multiple forms of adversity brought forward by Putnam et al. (2013) could help explain these findings. Indeed, it appears that a combination of CM and financial deprivation in adulthood is associated with greater intergenerational continuity of CM, directly or indirectly through maternal emotional dysregulation and lower quality of mother-to-child attachment. It is possible that mothers in the nondeprived group had more access to resources and quality care and therefore recovered in a greater proportion from their childhood traumas than mothers in more precarious situations, thus preventing intergenerational cycles of CM from continuing (Stepleman et al., 2008). However, the lower levels of variance explained for the second generation's CM in the nondeprived group may indicate that factors other than the maternal ones documented here should be considered in future studies (e.g., paternal histories of CM and mental health, maternal adverse experiences in adulthood).

Dysregulation and Attachment in the Continuity of Cumulative CM

As part of Objective 2, it was expected that cumulative CM in maternal histories would be associated with increased emotional dysregulation, which would in turn, be negatively related to mother-to-child attachment and sequentially associated with an increased risk of cumulative CM in the second generation (Hypothesis 3). This hypothesis was supported, providing additional evidence of the key role of maternal emotional dysregulation and mother-to-child attachment in the intergenerational continuity of cumulative CM. This is in line with past findings showing a dose–response effect of cumulative CM on individual and relational functioning (Putnam et al., 2013; Steine et al., 2017) and highlights the need to provide additional support to families affected by multiple forms of violence. In contrast with the models that included specific CM types, the multigroup analysis that focused on cumulative CM did not reveal major differences other than a few points difference in the intercept between the nondeprived and deprived groups. This could reflect a ceiling effect wherein once a certain level of cumulative CM is reached, material deprivation no longer exerts an influence over adverse outcomes.

Limitations

While this innovative study has major strengths and significantly improves our knowledge of the role of maternal emotional dysregulation and attachment in intergenerational trajectories of CM, some limitations should be acknowledged. First, the cross-sectional design precludes us from drawing conclusions about directionality. The inclusion of two generations of respondents instead of three and the exclusion of fathers also limit our scope. In addition, self-reported measures were used and information pertaining to CM was obtained retrospectively, which may have created some inaccuracies due to recall bias. The sole reliance on maternal reports of attachment quality—a dyadic construct—is also a limitation. Finally, some sample characteristics limit the generalizability of our findings, namely the low ethnic, socioeconomic, and gender diversity of the participants, and the moderate size of the sample obtained through convenience sampling.

Future Research Directions

Future studies should replicate our findings with diverse populations, both parents, and additional generations. There is also a need for studies that examine neglect more closely since this form of maltreatment appears central in the continuity of CM. The role of material deprivation should also be explored in greater depth. Future research should adopt prospective and longitudinal designs, multimethod and multi-informant assessment procedures (e.g., adding child protection reports, observational measures, a multigenerational and dyadic assessment of attachment), and recruit larger, more representative samples. Finally, including other potential mediators and moderators (e.g., parental mental health and substance use, parenting practices, neurobiological variables, level of betrayal, perpetrator type) is another promising avenue for future investigations (Goldsmith et al., 2012; Langevin et al., 2019; Marshall et al., in press).

Prevention and Clinical Implications

Given the intergenerational consequences of maternal histories of CM, especially neglect, screening for CM and its impact on maternal functioning in terms of attachment and emotion regulation is warranted when working with distressed families. The central role of maternal emotional dysregulation and attachment highlights these as relevant targets for prevention and intervention, especially with at-risk families from low socioeconomic backgrounds. Many existing interventions already target these central components of traumatic stress. For example, the ARC framework (Blaustein & Kinniburgh, 2018) is an intervention aimed at supporting caregivers and their children affected by complex trauma by attending to core components of attachment, emotion regulation, and resilience. Providing high-quality therapeutic services as early as possible to survivors of CM is central to breaking devastating cycles of intergenerational trauma and fostering intergenerational resilience.

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Received July 16, 2021
Revision received November 12, 2021
Accepted November 14, 2021 ■