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Cumulative childhood interpersonal trauma and parenting stress: The role of self-capacities disturbances among couples welcoming a newborn[★]



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ABSTRACT

Background: The birth of a child is a life-defining event which tends to widen the gap between parents' resources and the demands they face, generating parenting stress. In this regard, individuals who experienced childhood trauma, particularly cumulative childhood interpersonal trauma (CCIT), appear more vulnerable, with higher rates of parenting stress. However, dyadic studies are lacking and the mechanisms explaining the association between CCIT and parenting stress remain unknown, limiting the promotion of resilience in parental couples.

Objective: Based on the Self-Trauma Model and the Actor-Partner Interdependence Model, this study examined the role of self-capacities disturbances (i.e., affect dysregulation, identity impairment and interpersonal conflicts) in the association uniting CCIT and parenting stress. *Participants and settings:* A randomly selected sample of 421 parental couples of an infant.

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Methods: Participants completed self-reported measures online.

Results: Path analyses revealed that CCIT was associated to greater parenting stress through affect dysregulation and identity impairment, in both mothers and fathers ($R^2 = 22.4\%$; 20.7%). APIM modeling revealed a dyadic association between mothers' proneness to interpersonal conflicts and fathers' parenting stress, in addition to indirect effects involving all three self-capacities in the associations between one parent's CCIT and their partner's parenting stress.

Conclusions: CCIT-exposed individuals may experience parenting stress through difficulties with self-capacities at the individual and dyadic level, highlighting these capacities as promising intervention targets during the postpartum period, and emphasizing the need to involve both parents since intricate dyadic patterns may be at play.

Abbreviations: CCIT, Cumulative Childhood Interpersonal Trauma.

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While the birth of a child can be a source of fulfillment and personal growth, it is also associated with a decline in psychological functioning (Neri et al., 2020). During this crucial period, parenting stress is one of the most frequently reported difficulties by parents in both community (Lavoie & Fontaine, 2016) and clinical settings (Barroso et al., 2017). An extensive literature suggests that parents who endured childhood trauma are more vulnerable to parenting stress, resulting in a more challenging experience with parenthood (for a review, see Christie et al., 2018). In fact, many individuals who experienced trauma carry a psychological burden which can be re-awakened throughout their adult life (McLaughlin et al., 2010), particularly when navigating a period as demanding as the birth of a child. Although studies have been conducted on childhood trauma and parenting stress, most have focused on the subsequent impacts of parenting stress on child development (e.g., Bosquet et al., 2018) and few have investigated the explanatory mechanisms involved in parenting stress in relation with childhood trauma. This lack of information on mechanisms limits the identification of targets for the promotion of resilience in individuals who experienced trauma and whose parenting stress may be at risk of deteriorating or remaining chronically high over time (Chang & Fine, 2007), affecting their partner (Kanter & Proulx, 2019), their child (Bosquet et al., 2018) and the well-being of their family. Indeed, parenting stress is linked to poorer mental-health (Neri et al., 2020) and decreased relationship satisfaction in parents (Leavitt et al., 2017) during the postpartum period. Couples in which at least one parent has experienced childhood trauma are at greater risk of experiencing such repercussions (Christie et al., 2018). It is therefore crucial to elucidate which mechanisms explain their parenting stress. To this end, the current cross-sectional dyadic study examined the mechanisms known to be directly affected by childhood trauma and contributing to its continuing repercussions: the capacities to effectively deal with emotions, identity and interpersonal relationships, known as self-capacities.

1. Cumulative childhood interpersonal trauma

Childhood interpersonal trauma refers to any form of deleterious experience occurring during childhood or adolescence within a relational context, such as sexual abuse, physical and psychological violence, physical and psychological neglect, exposure to domestic violence (Finkelhor et al., 2007) and bullying (Espelage et al., 2016). Over the past decade, studies have increasingly drawn attention to the cooccurrence of different types of childhood interpersonal trauma (e.g., Cloitre et al., 2009; Ogle et al., 2014). For example, physical and psychological violence are often reported within the same families (e.g., Herrenkohl et al., 2008), and sexual abuse is usually reported in cooccurrence with many other types of interpersonal trauma (Finkelhor et al., 2007). This phenomenon of accumulation (i.e., two or more types of traumas) is known as cumulative childhood interpersonal trauma (CCIT). Epidemiological studies by Finkelhor et al. (2007, 2009) provide a portrait of the extent of CCIT in the general population, revealing that 61% of American children have experienced at least one form of interpersonal trauma in childhood and, among these children, more than a third (38.7%) have experienced two or more (Finkelhor et al., 2009). More importantly, CCIT appears to best predict the development of clinical symptoms (e.g., depression, posttraumatic stress) in comparison with the experience of a single form of trauma, even when taking into account the severity level of each single form of childhood trauma (e.g., severe sexual or physical abuse; Finkelhor et al., 2007; Ogle et al., 2014). Studies also demonstrate that CCIT is linked to complex repercussions beyond posttraumatic stress symptoms and tends to impact multiple aspects of functioning (e.g., interpersonal relationships, mood) (Briere et al., 2008). In return, these outcomes tend to persist throughout adulthood and can be reactivated or exacerbated by significant stress (McLaughlin et al., 2010). Taking into account the accumulation of different types of traumas is therefore necessary to obtain a more comprehensive picture of childhood interpersonal trauma and its challenging repercussions on the parental experience.

2. Parenting stress and childhood trauma

Parenting stress is defined by the perception of a significant gap between the parent's available resources and the demands linked to their child (Abidin, 1990). Parenting stress is considered to be a common experience following the birth of a child due to the multiple associated demands, including the time required for care, the additional financial burden, and the need to balance multiple roles (e.g., parent, spouse, professional) (Deater-Deckard, 2008). However, when parental resources are limited and ineffective to face these demands, a gap between resources and demands may emerge, leading to significant parenting stress.

Given the deleterious outcomes associated with childhood interpersonal trauma, it is not surprising to note that individuals who endured these experiences report higher levels of parenting stress (for a systematic review, see Hugill et al., 2017). However, the majority of studies exclusively looked at childhood sexual abuse (Hugill et al., 2017). Among studies that examined different types of childhood trauma, only two considered cumulative childhood trauma (i.e., Lange et al., 2019; Wilson et al., 2017). However, these two studies included non-interpersonal traumas (e.g., accidents; Wilson et al., 2017), and broader adverse childhood experiences (e.g., imprisoned family members; Lange et al., 2019) in their definition of cumulative childhood trauma. Although all of these childhood experiences deserve proper attention, childhood interpersonal trauma involves a higher potential for trauma sequelae which needs to be taken into account distinctly from non-interpersonal childhood trauma (Briere et al., 2010). Indeed, childhood interpersonal trauma is likely to involve an attachment figure (e.g., child maltreatment by a parent) or a perpetrator that the person met regularly (e.g., peer bullying), or other people in a position of trust or authority. Such interpersonal trauma tends to significantly alter daily relationships with peers, family, or intimate partners, and is conducive to long-term negative psychological repercussions (Espelage et al., 2016; Godbout & Hébert, 2016). Lange et al. (2019) revealed a significant dose-response relationship between adverse childhood experiences and parenting stress in a sample of 81 mothers with depressive symptoms and low socioeconomic status. Nonetheless, study is needed to go beyond these results to advance our comprehension of parenting stress in individuals with past childhood interpersonal trauma by targeting these experiences through the construct of CCIT, but also by examining more representative samples of mothers

and fathers. In fact, most studies on childhood trauma and parenting stress have focused exclusively on mothers (e.g., Ammerman et al., 2013), despite parenthood usually involving two co-parents. Not only previous studies have neglected to examine parenting stress in fathers, but the well-documented interdependence between parents and their respective functioning need to be taken into account (Neri et al., 2020). Accounting for interdependence is key when studying parenting stress due to the phenomenon of stress crossover, where an emotional stress response experienced by an individual tend to lead to similar emotions in their intimate partner (Bolger et al., 1989). Moreover, a growing body of research demonstrates that childhood trauma, especially CCIT, may not only have profound implications for the individuals who experienced them, but also for their intimate partners (e.g., Dugal et al., 2020). It is therefore critical to adopt a more inclusive dyadic perspective that allows us to examine CCIT and parenting stress within the parental couple through *actor* effects (i.e. association between an individual's own scores on an independent variable and an outcome variable) as well as *partner* effects (i.e. association between an individual's scores on an independent variable and their partner's scores on an outcome variable).

3. Potential explanatory mechanisms: self-capacities

In order to prevent repercussions on parental practices and the risk of intergenerational transmission of trauma (Bosquet et al., 2018), it is crucial to examine the explanatory mechanisms that may explain the link between CCIT and parenting stress. Studies have identified the role of post-partum depressive symptoms (Ammerman et al., 2013; Schuetze & Eiden, 2005), attachment security (Moe et al., 2018), affect dysregulation (Bai & Han, 2016), and social support (Ammerman et al., 2013) as risk factors for elevated parenting stress in relation with past childhood trauma. All of these studies did not take into account the potential for CCIT and all were conducted exclusively with mothers, with the exception of Bai and Han (2016) which examined parenting stress in parental couples of school-age children. The results of this dyadic study revealed the significant role of affect dysregulation in the association between childhood psychological violence and parenting stress for exposed individuals and their spouses. Nevertheless, current results suggest that other variables that have not been the subject of empirical studies yet may be at play and could benefit from being studied within a dyadic design.

A theoretical framework encompassing the key repercussions of childhood interpersonal trauma could help identify variables that not only represent risk factors, but also allow us to understand how trauma affects the ability to cope with parenting stress and to pinpoint which trauma-related sequelae contribute to it. Briere's Self-Trauma Model (1996) provides an essential theoretical framework identifying the most decisive repercussions of childhood interpersonal trauma and the capacities to cope with them. This model postulates that childhood interpersonal trauma can alter the development of self-capacities. Formed in the context of positive parent-child attachment experiences, self-capacities refer to the extent to which an individual is able to accomplish three tasks: 1) maintain a sense of personal identity and self-awareness across various experiences (i.e., identity cohesion); 2) tolerate and control strong negative emotions without resorting to avoidance (i.e., affect regulation); and 3) develop and maintain meaningful relationships with others that are not disturbed by excessive conflict or abandonment concerns (i.e., relatedness) (Briere & Runtz, 2002). These capacities can be severely impaired by the experience of CCIT due to its early and cumulative nature (Dugal et al., 2018) while being crucial to manage stressful situations that may elicit trauma-related distress (Briere, 1996). Self-capacities disturbances have been identified as significant mechanisms linking childhood interpersonal trauma and psychosocial difficulties in adulthood, such as relationship distress (Bigras, Godbout, Hébert, et al., 2015), sexual distress and anxiety (Bigras, Godbout, Briere, et al., 2015), and the development of an anxiety disorder (Dvir et al., 2014). However, self-capacities remain scarcely documented among parents. Yet, all three self-capacities may be associated with parenting stress following the birth of a child. Indeed, parents have to regulate their behavior according to the needs of their infant even while experiencing intense affect (e.g., fear, frustration), which also need to be regulated (Deater-Deckard, 2008). Identity can be impacted by the arrival of a newborn and the accumulation of different roles which, in return, can generate stress (Cast, 2004). This transition period is also subject to many tensions between partners which can exacerbate relationship conflicts (Westdahl et al., 2007). CCIT-exposed individuals with impaired relatedness could see their relationships with people they rely on (e.g., spouse, relatives or friends) significantly worsen during this crucial period, contributing to more parenting stress. Thus, in the context of a new birth, altered self-capacities could be associated with significant parenting stress. To our knowledge, two studies have examined at least one self-capacity in relation to parenting stress among individuals who experienced childhood interpersonal trauma. In addition to Bai and Han (2016) study on childhood psychological violence, affect regulation and parenting stress, Dhayanandhan and Bohr (2016) documented identity disturbances in a sample of 95 adult and teenage mothers. Their results revealed that a more defined identity facilitated parenting stress management, especially for mothers with childhood interpersonal trauma history. Despite this, no empirical study has used the Self-Trauma Model, encompassing all three self-capacities, to examine parenting stress in relation with childhood interpersonal trauma, cumulative or not.

4. Objectives and hypotheses

Using a dyadic perspective, the present study examined the mediating role of self-capacities (i.e., indirect effects of affect regulation, identity cohesion and relatedness) in the association between CCIT and parenting stress following the birth of a child. Within the parental couple, it was first expected that one parent's level of CCIT would be positively associated to their own parenting stress and to their partner's. Following a dyadic approach (Ledermann et al., 2011), there are four paths through which indirect effects may occur; actor-actor, actor-partner, partner-partner and partner-actor. Therefore, it was expected that one parent's level of CCIT would be positively associated to their own level of self-capacities disturbances which, in return, would be positively associated to their own parenting stress (actor-actor indirect effect). We expected that one parent's level of CCIT would be positively associated to their own

level of self-capacities disturbances which, in return, would be positively associated to their partner's parenting stress (*actor-partner* indirect effect). We also expected that one parent's level of CCIT would be positively associated to their partner's level of self-capacities disturbances which, in return, would be positively associated to their own parenting stress (*partner-partner* indirect effect). Finally, it was expected that one parent's level of CCIT would be positively associated to their partner's level of self-capacities disturbances which, in return, would be positively associated to their partner's parenting stress (*partner-actor* indirect effect).

5. Method

5.1. Participants

The sample consisted of 421 different-gender couples (i.e., 421 mothers and 421 fathers) from the community. Mothers were aged 19 to 46 years (M = 31.47; SD = 4.57) while fathers were aged 21 to 53 years (M = 33.75; SD = 5.6). The majority (67.5%) of parental

 Table 1

 Sociodemographic characteristics and childhood interpersonal trauma history.

Characteristics	Women (<i>N</i> = 421)	Men (N = 421)	
Birthplace			
Canada	81.9%	79.8%	
Africa	4%	6.4%	
Europe	5.7%	4.3%	
Primary language			
French	85.1%	84.5%	
English	6.6%	8.8%	
Spanish	2.1%	2.6%	
Arabic	1.9%	2.4%	
Other	4.3%	1.7%	
Main occupation			
Student	3.1%	1.4%	
Full-time worker	69.1%	92.1%	
Part-time worker	11.2%	4%	
Unemployed	1.9%	1%	
Other (e.g., stay-at-home parent, self-employed)	14.7%	1.4%	
Level of education completed			
Primary school/high school	14.5%	20.4%	
Cegep/professional	36.1%	38.2%	
Undergraduate	31.6%	27.6%	
Graduate	17.8%	13.8%	
Gross annual income			
CAD\$19,999 or less	13.6%	3.6%	
CAN\$20,000 - CAN\$39,999	27.3%	14%	
CAN\$40,000 - CAN\$59,999	27.8%	31.8%	
CAN\$60,000 - CAN\$79,999	20.3%	25.7%	
CAN\$80,000 - CAN\$99,999	6%	14.7%	
CAN\$100,000 or more	5%	10.2%	
Childhood interpersonal trauma			
Parental physical abuse	42.4%	47.1%	
Parental psychological abuse	37.2%	28.1%	
Sexual abuse	17.7%	7.4%	
Parental physical neglect	11.8%	16%	
Parental psychological neglect	73.2%	68.6%	
Physical interparental violence	8.3%	5.7%	
Psychological interparental violence	41.5%	32.9%	
Peer bullying	44.7%	44.3%	
Cumulative childhood interpersonal trauma			
No types of trauma	10.2%	16.4%	
1 type	17.3%	17.8%	
2 types	23%	21.1%	
3 types	17.6%	15.4%	
4 types and more	31.9%	29.2%	

couples were in common-law relationships (i.e., living together but not married) and 32.5% were married. The average relationship duration was 88 months (7 years) and ranged from 10 months to 21.5 years (SD = 50.45 months). Participants were all parents of an infant (M = 2.68 months; SD = 1.78). Parents reported an average of two children (M = 1.9; SD = 1.1) and 43.2% (n = 364) of them had welcomed their first child. For additional sociodemographic information, see Table 1.

5.2. Procedure

Parents who recently welcomed a new child were recruited through a collaboration with the Quebec Parental Insurance Plan (QPIP; income replacement plan for parents of a newborn taking parental leave) and the authorization of the Commission d'accès à l'information (i.e., organization overseeing the application of the Access Act and the Privacy Act, and the protection of citizens' personal information). With the help of the QPIP, contact details (i.e., names, phone numbers and email addresses) from parents across the province of Quebec were randomly selected and transmitted to the research team. Research assistants contacted both parents via email and phone to verify their eligibility and invite them to participate in the study. The inclusion criteria were: 1) being aged 18 years or older (age of majority in Quebec); 2) being parents of an infant between 0 and 6 months of age; 3) being in a couple relationship with the other parent; 4) being fluent in written and spoken French or English; and 5) one of the parents had carried the child. The study was described as a confidential online survey on the psychological and relational well-being of parental couples. Using a personalized numerical code, parents were invited to individually complete an online questionnaire hosted on the Qualtrics platform. Participation required approximately 40 min. A financial compensation of 40\$ in gift cards (20\$ per parent) was given once both partners had completed the study. Participants from this study completed measures between January 2019 and February 2020, before the COVID-19 pandemic. The study was approved by the research ethics committee of the University of Quebec in Montreal.

5.3. Measures

Cumulative childhood interpersonal trauma (CCIT) was assessed using the Childhood Cumulative Trauma Questionnaire (CCTQ; Godbout et al., 2017). In total, using 24 items, eight types of childhood interpersonal trauma were assessed: parental physical abuse, parental psychological abuse, parental physical neglect, parental psychological neglect, sexual abuse, peer bullying, and exposure to interparental psychological and physical violence. Childhood sexual abuse was assessed based on Canada's Criminal code and considered if it had occurred at least once before 18 years old (i.e., age of majority in Quebec). For the other types of interpersonal trauma, participants reported how often they experienced each type in a typical year before 18, on a 7-point Likert scale ranging from "never" (0) to "every day" (6). These types of traumas were included in the total CCIT index score if they had occurred at least once in a typical year before the age of 18. Each form of childhood trauma was first dichotomized as experienced (1), or not (0) and then summed to form an index of CCIT, ranging from 0 – no childhood trauma - to 8 – eight different childhood traumas. This composite score is often used in scientific literature on interpersonal trauma and reflects past findings that using a cumulative score of childhood interpersonal trauma best predicts the severity of its sequelae (Finkelhor et al., 2007; Lafrenaye-Dugas et al., 2018). In this sample, Cronbach's alpha indicated high internal consistency (α = 0.90 for mothers; α = 0.89 for fathers), corresponding to previous alphas from studies using the CCTQ (Bigras, Godbout, Briere, et al., 2015; Lafrenaye-Dugas et al., 2018).

Self-capacities were evaluated using scales from the Inventory of Altered Self-Capacities (IASC; Briere & Runtz, 2002; translated and validated in French by Bigras & Godbout, 2020). The IASC is a standardized instrument developed specifically for adults who have experienced interpersonal trauma and validated among adults from the general population (Briere & Runtz, 2002). The scales of affect dysregulation, identity impairment and interpersonal conflicts consisted of items measuring the self-capacities of affect regulation (e. g., personal difficulties with controlling your anger), identity cohesion (e.g., feeling like you do not understand yourself) and relatedness (e.g., having tumultuous relationships in your daily life). Each of the scales consists of 9 items rated on a 5-point Likert scale ranging from "never" (1) to "very often" (5). The total score for each subscale ranges from 9 to 45; a higher score indicates a higher level of alteration of self-capacities. Cronbach's alphas in the current study indicated high internal consistency of all three scales: affect dysregulation ($\alpha = 0.90$ for mothers; $\alpha = 0.90$ for fathers), identity impairment ($\alpha = 0.86$ for mothers; $\alpha = 0.87$ for fathers) and interpersonal conflicts ($\alpha = 0.85$ for mothers; $\alpha = 0.86$ for fathers), similarly to the alphas observed in both the original and French version validation studies (Bigras & Godbout, 2020; Briere & Runtz, 2002).

Parenting stress was assessed using the Parental Stress Scale (PSS; Berry & Jones, 1995; French validated translation by Bakhos et al., in revision). The scale is composed of 18 items divided into positive (e.g., personal development) and negative (e.g., restrictions, financial and mental burden) statements on parenting (e.g., "I sometimes worry whether I am doing enough for my child(ren)."). Parenting stress is measured by weighing the negative impacts of parenthood versus the benefits it provides. Parents were asked to answer based on their current experience with their infant, using a 5-point Likert scale varying from "strongly disagree" (1) to "strongly agree" (5). The total score varies between 18 and 90: a higher score indicating a higher level of parenting stress. In this sample, the PSS demonstrated high internal consistency for both mothers ($\alpha = 0.86$) and fathers ($\alpha = 0.88$).

5.4. Data analysis

Descriptive and correlational analyses were performed using the Statistical Package for Social Sciences software (SPSS, version 26). The hypothesized path analysis model was then tested using the software Mplus 8.4 (Muthén & Muthén, 2015). All paths were estimated using a maximum likelihood approach with standard errors (MLR) that is robust to non-normality. Given that the current study assumes the presence of a mutual influence between mothers and fathers' CCIT, self-capacities and parenting stress, analyses were

guided by an extension of the Actor–Partner Interdependence Model incorporating potential indirect effects of mediating variables from both parents (APIMeM; Ledermann et al., 2011). Within the APIMeM model, the exogenous variables of each parent (i.e., CCIT level) and the endogenous variables of each parent (i.e., parenting stress level) are simultaneously linked according to the *actor* effects (i.e., relationship between a parent's CCIT and their own parenting stress) and according to the *partner* effects (i.e., relationship between a parent's CCIT and the parenting stress of their co-parent). Similarly, indirect links were examined according to hypothesized *actor-actor*, *actor-partner*, *partner-partner*, and *partner-actor* indirect effects. To consider potential confounding variables in the measurement of parenting stress, eleven socio-demographic variables (i.e., maternal and paternal age, maternal and paternal income, maternal and paternal level of education, maternal and paternal number of children, maternal and paternal primiparous status, and the infant's age) were tested as covariates in the integrative model.

Although we had no a priori hypotheses about the role of gender, we tested whether associations differed between mothers and fathers in the model. Thus, all actor links, partner links and covariances were progressively constrained to be equal between mothers and fathers. We also examined the relative contributions of *actor* and *partner* effects to parenting stress by constraining them to be equal in the same parent. For example, the effect of mothers' CCIT on mothers' parenting stress could be statistically equivalent to the effect of fathers' CCIT on mothers' parenting stress. Produced constrained models were compared to the saturated-baseline APIMeM model in terms of model fit and were also compared with each other using the rescaled $-2 \log$ likelihood difference test, which is distributed as chi-squared with degrees of freedom equal to the rescaled difference in the number of parameters between models (Satorra & Bentler, 2010). A nonsignificant chi-square test value ($\alpha \ge 0.05$) was used to determine whether a model fit decrease was significant or not. Several fit indices were used to examine whether the final model was well-adjusted to the data. A combination of a non-statistically significant chi-square value, a ratio value of chi-square to degrees of freedom ($\chi 2/df$) less than three, comparative fit index (CFI) and Tucker–Lewis index (TLI) values of 0.90 or higher, a root mean square error of approximation (RMSEA) value below 0.06 and a standardized root mean square residual (SRMR) value below 0.08 indicated good fit (Kline, 2015). Then, within the final APIMeM model, the bootstrap resampling method was used to test whether the indirect effects of self-capacities were significant (Hayes, 2017). This technique allows to estimate indirect effects by testing them in 10,000 randomly selected subsamples. If the bootstrap confidence interval obtained does not contain zero, the indirect effect is considered to be significant (MacKinnon & Fairchild, 2009).

6. Results

6.1. Descriptive statistics

Prevalence rates for childhood interpersonal trauma in the sample are presented in Table 1. Means and standard deviation for each measure are presented in Table 2. Results of paired group comparison tests indicated that scores for CCIT differed significantly between fathers and mothers, T (420) = 2.28, p = .02, with mothers reporting a higher number of different types of traumas. There was also a significant difference between fathers and mothers on the affect dysregulation scores, T (420) = 4.89, P < .001, the identity impairment scores, T (420) = -2.32, P = .02, the interpersonal conflicts scores, T (420) = 2.54, P = .01, with mothers presenting a higher level of altered self-capacities. Finally, scores for parenting stress significantly differed between fathers and mothers T (420) = -3.01, P = .003, with fathers reporting a higher level of parenting stress than mothers. Statistically significant bivariate Pearson correlations were observed between all studied variables (see Table 2).

6.2. APIM models of the link between CCIT and parenting stress mediated by self-capacities

First, direct path analysis was used to examine direct links and revealed significant actor effects between CCIT and parenting stress, among mothers ($\beta = 0.19$, p < .001) and fathers ($\beta = 0.35$, p < .001). A direct partner effect was also observed between fathers' CCIT

Table 2Means, standard deviations, and correlation matrix between CCIT, self-capacities disturbances and parenting stress among mothers and fathers (N = 842).

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1. Mothers' CCIT	2.76	1.89	1	_	_	_	_	_	_	_	_	-
2. Mothers' AD	15.35	6.11	0.31***	1	_	_	_	_	_	_	_	_
3. Mothers' II	14.08	5.42	0.26***	0.76***	1	_	_	_	_	_	_	_
4. Mothers' IC	16.04	4.9	0.31***	0.71***	0.65***	1	_	_	_	_	_	_
5. Mothers' PS	31.99	8.3	0.25***	0.36***	0.35***	0.28***	1	_	_	_	_	_
6. Fathers' CCIT	2.5	1.88	0.19***	0.24***	0.19***	0.21***	0.24***	1	_	_	_	_
7. Fathers' AD	13.58	5.51	0.15**	0.19***	0.24***	0.21***	0.15**	0.37***	1	_	_	_
8. Fathers' II	13.34	5.22	0.14**	0.22***	0.25***	0.19***	0.11*	0.34***	0.72***	1	_	_
9. Fathers' IC	15.31	4.71	0.16**	0.22***	0.24***	0.25***	0.15**	0.40***	0.73***	0.61***	1	_
10. Fathers' PS	33.48	9.2	0.11*	0.12*	0.13**	0.19***	0.33***	0.34***	0.41***	0.44***	0.33***	1

Note. CCIT, Childhood Cumulative Interpersonal Trauma. AD, Affect dysregulation. II, Identity Impairment. IC, Interpersonal Conflicts. PS, Parenting Stress.

 $p \leq .05$.

 $[\]sum_{***}^{**} p \leq .01.$

^{***} $p \leq .001$.

and mothers' parenting stress ($\beta = 0.19$, p < .001). In total, this first APIM model explained respectively 9.6% and 11.3% of mothers' and fathers' parenting stress.

Then, path analyses were performed to examine the indirect effects of self-capacities in the links uniting CCIT and parenting stress. All possible paths between parents' CCIT, interpersonal conflicts scores, identity impairment scores, affect dysregulation scores, and parenting stress were tested in a fully saturated-baseline APIMeM model, along with covariances between each parent's CCIT, self-capacities, and parenting stress scores, and between different self-capacities scores. At the actor level, for both mothers and fathers, CCIT was significantly linked to both identity impairment and affect dysregulation, which in return, were linked to parenting stress. While CCIT was linked to interpersonal conflicts for mothers and fathers, interpersonal conflicts were not linked to parenting stress. At the partner level, results revealed that higher scores of interpersonal conflicts in mothers were linked with higher parenting stress in fathers. All direct actor and partner links between CCIT and parenting stress identified in the first APIM model remained statistically significant in this APIMeM model with self-capacities. Except for affect dysregulation scores, all variables in the model significantly covaried between mothers and fathers. Parents' age, level of education, personal annual income, number of children, primiparous status, and infant's age were progressively added as covariates. In mothers, only the age (($\beta = 0.10$, p = .03) and the level of education ($\beta = 0.18$, p < .001) were significantly associated with parenting stress while, in fathers, the only significant covariate was the level of education ($\beta = 0.11$, $\rho = .004$). Similar paths were observed with the inclusion of these significant covariates in the model (variations in standardized estimates ranging 0.001–0.03).

6.3. Constrained models and final model fit

To examine whether associations differed according to gender, all actor links, partner links and covariances were progressively constrained to be equal between mothers and fathers. Results indicated that every links in the model could be constrained to be equal between mothers and fathers, with the exception of three. Precisely, constraining partner links between scores of interpersonal conflicts and parenting stress, between affect dysregulation and parenting stress, and between CCIT and parenting stress to be equal across mothers and fathers significantly worsened model fit, indicating gender-based differences on those links. Next, we progressively constrained actor and partner links together to be equal (e.g., 1) link between mothers' CCIT and mothers' parenting stress, and 2) link between mothers' CCIT and fathers' parenting stress). The rescaled -2 log likelihood difference test allowed to detect equal

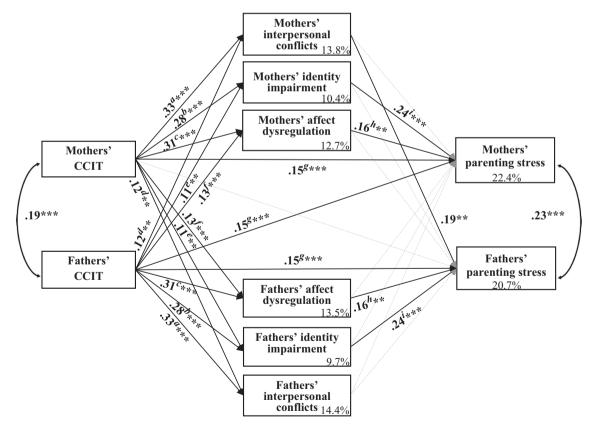


Fig. 1. Constrained APIMeM model of the mediating role of self-capacities disturbances in the association between CCIT and parenting stress (N = 421)

Note. CCIT = Childhood Cumulative Interpersonal Trauma. *p \leq .05; **p \leq .01; ***p \leq .001.

Significant links are in bold. Identical subscripts (a, b, c, d, e, f, g, h, i) represent links that have been constrained to be equal.

contributions of actor and partner links to parenting stress across three links; 1) the actor link between mothers' CCIT and mothers' parenting stress, 2) the partner link between fathers' CCIT and mothers' parenting stress, and 3) the actor link between fathers' CCIT and fathers' parenting stress, indicating those links were statistically equivalent. The final constrained APIMeM model including all constraints (i.e. gender similarities and equal contributions of actor and partner links) is presented in Fig. 1 with standardized estimates and significance levels. Pooled standardized estimates are reported for statistically equivalent links. The fit indicators revealed an excellent adjustment between the data and the final model, $\chi 2$ (19) = 19.389, p = .43, $\chi^2/df = 1.02$, CFI = 1, TLI = 0.99, RMSEA = 0.007, 95% CI [0.000, 0.043], SRMR = 0.03. This model explained 22.4% of mothers' parenting stress and 20.7% of father's parenting stress. The bootstrap procedure confirmed ten significant indirect effects in this final model. All significant indirect effects between CCIT and parenting stress are presented in Table 3 with corresponding standardized estimates, 95% confidence intervals and levels of significance.

7. Discussion

The current study examined the indirect role of self-capacities disturbances in the association between CCIT and parenting stress. By doing so, the current study expands on prior knowledge on how individuals with past trauma may report higher rates of parenting stress, while providing new insight on how the Self-Trauma Model, as a theoretical framework, may help understand parenting stress. Results also went a step further than previous studies by targeting various forms of childhood interpersonal trauma in their cumulative form and by including both mothers and fathers within a dyadic design, thereby providing a more integrative portrait of childhood trauma and parenting stress in adulthood.

Our first hypothesis that one's CCIT would be positively linked to one's parenting stress was confirmed. This finding corroborates those of a previous study (Lange et al., 2019), while highlighting for the first time the association between an accumulation of childhood interpersonal trauma (i.e., events with a higher potential of trauma sequelae) and parenting stress in both mothers and fathers. Furthermore, parents reported having endured an average of 2.6 different types of childhood interpersonal trauma; a result consistent with those of previous studies among adults from general populations in which CCIT means vary from 2.5 to 3 (e.g., Dugal et al., 2018), and confirming that childhood interpersonal trauma rarely occurs in isolation. Although mothers reported higher scores of CCIT and fathers reported higher scores of parenting stress, fathers and mothers did not differ significantly regarding the association between their experience of CCIT and parenting stress. Such results suggest an increased sensitivity to parenting stress in parents who endured more CCIT, independently of their gender. This finding invites us to consider the effects of childhood trauma on parenting stress in both parents, although most studies on this topic focus on mothers exclusively (Hugill et al., 2017).

Our second hypothesis was partially confirmed with fathers' CCIT being significantly associated with mothers' parenting stress, while the opposite association (i.e., mother's CCIT on father's stress) was not significant. This suggests that mothers in a relationship with a partner who has endured a higher level of CCIT are likely to report greater parenting stress. This finding was further supported through a pattern linking CCIT and parenting stress identified across three statistically equivalent paths. Indeed, mothers' CCIT was only linked to their own parenting stress, whereas fathers' CCIT was associated similarly to both their own parenting stress and their partner's parenting stress. Following the birth of a child, the co-parent is generally the main source of support, validation, and encouragement (Deater-Deckard, 2008). Being in a relationship with a co-parent who has endured CCIT, and who may themselves go through a difficult transition, could alter the quantity of resources available to cope with the demands of an infant and increase stress. The current findings might be interpreted through the realities of mothers who may be especially vulnerable to this situation given

Table 3
Significant indirect effects in the constrained APIMeM model, with standardized estimates, 95% confidence intervals and significance levels.

Indirect effects	β	CI lower limit	CI upper limit	p
Actor-Actor				
Mothers' CCIT - Mothers' II - Mothers' PS	0.07	0.032	0.097	< 0.001
Mothers' CCIT - Mothers' AD - Mothers' PS	0.05	0.018	0.082	0.002
Fathers' CCIT – Fathers' II – Fathers' PS	0.07	0.032	0.097	< 0.001
Fathers' CCIT – Fathers' AD – Fathers' PS	0.05	0.018	0.082	0.002
Actor-partner				
Mothers' CCIT – Mothers' IC – Fathers' PS	0.06	0.020	0.103	0.003
Partner-Partner				
Fathers' CCIT – Mothers' IC – Fathers' PS	0.02	0.002	0.043	0.03
Partner-Actor				
Fathers' CCIT - Mothers' II - Mothers' PS	0.03	0.007	0.046	0.007
Fathers' CCIT - Mothers' AD - Mothers' PS	0.02	0.004	0.039	0.01
Mothers' CCIT- Fathers' II - Fathers' PS	0.03	0.007	0.046	0.007
Mothers' CCIT- Fathers' AD - Fathers' PS	0.02	0.004	0.039	0.01

Note. CCIT, Childhood Cumulative Interpersonal Trauma. PS, Parenting Stress. AD, Affect Dysregulation. II, Identity Impairment. IC, Interpersonal conflicts.

that, after childbirth, their reliance on their partner is generally higher (e.g., emotional support, help with postpartum recovery and house chores, encouragement with breastfeeding; Tohotoa et al., 2009).

Next, results highlight the role of two mechanisms in the association between CCIT and parenting stress within a same parent: affect dysregulation and identity impairment. Affect dysregulation was previously documented as a mechanism (Bai & Han, 2016) and may increase parenting stress by impairing the ability to cope with parenting stressors (Cao et al., 2017). Indeed, CCIT was related to higher affect dysregulation which, in return, was related to higher parenting stress in parents, reflecting a lack of effective strategies to regulate emotions. Less effective regulation strategies (e.g., avoidance, destructive behaviors) may provide temporary relief but would interfere with parents' capacity to adapt readily in the face of stressors, leading to higher perceived parenting stress (Cao et al., 2017). Furthermore, the indirect effect of affect dysregulation in the link between CCIT and parenting stress might reflect a dysregulation of the stress-response system, a phenomenon documented in CCIT-exposed individuals (Lange et al., 2019). CCIT tends to exceed affect regulation resources and exposed individuals may develop a prolonged state of stress where it becomes difficult to distinguish a dangerous situation from a neutral one (Godbout & Hébert, 2016). For any parent, discriminating alarming signals from non-alarming ones in their infant is not an easy task, especially during the first months when signals are often expressed through crying (Rutherford et al., 2015). In sum, CCIT-exposed individuals who experience lasting affect dysregulation could encounter more difficulties with this same discrimination process with their infant, thus increasing their parenting stress.

Given the absence of studies on the explanatory role of identity cohesion in the link between CCIT and parenting stress, results for fathers and mothers in this study are especially telling. Although most parents from the current sample were not first-time parents (56.8%), our findings are consistent with what we know about identity and the transition to parenthood. Indeed, qualitative studies have shed light on the feelings of confusion that both primiparous and non-primiparous mothers who recently had a child may experience as they still attempt to integrate their parental role to their identity (e.g., Abrams & Curran, 2011). As for fathers, they can report difficulties in reconciling multiple identities of spouse, co-parent, caregiver and provider (Habib, 2012). Such identity concerns appear to impact parenting stress even when fathers have a second or third child (Knoester & Petts, 2017). Results of this study show that CCIT-exposed parents report more identity impairment, depicting greater identity diffusion and difficulties with self-awareness (Briere & Runtz, 2002), which contributes uniquely to their own parenting stress. Self-awareness deficits may impair the ability of CCIT-exposed individuals to understand their own reactions to their infant and increase their stress during parenting tasks. As for CCIT-exposed individuals who report a less stable and more fragmented identity, differentiating personal needs and feelings from those of others could prove more difficult, especially following a new birth when parents are often cocooned together at home. Previous studies showed that mothers who report feeling as though they are losing their own identity through their parenting role or becoming someone else are prone to more distress during the first months postpartum (Abrams & Curran, 2011; Laney et al., 2015). Our results therefore confirm a key role of identity in the link between CCIT and parenting stress in mothers and fathers.

Contrary to our hypotheses, interpersonal conflicts were not a significant mechanism in the link between one parent's own level of CCIT and own parenting stress. Although correlational analyses indicate significant associations between these variables, results suggest that interpersonal conflicts were not sufficiently linked with parenting stress in the same parent for indirect effects to be statistically significant in an integrative model including all three self-capacities. This result is not surprising given that in comparison with affect dysregulation and identity impairment, interpersonal conflicts as a scale reflects a self-capacity intrinsically linked to interpersonal relationships (i.e. relatedness).

The dyadic design of this study allowed to document indirect effects between one's parent CCIT level and their co-parent's parenting stress. Results showed that the association between mothers' CCIT and fathers' parenting stress was partially explained by mothers' levels of interpersonal conflicts, thus confirming the relational component of this self-capacity. In other words, mothers with a higher CCIT background would be more likely to experience ups and downs in their relationships, to argue, to have fights and to get angry with others. After the birth of their child, these mothers could also exhibit a more negative style of communication with their partner, generating parenting stress for them (i.e., in this case the father). To our knowledge, this study is the first to document associations between a greater tendency to be involved in interpersonal conflicts and parenting stress. Maternal levels of interpersonal conflicts also partially explain the association between fathers' CCIT and their own paternal stress. In this case, a father who is already struggling with his past CCIT could experience increased parenting stress in close proximity to a partner who is more conflictual in their relationships. The spillover effect from one's parents CCIT to another parents' stress through interpersonal conflicts appears to be gender-specific since fathers' interpersonal conflicts did not act as a mechanism. In this regard, interpersonal conflicts could be exacerbated by the hormonal changes and the increased fatigue (Christian et al., 2019) typical of mothers after giving birth, and throughout their greater proximity with the newborn during the first weeks postpartum (Lévesque et al., 2020).

The remaining indirect effects were found pertaining to partner links between one's parent CCIT and their co-parent's affect dysregulation and identity impairment. Self-capacities are usually believed to be mostly formed during childhood and adolescence, and to stabilize in adulthood (Briere & Runtz, 2002). However, in the event of stressful changes, such as the birth of a child, partners' emotions may be interconnected. It should also be noted that identity cohesion is not a static phenomenon, which may also be affected by the experience of new roles in adulthood or periods of transition (Marcia, 1994). In fact, results from the current study show that CCIT experiences in one parent are related to affect dysregulation and identity impairment in their co-parent. This finding is consistent with studies revealing that intimate partners without any history of interpersonal trauma may report psychological distress, including difficulties with affect dysregulation, at a similar degree to their partner with trauma antecedents (e.g., Dugal et al., 2018). Furthermore, mothers' and fathers' self-capacities disturbances covaried in the final model, supporting this idea of trauma sequelae being entangled between couple partners.

The majority of associations found in this study do not significantly differ between mothers and fathers. The adjustment of CCIT-exposed individuals to the birth of a new child, in terms of self-capacities and parenting stress levels, might therefore be comparable

between parents during the postpartum period. This is consistent with recent studies showing more similarities than differences between mothers and fathers during the parental transition (e.g., Leavitt et al., 2017). This conclusion should, however, be nuanced given the significant mean differences between fathers and mothers reported in this study. It is also possible that such similarities between mothers and fathers are due to the phenomenon of marital resemblance: the observed tendency for romantic partners to be more phenotypically similar for a given characteristic than would be expected by chance (Nordsletten et al., 2016). In addition to the covariation in self-capacities, CCIT levels also covaried between parents from the same couple. This suggests that a parent reporting a high level of CCIT is more likely to be in a relationship with a partner also reporting a high level of CCIT. Such an assortment between partners could be based on mating preferences but also on socioeconomic resemblance. Therefore, parents in our study may be assorted in part due to a compatibility of personal backgrounds, including CCIT and self-capacities, and this assortment could explain why interinfluences between couple partners contributed greatly to parenting stress in this study.

The current study relied on Briere's Self-Trauma Model (1996) and its focus on self-capacities to understand how CCIT sequelae may shape parenting stress. Our results add to those of past studies indicating the relevance of using the Self-Trauma Model to understand the mental health (Dvir et al., 2014) and the interpersonal relationships (Bigras, Godbout, Briere, et al., 2015; Bigras, Godbout, Hébert, et al., 2015) of individuals who experienced trauma, this time showing its relevance for parenting stress. The Self-Trauma Model draws attention to the capacities affected by CCIT (i.e., identity cohesion, affect regulation and relatedness): the same capacities harnessed throughout adulthood to help cope with important challenges and the distress they may elicit. It makes senses that these self-capacities are involved with parenting stress following a recent birth, as the current study demonstrates. Indeed, the postpartum period can be a stressful context for CCIT-exposed individuals as they are confronted to situations that may reminisce their own experiences as a child with their caregiver, potentially activating distress associated with these memories, and demanding from them core resources to take care of their infant in spite of everything.

7.1. Empirical and clinical implications

This study stands out as the first application of the Self-Trauma Model within a parenting context – using a dyadic design in a random sample of parents with an infant – as explanatory mechanisms in the relation between CCIT and parenting stress. Although CCIT is gaining more attention in the scientific community, the current findings suggest that more research is needed to broaden our conceptualizations of childhood interpersonal trauma and capture the experience of CCIT-exposed individuals who, despite their potentially more severe sequelae, may sometimes go unnoticed in studies or intervention strategies within the general population. Results confirmed the relevance of focusing on the role of affect regulation in the link uniting childhood trauma and parenting stress (Bai & Han, 2016), but also shed light on other mechanisms (e.g., identity cohesion) unexplored until now and which appear decisive during a process as transformative as the birth of a new child. Identifying these mechanisms is a first step to guide the creation and implementation of preventive interventions for CCIT-exposed parents and their partners before their parenting stress may become detrimental, thereby reducing the risk that they later engage in disruptive behaviors with their offspring (Maguire-Jack & Negash, 2016). While maintaining a trauma-sensitive approach, interventions targeting mindfulness (e.g., mindful parenting; Bögels & Restifo, 2014) could improve affect regulation in parents with CCIT while interventions targeting mentalization (e.g., parental reflective function) bear positive implications for all three self-capacities (Luyten et al., 2017). Fostering self-capacities in either individual or couple therapeutic settings would help CCIT-exposed parents to better navigate the transition following the birth of a new child.

7.2. Limitations and future studies

Results of this study should be appreciated with consideration of its limitations. First, the directionality between the variables was postulated based on theoretical grounds and temporal sequence (e.g., childhood interpersonal trauma experienced before parenting stress), but longitudinal designs are needed to infer causation and further elucidate the role of self-capacities at different stages of parenthood. While results indicated that the final model remained a good representation of the data when controlling for primiparous status, future studies could examine specific populations of parents (e.g., first-time parents) to further our understanding of potential specificities regarding CCIT, self-capacities and parenting stress. Although the current sample was randomly selected, it remains possible that the couples who participated were among those who functioned better, allowing them more flexibility throughout their busy postpartum schedule to complete the survey. Moreover, this study was based on retrospective self-reports that may have introduced biases in participants' recall of CCIT. However, previous studies that examined the validity of self-reported trauma measures showed data to be reliable, especially when assessed through behaviorally specific questions, as is the case in the current study (Wilson & Miller, 2016). Finally, the current sample was only made up of different-gender couples and parents were predominantly Caucasian. This should be taken into account in the generalizability of findings as same-sex couples and parents of different ethnicities may report different scores of CCIT, self-capacities and parenting stress, or may display different couple dynamics after the birth of their child.

In summary, self-capacities appear to be relevant mechanisms to understand parenting stress in relation with past childhood trauma, especially during the first months following the birth of a new child. Furthermore, this study suggests that maternal and paternal experiences are intrinsically linked during this period and need to be examined together whenever possible. These results have empirical and clinical implications, primarily as they may help develop resources for CCIT-exposed individuals during this transition period which, while stressful, can be one of the most meaningful of their family life.

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