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Attachment as an intermediary variable between childhood maltreatment and perceived partner responsiveness in adolescents and young adults

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Abstract
Cumulative childhood maltreatment (CCM) is associated with relationship difficulties including lower perceived partner responsiveness (PPR)—the degree of feeling cared for, understood, and validated by a person's partner. Attachment theory is understood via its representations of self and others and could offer a better understanding of how CCM effects continue into adulthood and affect PPR. We examined whether CCM is related to PPR via attachment in French-speaking adolescents and young adults. A sample of 427 individuals in a romantic relationship and another sample of 159 couples completed self-report measures. In both samples, a person's CCM was associated with their own lower PPR via their higher attachment anxiety and avoidance. In the dyadic sample, a person's CCM was associated with their partner's lower PPR via their own higher attachment anxiety. Attachment insecurities help understand the associations between

CCM and PPR and may represent an important intervention target.

KEYWORDS
attachment, childhood maltreatment, dyadic analysis, empathic response, intimacy

INTRODUCTION

Childhood maltreatment (CM) is a common worldwide concern, with around 35%–40% of adults reporting either abuse or neglect in childhood (MacDonald et al., 2016). CM refers to any act of commission (i.e., physical, sexual, and psychological abuse) or omission (i.e., physical and psychological neglect) toward a child under 18 years of age, perpetrated within a relationship of caretaking, trust, or power (World Health Organization, 2020). Children tend to experience multiple types of CM as almost 30% of the general population report having experienced at least two types (Vachon et al., 2015). Compared with the experience of a single type of CM, cumulative childhood maltreatment (CCM), that is, the accumulation of different types of CM, is associated with more negative consequences that persist into adulthood and may disturb future romantic relationship functioning (Bigras et al., 2017; Briere et al., 2008).

A number of theoretical models of trauma (Briere, 1996; Finkelhor & Browne, 1985) and considerable research suggest that CCM is related to couple difficulties such as relationship dissatisfaction and instability (Zamir, 2021), sexual dissatisfaction and dysfunction (Vaillancourt-Morel, Byers, et al., 2021), and intimate partner violence including in adolescents and young adults (Dugal et al., 2018; Manchikanti Gómez, 2011; Zurbriggen et al., 2010). Partners of individuals reporting CCM may also be affected and struggle with their own issues, such as sexual distress and dysfunction and relationship dissatisfaction (Peterson et al., 2018; Shi, 2020). Briere's (1996, 2002) self-trauma model (Briere & Scott, 2014) suggests that CCM influences how victims perceive others in adulthood. Indeed, a handful of studies show that individuals reporting CCM perceive others—including their romantic partners—more negatively than do those without such history (Busby et al., 2011; Hepp et al., 2021). Perceived partner responsiveness (PPR) refers to the degree to which individuals feel cared for, understood, and validated by their partner. It is a key process to better understand couple relationships (Reis & Shaver, 1988; Reis, 2012), a core feature of intimacy, and is related to higher relationship satisfaction (Laurenceau et al., 2005), sexual well-being (Bergeron et al., 2021), and investment in romantic relationships (Segal & Fraley, 2016). Although the negative association between CCM and PPR is in line with the self-trauma model (Briere & Scott, 2014) and is empirically supported (Vaillancourt-Morel et al., 2019, 2021), the mechanisms that explain how CCM may alter this central component of romantic relationships remain largely understudied. Research considering these mechanisms might help improve intervention strategies that aim to foster relationship functioning in CCM victims and their partners. Among these potential mechanisms, attachment develops into childhood, follows through in adulthood, and represents how individuals perceive themselves and others (Bartholomew & Horowitz, 1991). It may thus represent a key intermediate variable in the CCM–PPR association. The goal of the present study was to examine whether CCM is related to PPR via adult romantic attachment using two samples composed of adolescents and young adults.

Childhood maltreatment and perceived partner responsiveness

According to Briere's (1996, 2002) self-trauma model, CM impacts victims' internal representations of self and others as it fosters core negative beliefs that they were to blame for the mistreatment, that they do not deserve to be loved, and that others are dangerous and untrustworthy (Briere, 2002). For instance, among a sample of 658 adolescents, CCM was associated with perceiving self and others as less warm and empathic (Jiang et al., 2021). In adulthood, CCM was associated with higher distrust and higher perception of threats in others (Hepp et al., 2021). These negative perceptions can be generalized to romantic relationships. Indeed, among more than 5400 heterosexual couples, CCM was associated with perceiving oneself and the partner as more conflict prone and neurotic (i.e., more likely to experience negative affects such as anxiety, irritability, etc.; Busby et al., 2011).

The core component of romantic relationships that may be affected by this negative view of others is PPR, as it involves how an individual perceives their partner's responses, regardless of their actual responses. In a dyadic longitudinal study conducted among 365 couples, when participants reported higher levels of CCM, they tended to also report lower PPR (Vaillancourt-Morel et al., 2019). Moreover, in a dyadic daily diary and longitudinal study conducted among 217 couples, higher levels of CCM were associated with lower mean levels of PPR over 35 days, lower initial levels of their own PPR, and higher day-to-day variabilities in their own and their partner's PPR (Vaillancourt-Morel, Rosen, et al., 2021). Thus, CCM is linked to victims' negative view of others but also to their partner's negative view of others. Even though the association between CCM and PPR is well supported, it is important to understand how, that is, via what mechanisms, CCM may be related to an individual's perception of their romantic partner. Attachment theory can help understand these associations and guide the development of intervention strategies.

Romantic attachment as an intermediary variable between CCM and PPR

Attachment theory (Bowlby, 1982) proposes that interactions with attachment figures create an inner working model of self and others. When attachment figures are available and offer reassurance, a secure attachment is promoted as children learn that they deserve to be nurtured, that others are reliable and caring, and that they can expect this support and availability in future relationships. When attachment figures are unavailable, unstable, or inadequate, they fail to soothe the child, resulting in the development of an insecure attachment (Mikulincer & Shaver, 2005). In such instances, children may internalize the belief that they are undeserving of care, perceive that something is inherently wrong with themselves, and that they cannot rely on others as they are unreliable or abusive. This inner working model of self and others developed in childhood tends to be activated in subsequent significant relationships during adulthood. Given the similarities between the caregiver–infant bond and the adult romantic partnerships, these attachment working models may be particularly influential in shaping interactions with romantic partners (Hazan & Shaver, 1987). Adult romantic attachment is characterized by the synchronization of two dimensions: attachment anxiety and avoidance (Mikulincer & Shaver, 2007). Attachment anxiety refers to worries about threats to the relationships and is characterized by a negative self-view. It involves a hyperactivation of the attachment system in the face of a real or perceived threat to self or the

relation, resulting in a search for reassurance. Attachment avoidance refers to the degree to which a person distrusts others and tries to stay independent and emotionally distant and is characterized by a negative view of others. It involves a deactivation of the attachment system as a coping strategy in the face of a threat to this sense of independency and autonomy (Mikulincer & Shaver, 2005, 2007).

Bowlby's (1982) theory suggested that attachment is created through inner working models shaped within the child–caregiver interactions, and CCM occurs in these interactions. Thus, it is unsurprising that CCM may be related to adult romantic attachment. Indeed, in an abusive and neglecting relationship, children may develop a sense that they are unworthy and unlikable or that others are unavailable and perceive them as a potential threat. These negative representations of self (attachment anxiety) and others (attachment avoidance) are transferred toward romantic partners in adolescence and adulthood (Godbout, Daspe, et al., 2017). Several studies have shown that CCM is linked to higher attachment anxiety and avoidance in adolescents and young adults (Bigras et al., 2017; Dion et al., 2019). In addition, romantic attachment is an important mediator in the associations between CCM and adult negative consequences such as depressive symptoms (Smagur et al., 2018), intimate partner violence (Godbout et al., 2009), psychological distress, and lower self-esteem (Dion et al., 2019). Yet, the role of attachment in the CCM–PPR association remains unknown.

Attachment theory suggests that attachment influences how individuals perceive close others (Bartholomew & Horowitz, 1991). A handful of studies have shown that a person's attachment anxiety and avoidance are associated with their own lower PPR (Bosisio et al., 2020; Rodriguez et al., 2019; Segal & Fraley, 2016). Moreover, in a daily dyadic study of 100 heterosexual couples, a person's attachment avoidance was associated with their partner's lower PPR (Mizrahi et al., 2018). Attachment is a relevant variable to better understand the associations between CCM and PPR as many psychological treatments consider attachment as an important therapeutic dimension (e.g., emotionally focused therapy; Johnson, 2020). Thus, it could represent an important target to prevent couple difficulties in adolescents and young adults.

Current study

The overall aim of this study was to examine the associations between CCM and PPR via attachment anxiety and avoidance in two samples: a sample of adolescents and young adults currently in a romantic relationship (Sample 1) and a sample of adolescents and young adult couples (Sample 2). The sample of individuals in a relationship allows for more diversity in relationship characteristics, including lower relationship satisfaction and commitment (Barton et al., 2020), whereas the sample of couples allows for useful dyadic analysis. Two independent samples also represent an effort to replicate findings. In both samples, we predicted that CCM would be negatively related to their own PPR through their own higher levels of attachment anxiety and avoidance. Moreover, in the dyadic sample, we examined partner effect, that is, associations between a person's CCM and their partner's attachment avoidance, anxiety, and PPR, in an exploratory manner. Moreover, we tested an exploratory model including sex as a potential moderator of these associations.

METHOD

Participants and procedure

A convenient sample of French-speaking adolescents and young adults aged between 16 and 29 years was recruited through online advertisements on various web pages (e.g., Kijiji and Youtube), social media (e.g., Facebook and Instagram), and email lists. Advertisements informed participants about an online survey about digital technologies and intimate relationships. Data for both samples were collected as part of a larger research for which eligibility criteria were age between 16 and 29 years and ability to understand French. For the current study to be included in one of the two samples, participants had to report that they were currently dating, cohabiting, or married with a partner. Interested participants accessed a hyperlink, which led them to a short questionnaire aiming at confirming eligibility and gathering contact information. Eligible participants were then directed to the consent form and the anonymous survey hosted by Qualtrics Research Suite. To ensure attention while completing the survey, three attention-testing questions were included, and participants needed to answer at least two out of three questions correctly to be included in the study. Participants received CAN$10 after completing the survey. All procedures were approved by our Institutional Review Boards.

Of the 1508 interested participants who started the eligibility questionnaire, 1384 were eligible, gave their informed consent, and were directed to the survey. Of these, 19 failed at least two out of three attention questions, and 275 dropped out during the survey and did not complete at least two of the three attention questions, leaving 1090 participants. Of these, 310 were single, and 35 did not complete any of the measures of this study. Finally, the remaining 754 participants in a relationship were included in one of the two samples depending on whether they participated in the study without their partner (Sample 1) or with their partner (Sample 2). Sample 1 included 427 participants (134 men and 293 women), and Sample 2 included 159 couples (156 men and 162 women), including 11 same-sex couples. Demographic characteristics are presented in Table 1.

Measures

Cumulative childhood maltreatment

CCM was measured using the Childhood Cumulative Trauma questionnaire (Godbout et al., 2017), which includes 15 items that retrospectively assess the occurrence of five types of CM before the age of 18: sexual abuse (2 items), psychological abuse (3 items), physical abuse (5 items), emotional neglect (3 items), and physical neglect (2 items). Sexual abuse refers to any kind of nonconsensual sexual contact during childhood or adolescence, or any sexual contact during this period with an adult, someone in a position of authority, or someone 5 years older. Psychological abuse was defined as verbal assaults on self-worth or being humiliated, put down, or ridiculed by parents. Physical abuse was defined as being slapped, burned, hit, kicked, punched, pushed, or shoved by a parent. Emotional neglect was defined as being ignored, ununderstood, or feeling like the parents did not like them. Finally, physical neglect referred to caregivers not having responded to basic needs (i.e., food, baths, clean clothes, and medical attention) or being locked up in a room for a prolonged period by parents. The sexual abuse items were assessed on a dichotomous yes/no scale and for the other types of CM, participants rated on a 7-point Likert scale (0 = never, 6 = almost everyday) how many times each of the events had happened on a typical year before reaching 18 years of age. Each CM type was coded

TABLE 1 Demographic characteristics of Sample 1 and Sample 2.

	Sample 1 n = 427		Sample 2 n = 318	
	M	SD	M	SD
Age	22.73	3.08	23.01	2.93
Relationship duration (in months)	30.91	29.49	30.44	26.00
	%	n	%	n
Sex				
Men	31.4	134	49.1	156
Women	68.6	293	50.9	162
Culture				
Canadian	90.4	386	88.7	282
West European	3.3	14	6.0	19
African	1.4	6	0.0	0
Middle Eastern	1.2	5	0.0	0
Other[a]	3.4	15	5.3	17
Highest degree completed				
High school	12.6	54	14.2	45
Vocational	4.7	20	8.5	27
College	38.9	166	39.9	127
Undergraduate	31.6	135	25.8	82
Graduate	9.8	42	9.8	31
Employed	68.1	291	72.6	231
Annual Income				
Less than $15,000	55.5	237	48.7	155
$15,000 to $25,000	19.2	82	20.1	64
$25,000 to $35,000	7.5	32	9.7	31
$35,000 to $45,000	4.9	21	6.9	22
$45,000 to $55,000	6.3	27	6.9	22
$55,000 to $65,000	3.5	15	3.8	12
More than 65,000$	2.8	12	3.1	10
Relationship agreement				
Exclusive relationship	95.8	409	96.5	307
Nonexclusive relationship	4.2	18	3.5	11

(Continues)

TABLE 1   (Continued)

	Sample 1 n = 427		Sample 2 n = 318	
Relationship status				
Dating	53.6	229	40.3	128
Cohabiting	43.6	186	58.2	185
Married	2.6	11	1.3	4
No children	94.4	403	94.7	301

Abbreviations: *M*, mean; SD, standard deviation.

[a]Other include American, First Nations, East European, Asian, Latin-American/South American, and Caribbean.

as not experienced (0) or experienced (1) when at least one item for this CM type was rated 1 or higher. As in Bigras et al. (2017), these dichotomous scores were summed to compute a cumulative CM total score ranging from 0 (no CM history) to 5 (all types of CM). In the present study, ordinal alphas for the subscales varied between 0.74 and 0.94.

Romantic attachment

The 12-item Experiences in Close Relationships questionnaire (ECR-12; Lafontaine et al., 2016) is composed of two subscales containing six items each representing the two dimensions of adult romantic attachment: attachment anxiety (e.g., "I worry about being abandoned") and attachment avoidance (e.g., "I don't feel comfortable opening up to romantic partners"). Participants reported how they generally feel regarding romantic relationships on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). An average score for each subscale was calculated, with higher scores implying higher levels of attachment anxiety or avoidance. In the present study, Cronbach's α values were 0.88 for attachment anxiety and 0.84 for attachment avoidance in Sample 1 and, respectively, 0.89 and 0.84 in Sample 2.

Perceived partner responsiveness

PPR was assessed using the 4-item perceived partner responsiveness subscale of the Relationship Intimacy Measure (Bois et al., 2013), which is based on the diary measure of Laurenceau et al. (1998). This measure assessed the degree to which participants felt that their partner understood, cared, accepted, and validated them on a 7-point Likert scale (1 = *not at all*, 7 = *a lot*). A total score ranging from 4 to 28 was calculated, higher scores indicating greater PPR. In this study, the Cronbach's α was 0.85 in Sample 1 and 0.85 in Sample 2.

Statistical analysis

Descriptive and correlation analyses were carried out using SPSS 27. In Sample 1, the association between CCM and PPR via attachment was tested using path analysis in *Mplus*

version 8.6 (Muthén & Muthén, 1998-2015). In Sample 2, the associations between a person's CCM and their own and their partner's PPR via their own and their partner's attachment were tested using an Actor-Partner Interdependence Model extended to mediation (APIMeM; Ledermann et al., 2011). This model considers the partners' interdependence and includes actor and partner effects. Because Sample 2 included both mixed- and same-sex couples, neither sex nor any other variables could distinguish partners within all dyads. Thus, dyads were considered as theoretically indistinguishable, and equality constraints were added on all parameters (i.e., variance, actor effects, partner effects, means, and intercepts; Kashy et al., 2008). Because study variables were naturally nonnormally distributed (kurtosis varied between -1.02 and 3.54 and skewness varied between -1.57 and 0.92 for Sample 1; kurtosis varied between -0.85 and 2.39 and skewness varied between -1.47 and 1.15 for Sample 2), the maximum likelihood parameter estimates with standard errors and chi-square test statistics that are robust to nonnormality were used (MLR; Muthén & Muthén, 1998-2015). The full information maximum likelihood (FIML; Muthén & Muthén, 1998-2015) method was used to account for missing data (ranging from 1.4% for attachment to 1.6% for CCM in Sample 1 and from 1.9% for CCM and attachment to 2.2% for PPR in Sample 2). Common goodness-of-fit indices were used (Schermelleh-Engel et al., 2003): statistically nonsignificant chi-square value, comparative fit index (CFI; ≥ 0.90 acceptable; ≥ 0.95 good), root mean square error of approximation (RMSEA; ≤ 0.08 adequate; ≤ 0.06 good), and standardized root mean square residual (SRMR; ≤ 0.10 adequate; ≤ 0.08 good). To assess the significance of indirect effects based on the bootstrapping method of Preacher and Hayes (2004), the estimates of the indirect effects (a*b) are computed over a large number of random samples (5000 resamples), and the 95% bootstrap confidence intervals were estimated. If the 95% bootstrap confidence interval does not contain 0, the indirect association between CCM and PPR via attachment is significant. Then, sex was examined as a potential moderator by including all potential interactions between predictors and sex, which was effect-coded ($-0.5 = men$; $0.5 = women$). When an interaction term was significant, simple slope tests were used to report the association for women and men.

RESULTS

Sample 1

Descriptive statistics

Table 2 presents the means, standard deviations, and correlations for all variables. CCM was significantly associated with lower PPR ($r = -0.14$, $p = 0.003$) and higher attachment anxiety ($r = 0.18$, $p < 0.001$) and avoidance ($r = 0.10$, $p = 0.049$). Attachment anxiety and avoidance were associated with lower PPR (respectively, $r = -0.26$, $p < 0.001$ and $r = -0.47$, $p < 0.001$). Proportions of participants by each number of CM experienced are shown in Supplementary File: Table S1.

Preliminary correlational analyses were performed to assess potential associations between sociodemographic variables, attachment, and PPR. Sex, age, and relationship length were related to at least one of the study outcomes and were added as covariates in the model.

TABLE 2 Correlations and descriptive statistics for Sample 1 ($n = 427$) and Sample 2 ($n = 318$).

	Range	**Mean**	**SD**	**1.**	**2.**	**3.**	**4.**
				Sample 1			
1. Attachment anxiety	1–7	3.78	1.45	-	0.05	−0.26***	0.18***
2. Attachment avoidance	1–6	2.25	1.06		-	−0.47***	0.10*
3. Perceived partner responsiveness	5–28	23.92	3.77			-	−0.14**
4. Cumulative childhood maltreatment	0–5	1.75	1.38				-
				Sample 2			
1. Attachment anxiety	1–7	3.54	1.53	**0.03**	0.06	−0.19***	0.28***
2. Attachment avoidance	1–6	2.19	1.11	0.09	**0.23*****	−0.46***	0.09
3. Perceived partner responsiveness	10–28	24.54	3.50	−0.14*	−0.23***	**0.28*****	−0.19***
4. Cumulative childhood maltreatment	0–5	1.49	1.34	0.03	0.07	−0.04	**0.03**

Note: Correlations presented above the diagonal represent actor associations, correlations along the diagonal (in bold) represent between-partner correlations for the same variable, and correlations below the diagonal represent partner associations.

Abbreviations: *M*, mean; SD, standard deviation.

*$p <0.05$; **$p <0.01$; ***$p <0.001$.

Associations between CCM and PPR via attachment

The association between CCM and PPR before including attachment and control variables was significant, b(SE) $= -0.40(0.14)$, $p = 0.005$; $ß = -0.15$. A path analysis model examined the associations between CCM and PPR via attachment and, including sex, age, and relationship length as covariates. Results indicated good fit indices for this model: $\chi^2(3) = 1.61$, $p = 0.658$; RMSEA $= 0.00$, 90% confidence interval (CI) $= (0.00–0.06)$; CFI $= 1.00$; SRMR $= 0.01$. As shown in Table 3 and depicted in Supplementary File: Figure S1, results indicated that CCM was associated with higher attachment anxiety and avoidance, which were also related to lower PPR. The direct link between CCM and PPR after including attachment and control variables was now nonsignificant. This model explained 12.3% of the variance in attachment anxiety, 3.7% in attachment avoidance, and 30.6% in PPR. Bootstrap estimates indicated that the negative indirect effects of CCM on PPR through higher attachment anxiety, $b = -0.12$, 95% bootstrap CI $= (-0.21, -0.06)$, and higher attachment avoidance, $b = -0.13$, 95% bootstrap CI $= (-0.26, -0.02)$, were significant. The total effect from CCM to PPR, $b = -0.39$, 95% bootstrap CI $= (-0.68, -0.11)$, and the total indirect effect, $b = -0.25$, 95% bootstrap CI $= (-0.41, -0.11)$, were significant. The ratio of the indirect effect to the total effect indicated that around 63.4% of the association between CCM and PPR was explained via attachment.

Then, to examine sex as a potential moderator, we added all potential interactions between predictors (CCM, attachment) and sex in the model. Results showed that all interactions were nonsignificant ($p > 0.099$). Thus, the associations between CCM and PPR via attachment did not differ significantly between women and men.

TABLE 3 Model of the role of attachment anxiety and avoidance as intermediary variables between childhood cumulative maltreatment and perceived partner responsiveness in Sample 1 (n = 427 participants) and Sample 2 (n = 318 participants; 159 dyads).

| | Attachment anxiety | | | | | | Attachment avoidance | | | | | | Perceived partner responsiveness | | | | | |
| | Actor effect | | | Partner effect | | | Actor effect | | | Partner effect | | | Actor effect | | | Partner effect | | |
	b (SE)	p	β	b (SE)	p	β	b (SE)	p	β	b (SE)	p	β	b (SE)	p	β	b (SE)	p	β
	Sample 1																	
	$\chi^2(3) = 1.61$, $p = 0.658$; RMSEA = 0.00, 90% CI = [0.00–0.06]; CFI = 1.00; SRMR = 0.01																	
CCM	**0.18 (0.05)**	**<0.001**	**0.17**	0.02 (0.06)	0.704	0.02	**0.08 (0.04)**	**0.030**	**0.10**	0.04 (0.05)	0.394	0.05	−0.14 (0.12)	0.237	−0.05			
A. anxiety													**−0.66 (0.13)**	**<0.001**	**−0.25**			
A. avoidance													**−1.64 (0.17)**	**<0.001**	**−0.46**			
	Sample 2																	
	$\chi^2(42) = 54.24$, $p = 0.098$; RMSEA = 0.04, 90% CI = [0.00–0.07]; CFI = 0.93; SRMR = 0.10																	
CCM	**0.27 (0.06)**	**<0.001**	**0.24**				**0.09 (0.05)**	**0.043**	**0.11**				**−0.31 (0.13)**	**0.021**	**−0.12**	0.09 (0.13)	0.496	0.04
A. anxiety													**−0.33 (0.12)**	**0.005**	**−0.15**	**−0.27 (0.12)**	**0.030**	**−0.12**
A. avoidance													**−1.26 (0.16)**	**<0.001**	**−0.40**	**−0.33 (0.16)**	**0.038**	**−0.11**

Note: Evidence of statistically significant associations at $p < 0.05$ is presented in bold. Sex, age, and relationship length were included as covariates for Sample 1, and sex and age were included as covariates for Sample 2.

Abbreviations: A, attachment; b, unstandardized coefficient; CCM, cumulative childhood maltreatment; SE, standard error.

Sample 2

Descriptive statistics

Table 2 presents the means, standard deviations, and correlations for all variables. A person's CCM was significantly associated with their own higher attachment anxiety ($r = 0.28$, $p < 0.001$) and their own lower PPR ($r = -0.19$, $p < 0.001$). A person's attachment anxiety and avoidance were significantly associated with their own lower PPR (respectively, $r = -0.19$, $p < 0.001$ and $r = -0.46$, $p < 0.001$). A person's attachment anxiety was significantly associated with their partner's lower PPR ($r = -0.14$, $p = 0.016$), and a person's attachment avoidance was significantly associated with their partner's higher attachment avoidance ($r = 0.23$, $p < 0.001$) and their partner's lower PPR ($r = -0.23$, $p < 0.001$). Finally, a person's PPR was significantly related to their partner's higher PPR ($r = 0.28$, $p < 0.001$). Proportions of participants by each number of CM experienced are shown in Supplementary File: Table S1.

Preliminary correlational analyses were performed to assess the associations between sociodemographic variables, attachment, and PPR. Sex and age were significatively related to at least one of the study outcomes and were added as covariates in the model.

Associations between CCM and PPR via attachment

The association between a person's CCM and their own PPR before including attachment and control variables was significant, b(SE) = −0.50 (0.15), $p < 0.001$; $\beta = -0.19$. The association between a person's CCM and their partner's PPR before including attachment and control variables was nonsignificant, b(SE) = −0.09 (0.14), $p = 0.532$; $\beta = -0.04$. An APIMem tested the associations between CCM and PPR via attachment and including sex and age as covariates. Results indicated adequate overall fit indices for the model: $\chi^2(42) = 54.24$, $p = 0.098$; RMSEA = 0.04, 90% CI = (0.00–0.07); CFI = 0.93; SRMR = 0.10. As shown in Table 3 and depicted in Supplementary File: Figure S2, results indicated that a person's CCM was associated with their own higher attachment anxiety and attachment avoidance. A person's higher attachment anxiety was in turn related to their own lower PPR and their partner's lower PPR. A person's higher attachment avoidance was related to their own lower PPR and their partner's lower PPR. Finally, the direct link between a person's CCM and their own PPR after including attachment and control variables was still significant, whereas the direct link between a person's CCM and their partner's PPR was nonsignificant. This model explained 14.0% of the variance in attachment anxiety, 7.0% in attachment avoidance, and 28.0% in PPR.

Bootstrap estimates indicated that a person's CCM was significatively associated with their own lower PPR through their own higher attachment anxiety, $b = -0.09$, 95% bootstrap CI = (−0.20, −0.02), and their own higher attachment avoidance, $b = -0.12$, 95% bootstrap CI = (−0.27, −0.004). A person's CCM was also significantly associated with their partner's lower PPR through their own higher attachment anxiety, $b = -0.07$, 95% bootstrap CI = (−0.18 to −0.01). However, a person's CCM was not significantly associated with their partner's lower PPR through their own higher attachment avoidance, $b = -0.03$, 95% bootstrap CI = (−0.11 to < 0.001). The total effect from a person's CCM to their own PPR, $b = -0.53$, 95% bootstrap CI = (−0.84, −0.23), and the total indirect effect from a person's CCM to their own PPR, $b = -0.23$, 95% bootstrap CI = (−0.39, −0.08), were significant. The ratio of the indirect effect to the total effect indicated that around 43.4% of the association between a person's CCM to their

own PPR was explained via attachment. The total effect from a person's CCM to their partner's PPR, $b = -0.07$, 95% bootstrap CI $= (-0.39, 0.22)$ was nonsignificant, whereas the total indirect effect from a person's CCM to their partner's PPR, $b = -0.16$, 95% bootstrap CI $= (-0.34, -0.01)$, was significant. As the total indirect effect is more important than the total effect, the ratio of the indirect effect to the total effect is not an adequate effect size and suggests that a person's CCM may be related to their partner's higher PPR via other mechanism, which would explain the nonsignificant total effect (Preacher & Kelley, 2011).

Then, to examine sex as a potential moderator, we added all potential interactions between predictors (CCM, attachment) and sex in the model. There was one significant interaction for the association between a person's CCM and their partner's attachment anxiety, $b = 0.29$, $SE = 0.12$, $p = 0.019$, $ß = 0.19$, but the simple slope tests showed that the association was not significant for men, $b = -0,14$, $SE = 0.09$, $p = 0.127$, and women, $b = 0.14$, $SE = 0.08$, $p = 0.070$. All other interactions were nonsignificant.

DISCUSSION

This study is the first to examine the association between CCM and PPR via romantic attachment. In two samples composed of participants aged 16 to 29 years, we examined whether CCM was related to PPR through attachment anxiety and avoidance using individual and dyadic perspectives. A primary finding was that a person's CCM was associated with their own lower PPR through their own higher attachment anxiety and avoidance. Another main finding was that a person's CCM was associated with their partner's lower PPR through their own attachment anxiety. This study contributes to a growing literature on how CCM may be negatively related to a central process of close relationships—PPR.

Association between CCM and PPR via attachment anxiety

Our findings showed that in the individual and dyadic samples, a person's CCM was indirectly related to their own lower PPR via their own higher attachment anxiety. Thus, the cumulation of different forms of CM is related to the victim's negative self-view, higher fear of abandonment, and search for reassurance, which in turn is related to feeling less cared for, understood, and validated by their partner. This is congruent with results from other studies reporting that CCM is associated with lower PPR (Vaillancourt-Morel et al., 2019). Our findings expand these results as they shed light on the mechanisms that explain how CCM may be related to this central component of romantic relationships. Our result is also in line with past studies that have suggested that CCM is related to multiple negative outcomes in adolescents and young adults via higher attachment anxiety (Dion et al., 2019; Godbout et al., 2009; Riggs et al., 2011). Furthermore, congruent with our findings, studies have shown that CCM is related to higher attachment anxiety in adolescents and young adults (Bigras et al., 2017; Dion et al., 2019) and others have reported that attachment anxiety is related to lower PPR (Bosisio et al., 2020; Segal & Fraley, 2016).

As CCM is the accumulation of different types of abuse and neglect perpetrated by an attachment figure, victims may internalize the belief that they are unlikable, underserving of care and love, and harbor a sense of inherent inadequacy. This inner working model of self may then be activated in subsequent romantic relationships, leading to a fear of activating a fear of

abandonment by partners and an anticipation of negative responses or behaviors from them. Thus, the hypervigilance to social and emotional negative signals (Fraley et al., 2006) related to attachment anxiety may be associated with a more negative perception of others, particularly their intimate partner. Moreover, individuals with higher attachment anxiety may have exaggerated or even insatiable expectations of support, which can be difficult for the partner to fulfill, resulting in a lower perception of responsiveness (Collins et al., 2006). However, our study only included the perceptions of the partner's behaviors and did not include objective observed partner responsiveness. Thus, it was not possible to determine whether our results reflect biased perceptions induced by past CCM or are a reflection of actual partner behaviors. Indeed, another plausible interpretation is that individuals with higher attachment anxiety reporting CCM remain in a romantic relationship that is less satisfactory or choose a partner who is unresponsive or even abusing because they may feel that they do not deserve better. Thus, they may end up with partners who really show less caring, understanding, and validation. These interpretations are all in line with the self-trauma model (Briere & Scott, 2014; Briere, 2002), which suggests that the context of a romantic relationship could bring back memories and reactions from childhood, because of the intimate and vulnerable context, similar to the one with caregivers. The hypervigilance to negative signals and negative perception of self could explain how trauma-related feelings and behaviors can be reenacted in a rigid cycle, including negative interactions and perceptions (MacIntosh, 2017).

Association between CCM and PPR via attachment avoidance

Our findings also showed that in the individual and the dyadic samples, a person's CCM was indirectly related to their own lower PPR via their own higher attachment avoidance. The cumulation of different forms of CM is related to the victim's distrust in others and search for independency, which in turn is related to their feeling of being less cared for, understood, and validated by their romantic partner. This result is congruent with past studies that suggest that CCM is related to various couple outcomes in adulthood (Godbout et al., 2009) and in adolescents (Stover et al., 2018) via higher attachment avoidance. Moreover, in line with our findings, studies have shown that CCM is related to higher attachment avoidance in young adults (Bigras et al., 2017; Godbout et al., 2009), and a few studies reported that attachment avoidance is associated with lower PPR (Rodriguez et al., 2019; Segal & Fraley, 2016). However, the proportion of explained variance in attachment avoidance was limited and smaller than the one for attachment anxiety. This is in line with the effect sizes of the CCM–avoidance association reported in other studies (Bigras et al., 2017; Godbout et al., 2009), some even reporting a nonsignificant association (Dion et al., 2019) and suggests that CCM may be more strongly associated to attachment anxiety.

In childhood, victims may internalize the belief that others are unavailable, unstable, or inadequate and even abusive. This inner working model of others may then be activated in subsequent romantic relationships, leading to a perception of the partner as unsupportive and neglecting the victims' need. Indeed, attachment avoidance is characterized by a more negative view of others, as others are perceived as emotionally unavailable or unresponsive and, in some cases, as a threat (Bartholomew & Horowitz, 1991). A person with higher attachment avoidance may thus feel more indifferent and detached toward their partner's positive behaviors (Mikulincer & Shaver, 2005). Thus, their partner could be responsive and make efforts to make them feel understood, validated, and cared for, but the individual with higher attachment

avoidance may dismiss these behaviors to remain emotionally distant and independent. Our findings are also consistent with the self-trauma model (Briere & Scott, 2014), which suggests that CCM is linked to how victims perceive others—including romantic partners—in adulthood. In past studies, CCM was associated with higher distrust in others (Hepp et al., 2021) and with perceiving others as less warm and empathic (Jiang et al., 2021). However, another plausible interpretation is that CCM victims with higher attachment avoidance may choose a partner who is also more distant and effectively less responsive. Their partner may have little possibility to show responsiveness, as higher attachment avoidance tends to come with avoidance of self-disclosure and contact with vulnerability (Bauminger et al., 2008).

Association between a person's CCM and their partner's PPR via attachment anxiety

Our findings also showed that in the dyadic sample, a person's CCM was related to their partner's lower PPR via their own higher attachment anxiety. Thus, partners of CCM victims tend to feel less cared for, understood, and validated because of victims' negative self-view. The current finding is consistent with the handful of studies in adolescents and young adults (Riggs et al., 2011) suggesting that partner effects of CCM can emerge even in shorter and younger romantic relationships. This result also expands the CCM–PPR partner effect reported previously (Vaillancourt-Morel, Rosen, et al., 2021) by suggesting that this link may be explained by victims' higher attachment anxiety.

As attachment anxiety is defined by a negative self-view, worries about abandonment, search for reassurance, and hypervigilance to signals of rejection (Chris Fraley et al., 2006), CCM victims may feel overwhelmed by their own concerns and be less emotionally available to be responsive to their partner. Thus, their partner may feel less cared for, understood, and validated. In past studies, a person's attachment anxiety was associated with their partner's responses to conflict (Feeney & Karantzas, 2017) and higher intimate partner violence (Godbout et al., 2009). Partners of individuals with higher attachment anxiety may perceive their worries and proximity needs as too demanding and feel that their partner is unavailable for their needs and less responsive to their disclosure. However, the association between a person's CCM and their partner's PPR through attachment avoidance was nonsignificant. As higher attachment avoidance is associated with distrust, indifference, and detachment (Hepp et al., 2021; Mikulincer & Shaver, 2005), individuals may not express their emotions and needs as much as individuals with higher attachment anxiety, thus leaving more space for their partner to feel cared for.

Limitations and future studies

Although this study shed light on possible mechanisms explaining how CCM may be related to the victim's and their partner's lower PPR in adolescents and young adults using an individual and a dyadic sample, it is important to interpret our findings in light of some limitations. First, even if CCM happened in childhood and that attachment and PPR are assessed in adulthood, the cross-sectional design does not allow for causal effect to be inferred. Indeed, as attachment insecurity may fluctuate within the same relationship (Duemmler & Kobak, 2001), PPR may also have an impact on attachment. Second, only retrospective self-report questionnaires were

used, which introduces potential biases, such as the presence of shared-method variance, social desirability, and recall bias. Moreover, our study does not allow to distinguish the actual responsiveness behaviors of the partner from victims' perception of partner responsiveness, which prevents us from drawing clear conclusions on these consequences of CCM. Third, the representativeness of our sample and generalizability of our results may be limited by our convenience sample of French-speaking adolescents and young adults recruited through advertisements where self-selection biases may occur. This study was limited to adolescents and young adults aged between 16 and 29 years who were involved in a romantic relationship. On average, participants had been with their partner for less than 3 years, around half of the participants were not cohabiting with their partner, and almost all did not have children. Thus, relational processes like intimacy may not have settled yet into these less committed relationships, and our results may not be generalizable to adult romantic relationships. Our samples also have low cultural and sexual diversity. Thus, more studies are needed to replicate our results in different samples, such as only adolescents, committed or older couples, or sexually and culturally diverse couples, and examine how relationship dynamics might affect the examined associations. Finally, future studies should include other mechanisms that may help explain the CCM–PPR association (e.g., rejection sensitivity, mindfulness, and conflict–resolution strategies) and take into account the broader family background (e.g., socioeconomic status, parental support, education, family–peer environment) that may affect attachment and childhood maltreatment.

Clinical implications

The current findings suggest considering attachment as an assessment and intervention target with adolescents and young adult reporting CCM and relationship difficulties. Our findings underline the need to investigate CCM and romantic attachment in young couples seeking help for romantic relationship difficulties, or even in young individuals with negative perceptions of others. This assessment may help understand these negative perceptions and, in some cases, uncover difficulties related to CCM and attachment. It may be important to assess whether these negative perceptions are the result of victims' biased representations of others or of actual lower responsiveness from the partner as it may orient how lower PPR will be addressed with couples.

Our findings suggest that couple interventions focusing on partners' attachment anxiety and avoidance, such as emotion-focused therapy (Johnson, 2019), may offer a valuable intervention avenue for adolescent and young adult couples reporting CCM. For therapists working with these couples, it seems important to address partners' inner working models of self and others, developed in childhood, particularly when these models are reenacted in the context of the current romantic relationship (MacIntosh, 2017), especially during couple therapy sessions. For instance, a person with CCM history and high attachment anxiety may be so hypervigilant to negative relationship cues that their fear of abandonment may lead to their partner's negative responses and even rejection. This reactivation of childhood dynamics may be effectively explored and addressed in couple therapy to help understand lower PPR. Tailoring interventions based on whether the individual struggles with negative self-perception (attachment anxiety), negative perceptions of others (attachment avoidance), or both may contribute to a more personalized and effective therapeutic approach. As our results showed that a person's history of CCM is associated with lower PPR in their partner, couple therapy

may also help to address how the reenactment of the negative childhood environment may also impact the partner and lead to a couple dynamic fueled by low responsiveness. The overarching goal of these interventions is ultimately to help adolescents and young adults feel more understood, validated and cared for in their romantic relationships or even in other significant relationships.

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CONFLICT OF INTEREST STATEMENT
The authors declare no conflict of interest.

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