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Cumulative Childhood Trauma and Adult Sexual Satisfaction: Mediation by Affect Dysregulation and Sexual Anxiety in Men and Women

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Childhood cumulative trauma (CCT) refers to an amalgam of childhood maltreatment experiences that can lead to a range of symptoms and problems in adulthood. The current study examined an integrative model of CCT for its relevance to psychosexual adjustment in adult survivors. A total of 620 participants aged 18 years and over completed a questionnaire assessing early life experiences, affect dysregulation, sexual anxiety, and sexual satisfaction. Path analyses confirmed the hypothesis that CCT is associated with affect dysregulation and sexual anxiety that, in turn, predict lower levels of sexual satisfaction. The validity of this mediational model was demonstrated for different operationalizations of CCT. The results suggested that sex therapists, who are likely to encounter CCT survivors in their practice, should consider targeting affect dysregulation in their efforts to decrease sexual anxiety and increase sexual satisfaction.

INTRODUCTION

Beyond data on the high prevalence of single forms of child maltreatment in North America (Stoltenborgh, Bakermans-Kranenburg, Alink, & van IJzendoorn, 2015), research increasingly points to what has variously been described as polyvictimization (Cyr et al., 2013; Finkelhor, Turner, Ormrod, & Hamby, 2009; Pereda, Guilera, & Abad, 2014), complex childhood trauma (Cook et al., 2005), and adverse childhood experiences (ACE; Edwards, Holden, Felitti, & Anda, 2003; Felitti et al., 1998). This construct typically refers to the extent to which a child has been exposed to some combination of sexual, physical, and psychological abuse, psychological and emotional neglect, exposure to interparental violence, and bullying (Cloitre et al., 2009; Godbout, Lussier, & Sabourin, 2006; Hodges et al., 2013). These various forms of childhood

maltreatment are frequently correlated; for example, physical abuse and domestic violence are often present in the same families (e.g., Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008), as are physical abuse and psychological maltreatment (e.g., Claussen & Crittenden, 1991), and sexual and physical abuse (e.g., Lanktree et al., 2008). Further, it appears that children who have experienced a given form of maltreatment are at an increased risk of continued victimization from others (Finkelhor, Ormrod, & Turner, 2007), such that multiple trauma types are often comorbid in the same child. For example, one large general population study reports that although 61% of American children have experienced at least one type of interpersonal victimization, more than one third reported two or more additional types of interpersonal violence (Finkelhor et al., 2009).

This accumulation of trauma types in childhood is especially unfortunate because, although multiple traumas over the lifespan is frequently detrimental, cumulative trauma in childhood appears to be most associated with subsequent psychological disturbance (e.g., Briere, Agee, & Dietrich, 2016; Briere, Hodges, & Godbout, 2010). In fact, the deleterious effects of childhood cumulative trauma (hereafter referred to as CCT) have been demonstrated in a wide number of studies (Arata, Langhinrichsen-Rohling, Bowers, & O'Brien, 2007; Cloitre et al., 2009; Finkelhor et al., 2007; Higgins & McCabe, 2001). As well, researchers have found that CCT is especially associated with more severe and complex consequences relative to exposure to a single abusive event, both in childhood and adulthood (Álvarez-Lister, Pereda, Abad, & Guilera, 2014; Briere et al., 2010; Elliott, Alexander, Pierce, Aspelmeier, & Richmond, 2009; Hodges et al., 2013; Putnam, Harris, & Putnam, 2013).

Cumulative Childhood Trauma and Psychosexual Adjustment

Despite a significant body of empirical studies supporting the association between CCT and various negative outcomes, less is known about their specific effects on psychosexual adjustment. Yet, it is likely that CCT has significant impacts in this domain. Interpersonal childhood traumas are essentially relational by nature, tending to occur in close relationships, within which the child is abused or neglected by one or numerous attachment figures. As a result, CCT can lead to intense anxiety, anger, fears of intimacy, and perceived betrayal, abandonment, and loss (Bernstein & Freyd, 2014; Freyd, 1996). When not sufficiently processed, these responses can be evoked or triggered in future attachment-based relationships—perhaps especially in couple relationships, where sexual dynamics can become distorted, threatening, or anxiety-provoking, marked by relational dominance, neglect, and submissiveness (Vaillancourt-Morel et al., 2015).

Although most studies have examined the effects of childhood sexual abuse on adult sexual outcomes (e.g., Bigras, Godbout, & Briere, 2015; Lemieux & Byers, 2008; Rellini, 2008; Rellini, 2014; Vaillancourt-Morel, Godbout, Sabourin, Péloquin, & Wright, 2014), several recent studies indicate that nonsexual childhood victimization can be associated with psychosexual maladjustment as well. Sexual problems are observed in survivors of past physical abuse (Walsh, Latzman, & Latzman, 2014), those exposed to interparental violence (Voisin, Hotton, & Schneider, 2014), and those who have experienced psychological abuse and/or neglect (Norman et al., 2012). Notably, sexual dissatisfaction rates seem particularly high in women with a history of various forms of childhood maltreatment (De Silva, 2001; Lewis et al., 2010; Rellini & Meston, 2007; Rellini, Vujanovic, Gilbert, & Zvolensky, 2012), although this reported gender effect may actually reflect the paucity of studies conducted with men. In one study examining both men's and women's

sexual functioning in a sample of cigarette smokers (Rellini, Vujanovic, & Zvolensky, 2010), for example, no gender differences on levels of sexual satisfaction were reported by survivors of various types of trauma. The underrepresentation of male trauma survivors in sexual outcome studies highlights the need to examine gender differences in the relation between CCT and psychosexual adjustment.

Overall, although current evidence suggests that, as compared to a single type of abuse, CCT specifically predicts increased affective, cognitive, and behavioral dysregulation, there has been very little research on the effects of CCT on sexual disturbance in particular.

CCT, Affect Dysregulation, and Sexual Anxiety

It is well documented that affect regulation capacities are often impaired in trauma survivors (Briere et al., 2010; Cloitre et al., 2009; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Affect dysregulation, which refers to an inability to regulate and/or tolerate negative emotional states (Briere & Runtz, 2002), is thought to develop throughout the life span (Dodge & Garber, 1991), but especially during early interactions with attuned primary caretakers (Bowlby, 1973; Calkins & Hill, 2007). Several clinical formulations suggest that, in the context of interpersonal traumas—perhaps especially in CCT—abuse, neglect, and invalidation may preclude the development of sufficient affect regulation skills; such a deficit can result in overwhelming emotional states when distress cannot be easily down-regulated (Briere & Scott, 2014; Courtois & Ford, 2009; Linehan, 1993). From this perspective, it might be hypothesized that when interpersonal trauma effects (e.g., fear of intimacy, phobic responses to sexual stimuli, and expectations of betrayal) occur in the presence of insufficient affect regulation skills, sexual anxiety is not only evoked, but can be sustained over the long term in a relatively unregulated condition. For example, having been abused or neglected in early significant relationships, the survivor may feel particularly vulnerable in the context of later sexual intimacy, which is likely to trigger painful memories and anxiety (Godbout, Runtz, MacIntosh, & Briere, 2013). Such memory activation, in the absence of a sufficient affect regulation repertoire, might persist into the long term as sustained sexual dysfunction.

Sexual Anxiety and Sexual Satisfaction

Past studies have shown that childhood trauma, limited affect regulation, and high sexual anxiety are negatively associated with sexual satisfaction (Lacelle, Hébert, Lavoie, Vitaro, & Tremblay, 2012; Rellini & Meston, 2011; Staples, Rellini, & Roberts, 2012). These findings suggest the need to examine the potentially mediating effects of affect dysregulation in the relation between CCT and sexual satisfaction. However, despite literature indicating significant associations between CCT and a wide spectrum of negative relational outcomes (Cloitre et al., 2009; Godbout, Briere, Sabourin, & Lussier, 2014; Hodges et al., 2013), their associations with adult psychosexual adjustment and the mechanisms through which CCT may affect sexuality, including those involving gender, remain largely unknown.

Issues in the Study of Childhood Cumulative Trauma

Research on the nature of CCT and its effects have employed a range of conceptual and analytic strategies in their operationalization of CCT, especially in terms of which adverse experiences are

included. Early research often concentrated on the presence of child abuse, primarily co-occurring sexual, physical, and psychological maltreatment (e.g., Briere & Runtz, 1990; Mullen, Martin, Anderson, Romans, & Herbison, 1996), although other research also considered witnessing interparental violence (Edwards et al., 2003; Higgins & McCabe, 1998; Higgins & McCabe, 2000). Some authors subsequently added the experience of neglect, albeit without differentiating psychological from physical neglect (e.g., Dong, Cao, Cheng, Cui, & Li, 2013; Finkelhor et al., 2007; Higgins & McCabe, 1998; Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009). Finally, Finkelhor and colleagues' (2007, 2009) studies of polyvictimization extended the range of child maltreatment measures by including peer bullying, which increasingly has been shown to result in as many, if not more, damaging effects than parental abuse (Lereya, Copeland, Costello, & Wolke, 2015).

In addition to the question of the number and types of trauma to be subsumed under CCT, another issue is the criteria used to determine if an individual can be categorized as having experienced a particular type of trauma. With a few exceptions (e.g., Clemmons, Walsh, DiLillo, & Messman-Moore, 2007; DiLillo et al., 2010; Higgins & McCabe, 2000), this issue remains unresolved, with no clear criteria or guidelines to distinguish above-average levels of exposure to certain forms of adverse relational events relative to lower levels of exposure. For example, although having suffered any sexual abuse is likely to constitute a traumatic experience (Courtois, 2010; Godbout et al., 2014), it is less clear whether one episode of emotional unavailability from parents or a single instance of intimidation by peers can be considered traumatic. In response, DiLillo et al. (2010) suggest that a criterion of one standard deviation above the mean on psychological maltreatment scales could distinguish those whose experiences might be classified as abusive.

The Current Study: Objectives and Hypotheses

We sought in the present study to examine the role of affect dysregulation and sexual anxiety in mediating the relationship between CCT and sexual satisfaction. In a previous study (Bigras, Godbout, & Briere, 2015), using an earlier version of the current sample (257 women and 45 men, as opposed to the 530 women and 90 men studied here), we found that childhood sexual abuse (CSA) was related to sexual anxiety and decreased sexual satisfaction as mediated by reduced self-awareness and a tendency to become involved in conflictual relationships. However, we focused exclusively on CSA, did not include affect regulation as a mediator, and did not evaluate the potential contribution of sexual anxiety in the development of sexual satisfaction (Bigras et al., 2015). In addition, the limited number of male participants in the previous study (Bigras et al., 2015) precluded a test of the gender invariance of the reported model.

In the current study, we conducted path analyses to evaluate the relationships between CCT, sexual anxiety, affect dysregulation, and sexual satisfaction. We also evaluated whether our findings were robust across different operationalizations of CCT, i.e., including sexual abuse or not, and using more or less conservative cutoffs to operationalize CCT. Finally, we sought to test the invariance of our results with reference to gender. Based on previous findings, we hypothesized that (a) affect dysregulation and sexual anxiety would be significant mediators of the relationship between CCT and sexual satisfaction; (b) the model would remain valid across different operationalizations of CCT; and (c) the model would be invariant across gender. In order to evaluate the full range of CCT, eight types of trauma were included in the current study:

(1) CSA, (2) parental physical abuse, (3) parental psychological abuse, (4) parental psychological neglect, (5) parental physical neglect, (6) witnessing psychological interparental violence, (7) witnessing physical interparental violence, and (8) exposure to peer bullying.

METHOD

Participants and Procedure

A total of 530 women (85.5%) and 90 men (14.5%) aged 18 years and older completed a questionnaire assessing early life experiences, affect regulation, sexual anxiety, and sexual satisfaction. Questionnaires were available both in French and English. The study was described as exploring early experiences and romantic relationships. Participants were recruited on a voluntary basis through several different procedures: invitations on social networks such as Facebook and Twitter, invitations to participants to invite friends and relatives, a website hosting psychological research, the university's electronic list of administrative personnel, students, and faculty/staff. Interested participants accessed a hyperlink, which led them to an anonymous survey hosted by the secure website SurveyMonkey, where they electronically signed a consent form. Participation in the study required 30 to 40 minutes and was approved by the University of Quebec in Montreal's Institutional Review Board.

Mean age of the participants was 27.38 years ($SD = 8.78$). Most were Canadian citizens (79.7%, $n = 488$). A majority were students (58.7%, $n = 336$) and 30.1% ($n = 172$) were employed full-time, with 51.6% of the sample reporting an annual income below \$19,999 (Canadian dollars) and 21.5% between \$20,000 and \$39,999. Eighty-six percent ($n = 533$) of participants were French speakers and 14% ($n = 90$) were Anglophones; participants completed the questionnaire in their most fluent language. Most participants were university educated: 42.1% ($n = 263$) had completed an undergraduate degree, and 26.2% ($n = 164$) had completed a graduate degree. Most participants identified themselves as heterosexual (90%, $n = 557$), 2% ($n = 11$) reported being homosexual, and 8% ($n = 52$) self-described as bisexual. Most participants were engaged in a couple relationship and were married (10.6%, $n = 66$), cohabiting (26.4%, $n = 165$), or involved in a relationship without cohabitation (41%, $n = 256$), whereas 22.1% ($n = 85$) were single or had occasional partners.

Measures

All measures were administered through a self-report computerized questionnaire that also assessed sociodemographic variables such as sex, age, marital status, sexual orientation, education, occupation, and annual income.

Childhood Cumulative Trauma

Exposure to childhood maltreatment experiences was assessed using 16 items derived from previous studies of childhood maltreatment (Bremner, Bolus, & Mayer, 2007) and items from Briere and Runtz (1990), Godbout, Dutton, Lussier, and Sabourin (2009), and Godbout et al. (2006) to capture the general acts of omission and commission typical of various forms of maltreatment that individuals can experience before age 18. Each item was assessed on a 7-point

TABLE 1
Items Used to Assess Childhood Cumulative Trauma

Child Sexual Abuse
1. Have you ever experienced unwanted sexual contact in childhood/adolescence OR have you ever experienced sexual contact during childhood/adolescence with an adult, someone in authority, or someone who was five years older than you?
Before the age of 18, how many times did the following items occur? Base your answers on a typical year. Answer by referring to your biological parents or other adults who represented your maternal and paternal figures. My parent has (or both have):
Childhood Physical Abuse
2. Slapped me in the face
3. Burned me with boiling water, cigarette, or other things
4. Hit me, kicked, or punched me
5. Hit me with an object (belt, bat, etc.)
6. Pushed or shoved me
Childhood Psychological Abuse
7. Humiliated me, put me down or ridiculed me
8. Made me feel like I was not important
9. Said I was worthless or said hurtful things
Childhood Psychological Neglect
10. Ignored me, wasn't there when I needed, or seemed not to like me
11. Struggled to understand me as well as my needs
12. Ignored my demands for attention or did not take to me
Childhood Physical Neglect
13. Didn't give me food, regular baths, clean clothes, or medical attention I needed
Psychological Interparental Violence
14. Told nonsense, screamed at each other, or put each other down
Physical Interparental Violence
15. Shoved each other; hit with hands, foot, or other objects; fought or threw objects at each other
Bullying
16. I have been intimidated or harassed by one or more young people (bullying)

Likert scale ranging from 0 (*never*) to 6 (*almost every day*). Eight trauma types were included in this study. CSA (one item) referred to any kind of unwanted sexual contact (e.g., touching, penetration) with an adult or person in an authority position before age 18. For the other types of trauma, participants were asked to base their answer on a typical year before age 18, and to specify how many times each listed event had happened. Indicators of child physical abuse (five items, Cronbach's $\alpha = .83$) included being slapped in the face, burned with a cigarette, punched or kicked, hit with an object, or pushed or shoved by a parent or parental figure. Psychological abuse (three items, $\alpha = .91$) included being put down, ridiculed, ignored, made to feel like they didn't count, or told they were no good by a caretaker. Psychological neglect (three items, $\alpha = .86$) included items referring to a significant lack of psychological care (e.g., ignoring the child, not being present in times of need, or having difficulty understanding his or her needs) and physical neglect (one item) referred to inadequate physical care of the child (e.g., failing to answer the child's primary needs, such as adequate hygiene, provision of clean clothes). Interparental violence was measured through two single-item measures assessing whether the participants had witnessed psychological or physical parental violence during their childhood. Finally, a single

question assessed how frequently participants had experienced bullying. See Table 1 for each of these items.

Each trauma¹ type was coded as not experienced (0) or experienced (1), based on different cutoffs, and summed to produce a total CCT score. Child sexual abuse was coded as experienced (1) when the participant reported at least one occurrence before age 18. Physically related maltreatment (i.e., physical abuse, physical neglect, and witnessing physical interparental violence) was coded as experienced as soon as the individual reported at least one occurrence in a typical year. A more conservative assessment was used for psychological types of maltreatment (i.e., psychological abuse, psychological neglect, witnessing psychological interparental violence, and bullying). Following DiLillo et al. (2010), participants were considered having experienced each type of trauma if they reported more psychological maltreatment or neglect (i.e., one standard deviation above the mean) than the average of the sample. The final CCT score ranged from 0 to 8, with higher scores indicating greater cumulative exposure to multiple forms of trauma.

Affect Dysregulation

The Affect Dysregulation scale of the Inventory of Altered Self-Capacities (IASC; Briere, 2000) was used to assess affect dysregulation. This scale includes nine items assessing the presence, over the last six months, of mood swings, problems in inhibiting anger expression, and the inability to easily regulate dysphoric states without externalization. Items are rated using a 5-point Likert scale (1 = *never*; 5 = *very often*). For the purpose of this study and by agreement with the publisher (Psychological Assessment Resources [PAR]), a French translation of the IASC was created and back-translated to English, at which point the original English version and the back-translated version were compared by the test publisher and test author and approved as equivalent. The original questionnaire showed good reliability in different samples (α ranging between .92 and .97). In the present study, Cronbach's alpha was high ($\alpha = .92$). Based on a normative sample, the IASC also allows the identification of difficulties with affect dysregulation; the manual indicates that scores are clinically elevated when the *t*-score values are equal or greater than 70 (Briere, 2000).

Sexual Anxiety

The sexual anxiety scale from the French version of the Multidimensional Sexuality Questionnaire (MSQ; Snell, Ficher, & Walters, 1993; translated into French and validated by Ravart, Trudel, & Turgeon, 1993) was used to assess sexual anxiety. Sexual anxiety is defined as the tendency to experience tension, discomfort, and anxiety about the sexual aspects of one's life (Snell et al., 1993). This subscale includes five items that are rated on a 5-point Likert scale (0 = *not at all characteristic of me*; 4 = *very characteristic of me*). The items within the subscale were summed, with higher scores indicating greater sexual anxiety. Snell and colleagues (1993) demonstrated the factorial validity of the MSQ subscales and found them not to be contaminated

¹Although psychological maltreatment and neglect do not meet *DSM-5* (American Psychiatric Association, 2013) criteria for trauma per se, we use the term *trauma* more broadly to refer to any potentially severe adverse experience known to have long-term effects.

by social desirability. Cronbach's alphas were satisfactory in both the original ($\alpha = .87$) and in the current study ($\alpha = .89$) (Snell et al., 1993).

Sexual Satisfaction

A French version of the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995) was used to assess satisfaction regarding sexual relationships. According to Lawrance and Byers (1992), sexual satisfaction is defined as “the individual's subjective evaluation of the positive and negative aspects of one's sexual relationships, and his/her subsequent affective response to this evaluation” (p. 124). Participants rated their sexual relationships on five 7-point bipolar scales: good-bad, pleasant-unpleasant, positive-negative, satisfying-unsatisfying, valuable-worthless. Scores varied from 5 to 35, with higher scores indicating greater sexual satisfaction. High two-week test-retest reliability ($r = .84, p < .001$) was reported by the authors. The GMSEX internal consistency reported by the authors in their two samples was also very good (.90 and .96). In the current study, alpha was .93.

Statistical Analyses

Descriptive analyses were conducted to examine the distribution of interpersonal trauma within the sample and correlations were performed to assess the associations between study variables.

Invariance According to Language

Because measures were administered in either French or English according to participant preference, we ran an invariance analysis to determine if our findings held regardless of the language used. Results indicated that the findings reported here were invariant across languages, $\Delta\chi^2(4) = 5.59, p = .23$.

Mediation Model

The hypothesized model was tested using path analyses, with CCT as the exogenous variable, affect dysregulation and sexual anxiety as potential mediators, and sexual satisfaction as the outcome or endogenous variable. Path analysis is a statistical method that allows the simultaneous testing of both direct and indirect associations among different variables (Kline, 2011). It also estimates covariation among variables, considering all paths simultaneously. Analyses were conducted using *Mplus*, version 7 (Muthén & Muthén, 2012). This program accounts for missing data using the full-information, maximum-likelihood estimation method (Muthén & Muthén, 2012). The present study used a cross-sectional design, and the causal order of the entry/sequence of variables was determined based on theory and chronology (i.e., CCT is typically experienced before affect dysregulation and sexual anxiety have been fully developed, and current sexual satisfaction is assessed in adulthood). This theoretically-grounded analytic strategy, often adopted in the trauma literature (e.g., Briere et al., 2010; Godbout et al., 2014), is a routine statistical recommendation for causal analyses (Byrne, 2013).

Adequacy of model fit was assessed through several indices. The following indices were used: the chi-square statistic, the comparative fit index (CFI; Bentler, 1990), and the root mean square

error of approximation (RMSEA; Steiger, 1990). A nonstatistically significant chi-square value, a CFI value of .90 or higher, and a RMSEA value below .06 are considered indicators of good fit (Hu & Bentler, 1999), with a RMSEA 90% confidence interval ranging from 0 to .08 indicating a good precision in assessing model fit. Because chi-square tests are sensitive to sample size (Kline, 2011), we also used the ratio of chi-square to degrees of freedom (χ^2/df). Values less than 5 indicate a satisfactory fit, but a more conservative cutoff value of 3 is ideal (Ullman, 2001).

Examination of indirect effects was performed using *Mplus* model indirect (Muthén & Muthén, 2012). We used 95% bootstrap confidence intervals to verify the significance of indirect effects (MacKinnon & Fairchild, 2009). This bias-corrected method is based on a distribution for the product of coefficients and generated confidence limits for the true value of the coefficient for indirect effects. When zero is not in the confidence interval, the indirect effect is considered significant (Preacher & Hayes, 2004). As noted by Hayes (2013), this method allows the computation of unbiased confidence intervals for specific indirect effects, and thus is considered superior to the method proposed by Baron and Kenny (1986). Next, we computed the ratio of the indirect effect to the total effect (Preacher & Kelley, 2011). A higher value for the ratio indicates a greater contribution of the mediators in the relationship between the independent variable and the dependent variable.

Gender Invariance

Between-gender differences were tested using a multiple group analysis. Models are compared using a chi-square difference test; a significant univariate incremental chi-square value ($p < .05$) indicates evidence of differences across men and women.

Mediation Model With Alternative Assessment of Cumulative Trauma

Because there is no definite consensus on the conceptualization and assessment of CCT, and to test the stability of our model using different operational criteria, four alternative models were examined. First, CCT (ranging from 0 to 8) was recomputed using only “severe” indicators of physical violence (i.e., having been burned with boiling water, a cigarette, or another object; having been hit with an object like a belt or a stick; having been kicked or punched). Second, physical abuse was removed from the CCT variable in order to determine if the model held without experience of direct physical violence. Third, CSA was excluded from the CCT variable to examine if the model held for solely nonsexual traumas (resulting in a new CCT variable, ranging from 0 to 7). Fourth, because of the relatively recent addition of bullying to the list of CCT, a model excluding bullying in the CCT variable (ranging from 0 to 7) also was tested. Finally, we assessed a model replicating a more liberal operationalization of CCT (ranging from 0 to 8) in which any report of psychological neglect or violence in a typical year (i.e., not just those with one standard deviation above the mean) was coded 1, as per some other studies (e.g., Briere et al., 2010). Satisfactory adjustment indices and similar patterns of significant relationships were considered as indicators that the models held across CCT conceptualizations.

TABLE 2
Prevalence Rates by Types and Number of Experienced Childhood Trauma

<i>Type of Trauma</i>	<i>%</i>	<i>n</i>
1. Child sexual abuse (at least once before age 18)	23.1	142
2. Physical abuse (at least one time in a typical year)	39	238
Severe physical abuse (with only severe acts)	25	152
3. Physical neglect (at least one time in a typical year)	6.1	37
4. Witnessing physical abuse (at least one time in a typical year)	15.4	93
5. Emotional abuse (1 <i>SD</i> above average)	16.0	98
6. Emotional neglect (1 <i>SD</i> above average)	15.8	96
7. Witnessing emotional abuse (1 <i>SD</i> above average)	22.8	139
8. Bullying (1 <i>SD</i> above average)	14	85

Notes. The criteria used to compute the prevalence rates are presented in parentheses.

Severe acts of physical abuse are referring to “having been burned with boiling water, a cigarette, or another object; having been hit with an object like a belt or a stick; having been kicked or punched.”

RESULTS

Descriptive Statistics

Rates of Childhood Trauma

Table 2 presents prevalence rates for each individual trauma type used to compute the CCT variable. In the current sample, 60.1% ($n = 358$) of participants reported having experienced at least one type of childhood trauma, with physical abuse being the most prevalent form of maltreatment. Among the subsample of participants who reported a history of adverse interpersonal experiences, the mean number of trauma was 2.51 ($SD = 1.80$), with 57.9% ($n = 207$) of participants having experienced at least two types of trauma.

In order to describe more precisely the co-occurrence of childhood maltreatment, data were examined to identify the most prevalent combinations of trauma. Results showed that among participants who experienced two types of interpersonal trauma ($n = 74$), the most frequent combination was physical abuse and sexual abuse (21.6%, $n = 16$). Among participants who reported three types of trauma ($n = 42$), the most frequent combinations were (a) physical abuse, psychological neglect and sexual abuse (9.5%, $n = 4$), (b) physical abuse, witnessing psychological violence, and bullying (9.5%, $n = 4$), and (c) physical abuse and witnessing both physical and psychological violence (9.5%, $n = 4$). For participants who experienced four types of trauma ($n = 34$), the most prevalent combinations were physical abuse, witnessing physical violence, witnessing psychological violence, and bullying (26.5%, $n = 9$). Finally, among those who reported five types of trauma ($n = 26$), the most occurring combination was physical abuse, psychological abuse, psychological neglect, witnessing psychological violence, and bullying (23.1%, $n = 6$).

Correlations, Means, and Standard Deviations

Correlation coefficients, means, and standard deviations across gender for all variables are reported in Table 3. Bivariate correlations indicated that all variables were significantly related

TABLE 3
Correlation Coefficients, Means, and Standard Deviations for Cumulative Trauma, Affect Dysregulation, Sexual Anxiety, and Sexual Satisfaction

Variable	1	2	3	4	Women		Men		Total Sample	
					M	SD	M	SD	M	SD
1. Cumulative trauma	—	.32**	.03	-.22*	1.52	1.86	1.29	1.75	1.51	1.86
2. Affect dysregulation	.36**	—	.33**	-.40**	16.15	7.51	15.05	6.95	16.08	7.55
3. Sexual anxiety	.16*	.40**	—	-.43**	4.95	5.14	6.37	5.20	5.16	5.16
4. Sexual satisfaction	-.19**	-.28**	-.50**	—	27.39	6.33	26.69	8.10	27.32	6.63

Notes. Correlations for women (*n* ranged between 404 and 508) are presented below the diagonal, and correlations for men (*n* ranged between 74 and 82) are presented above the diagonal. Correlation for women (in boldface; *n* ranged between...) are presented below the diagonal.

p* < .05. *p* < .01. ****p* < .001.

in both men and women, with the exception of CCT and sexual anxiety in the male subsample. Differences were observed in the mean scores of sexual anxiety between men and women, with men reporting greater sexual anxiety $F(1,469) = 5.08, p < .05, \eta^2 = .01$. However, no gender differences were observed in the mean scores of CCT, affect dysregulation, and sexual satisfaction.

Descriptive Data by Number of Trauma Experiences

Table 4 shows detailed descriptive statistics by number of childhood traumas experienced. Results suggest that affect dysregulation, sexual anxiety, and sexual dissatisfaction tend to increase as a function of the number of trauma types experienced. Given that a clinical cutoff is available for affect dysregulation, the rates of participants reporting clinically significant problems of affect dysregulation are presented by the number of trauma.

TABLE 4
Descriptive Statistics by Number of Childhood Trauma Experienced

Number of trauma	%	n	Affect Dysregulation							
					In the clinical range		Sexual Anxiety		Sexual Satisfaction	
			M	SD	%	n	M	SD	M	SD
0	39.9	238	14.06	5.95	14.8	34	4.81	4.94	28.18	5.91
1	25.3	151	15.59	6.88	20.1	29	5.25	5.28	27.27	6.11
2	12.4	74	16.19	6.99	22.4	15	3.86	4.11	27.73	7.44
3	7.0	42	17.95	7.32	35.0	14	5.61	5.53	26.82	6.92
4	5.7	34	19.01	9.83	32.4	11	6.06	6.14	26.39	7.14
5	4.4	26	21.74	10.93	43.5	10	5.90	5.77	26.75	7.51
6	2.7	16	25.43	10.67	71.4	10	7.43	5.54	22.15	8.74
7	1.5	9	19.57	7.66	42.9	7	7.88	6.58	27.00	7.63
8	1.0	6	25.17	8.16	66.7	4	6.60	3.29	19.20	10.92

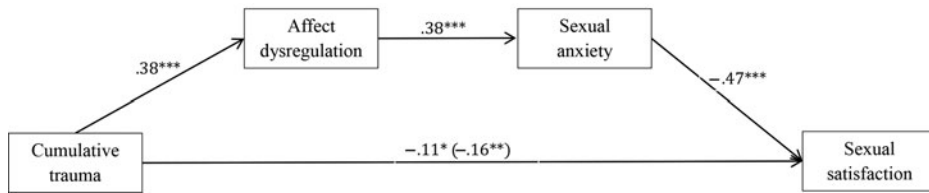


FIGURE 1 Path analysis model for cumulative trauma, affect dysregulation, sexual anxiety, and sexual satisfaction. Coefficient in parentheses is the direct link before the inclusion of mediators. Standardized coefficients are presented. * $p < .05$. ** $p < .01$. *** $p < .001$.

Integrative Model of the Associations Between Cumulative Trauma, Affect Dysregulation, Sexual Anxiety, and Sexual Satisfaction

Mediation Model

Path analysis was first performed to examine the direct association between CCT and sexual satisfaction, with results indicating a negative relationship ($\beta = -.18, p = .001$). The direct link between CCT and sexual anxiety was also examined, indicating a positive relationship ($\beta = .14, p = .003$). The mediational model was next examined. Fit indices indicated that the specified model was a good representation of the data, $\chi^2(2) = 2.68, p = .26, \chi^2/df = 1.34, CFI = 1.00, RMSEA = .02$, with 90% CI [.00, .09]. As illustrated in Figure 1, CCT predicted higher affect dysregulation, which in turn led to more sexual anxiety. Sexual anxiety significantly predicted lower sexual satisfaction. Tests of indirect or mediation effects revealed that the product coefficient for the path from CCT to sexual satisfaction, passing through both affect dysregulation and sexual anxiety, was significant ($b = -.25, 95\%$ bootstrap CI $[-.37, -.16]$), supporting the mediational role of affect dysregulation and sexual anxiety. However, the direct association between CCT and sexual satisfaction remained significant, suggesting partial, as opposed to full, mediation. The ratio of the total effect of CCT on sexual satisfaction passing through affect dysregulation and sexual anxiety was .37. Tests of indirect effects revealed the product coefficient for the path from CCT to sexual anxiety via affect dysregulation, was significant ($b = .42, 95\%$ bootstrap CI $[.28, .59]$), indicating mediation. The direct link between CCT and sexual anxiety became nonsignificant, suggesting full mediation through affect dysregulation. Overall, this integrative model explained 14% of the variance in affect dysregulation, 15% in sexual anxiety, and 25% of the variance in sexual satisfaction.

Gender Invariance

The path analysis model was first assessed simultaneously in women and men, allowing all paths to be freely estimated (testing configural invariance), to ensure that the model held for both genders. Results revealed a good-fitting multigender model: $\chi^2(4) = 5.78, p = .22, \chi^2/df = 1.44, CFI = .99, RMSEA = .04, 90\%$ IC (.00 to .10). This freely estimated model was then compared to a more restrictive model in which all paths were constrained to be equal across men and women. Models are compared using a chi-square difference test; a significant univariate

incremental chi-square value ($p < .05$) indicates evidence of differences across men and women. Results of this first step yielded a nonsignificant chi-square difference, $\Delta\chi^2(4) = 1.32, p = 0.86$, indicating that the paths were similar across gender. The latter model was then compared to another model in which paths, variances, and covariances were constrained to be equal across men and women. Again, results indicated a nonsignificant chi-square difference between the path-constrained model and the fully constrained model, $\Delta\chi^2(4) = 7.95, p = 0.09$, suggesting that the model was gender invariant.

Mediation Model With Alternative Assessment of Cumulative Trauma

Results of the five alternative models yielded no meaningful difference in the significance, strength, or pattern of the model coefficients, nor in the fit characteristics of the resultant model: (a) conservative marker of physical abuse in CCT: $\chi^2(2) = 2.48, p = .29, \chi^2/df = 1.24, CFI = 1.00, RMSEA = .02$ with 90% CI [.00, .09]; (b) physical abuse removed from the CCT variable: $\chi^2(2) = 2.38, p = .30, \chi^2/df = 1.19, CFI = 1.00, RMSEA = .02$ with 90% CI [.00, .09]; (c) CSA excluded from the CCT variable: $\chi^2(2) = 3.34, p = .18, \chi^2/df = 1.67, CFI = .99, RMSEA = .03$ with 90% CI [.00, .09]; (d) bullying removed from the CCT variable: $\chi^2(2) = 3.01, p = .22, \chi^2/df = 1.51, CFI = 1.00, RMSEA = .03$ with 90% CI [.00, .09]; and (e) more liberal operationalization of emotional maltreatment in the CCT variable: $\chi^2(2) = 3.34, p = .19, \chi^2/df = 1.67, CFI = .99, RMSEA = .03$ with 90% CI [.00, .09]. These additional analyses confirmed that the model held independently of the measurement of CCT in its prediction of psychosexual adjustment.

DISCUSSION

This study aimed to examine an integrative model of CCT, affect dysregulation, sexual anxiety, and sexual satisfaction. Findings suggest that CCT is associated with increased affect dysregulation, which interferes with the modulation of sexual anxiety, which, in turn, is associated with lower sexual satisfaction. Moreover, the results suggest that this model is invariant across men and women, and holds for English and French languages.

These findings add to growing empirical support for the notion that CSA is associated with a range of adult adverse sexual outcomes, including sexual dissatisfaction, negative sexual schemas, and sexual dysfunction. However, along with a few other studies (Voisin et al., 2014; Walsh et al., 2014), the present findings further suggest that the association between childhood trauma and sexual outcomes is not specific to CSA—even when excluding childhood sexual trauma, CCT continues to predict adult sexual dissatisfaction and anxiety.

Our findings that affect dysregulation mediates the association between CCT and sexual anxiety, and that both affect dysregulation and sexual anxiety partially mediate the association between CCT and sexual satisfaction, supports the hypothesis that core emotional effects of CCT (e.g., anger, fear, guilt, hopelessness, loneliness, shame) may, in the context of a limited emotional regulation repertoire, affect the development of sexual attitudes and behaviors in intimate relationships. Specifically, exposure to multiple forms of child maltreatment may lead not only to negative emotional states, but also to a relative incapacity to regulate those states, which, in turn, is likely to affect the quality of adult sexual experiences. At the extreme end of

this CCT effect, we found that clinical levels of affect dysregulation were present in 32% of individuals reporting four or more types of childhood abuse or neglect.

Sexuality may represent a particularly challenging developmental concern for survivors of CCT because it involves relational intimacy and proximity, which can trigger unprocessed and affectively laden, trauma-related memories. Survivors of CCT have, by definition, experienced a variety of potentially traumatic interpersonal experiences, often involving multiple individuals over time. As a result, they may have developed widely generalized negative assumptions and expectations regarding intimate relationships, sometimes with high sexual anxiety, along with low tolerance for negative emotions. As such, the current findings extend the breadth of modern trauma theory, in which affect dysregulation is viewed as a major sequel of extended child maltreatment (e.g., Courtois & Ford, 2009), to include the effects of CCT on adult sexuality. These findings also have implications for the work of Rellini and colleagues (2012; Rellini et al., 2010) by documenting the role of affect dysregulation in the sexual difficulties of CCT survivors, for both men and women.

Rates of CCT and Most Prevalent Combinations

As expected, the current study documents a relatively high prevalence of CCT among nonclinical individuals. Across various models of CCT, we found that physical abuse was the most prevalent type of childhood maltreatment. For example, when only the most severe criteria (i.e., slapped in the face, burned with a cigarette, punched or kicked, or hit with an object) were considered, physical abuse was still experienced by 25% of participants. Because specific patterns of maltreatment behaviors are generally not reported in studies on CCT, meaningful comparison of this prevalence rate with other studies is difficult. However, in recent meta-analyses and epidemiological studies (e.g., Stoltenborgh, Bakermans-Kranenburg, van IJzendoorn, & Alink, 2013), rates of physical abuse also were found to be high, ranging from 23% to 28%, especially when multiple-item measures were used. Thus, the pervasiveness of physical abuse that we observed in this study is probably normative in North American culture. In addition to the likelihood that physical abuse is highly represented in CCT simply because of its high prevalence, physical violence may also be especially implicated in cumulative trauma because it can signal more severe family adversity and dysfunction, which, in turn, may increase the likelihood of psychological abuse, neglect, and other forms of maltreatment. For example, child physical abuse appears to be associated with disinhibited parental aggression that not only leads to child abuse, but also to intimate partner physical or psychological violence (Herrenkohl et al., 2008), which may decrease the ability of nonabusive family members (especially the nonoffending partner) to protect the child from harm.

Beyond physical abuse, the current study documented high rates (6% to 23%) for all other forms of child maltreatment. Rates of child sexual abuse (23%) and witnessing interparental violence (15.4% physical; 22.8% psychological) in this study were in the same range as described in other studies (e.g., Evans, Davies, & DiLillo, 2008; Godbout et al., 2006), as was the prevalence of bullying (14%) (e.g., Currie et al., 2012). Regarding the latter, this is one of the first studies to highlight the potential significance of bullying in CCT conceptualization. The current findings suggest that persistent bullying, which commonly emerges in school-age children (Hase, Goldberg, Smith, Stuck, & Campaign, 2015), contributes to the consequences of CCT in adulthood. Although this hypothesis should be more fully tested, our results support the notion that future studies of CCT should include bullying as one of its central components, and that, as suggested by

Lereya et al. (2015), this form of childhood trauma may have significant long-term effects. More broadly, the apparent validity of adding bullying to indices of CCT supports Finkelhor et al.'s (2009) recommendation that researchers consider the full range of polyvictimization phenomena when conceptualizing childhood trauma.

In line with suggestions by other researchers (e.g., DiLillo et al., 2010), we computed multiple possible indicators of CCT in the present study. The addition of psychological abuse and neglect to CCT was potentially challenging because, unlike sexual and physical abuse, which are typically defined using a well-established set of behaviors, the subtle nature of psychological maltreatment and unavailability makes it difficult to distinguish “inappropriate but sub-threshold parenting from clearly abusive practices” (DiLillo et al., 2010, p. 315). By using a cutoff of one standard deviation above the mean as a threshold for psychological abuse, we found—as would be predicted based on the normal distribution—a prevalence of 14%, a proportion that generally matches the findings of other studies (e.g., Clemmons et al., 2007; DiLillo et al., 2010). In the case of neglect, however, comparison to the literature could not be made because physical and psychological neglect rarely have been separated in past research.

Despite potential variation in what traumas were included, and the threshold for considering a form of maltreatment as present, however, our overall model of the role of CCT held, regardless of the way in which CCT was defined. This result is in general agreement with the conclusions of Cloitre et al. (2009), i.e., that there is something particularly injurious about experiencing a number of different types of childhood trauma, such that CCT can lead to both high emotional distress and relatively low affect regulation. Our findings suggest that a range of forms of childhood maltreatment can be subsumed under the CCT rubric, and that the effects may extend beyond the classic indicators of psychological disturbance to include sexual dissatisfaction.

Limitations and Further Study

Although this study presents an integrative mediational model of the association between CCT, affect dysregulation, and psychosexual adjustment, it has certain limitations. First, the retrospective design may have contributed to biases in recall of CCT due to memory distortion triggered by distress associated with the trauma-related items. However, analysis of retrospective reports suggests that such potential biases do not systematically affect assessment of the association between child trauma and later outcomes (Brewin, Andrews, & Gotlib, 1993). Moreover, recent meta-analytic results from Jaffe, DiLillo, Hoffman, Haikalis, and Dykstra (2015) suggest that individuals generally report a positive experience with regard to their participation in trauma-related research, and do not regret participating in such studies, regardless of their trauma history.

A second potential issue is that, because the study was cross-sectional and retrospective in design, causality cannot be inferred from these results alone. We attempted to address this shortcoming by using path analysis, which tested whether the current data support a specific causal hypothesis, i.e., that CCT leads to affect dysregulation, which increases sexual anxiety and decreases sexual satisfaction. However, longitudinal studies are needed to confirm the findings and better examine the complex interplay of cumulative traumatic experiences, affect regulation skills, and psychosexual adjustment.

An online survey was used in the present research to facilitate access to a large and diverse community sample. This recruitment method may raise some selection-bias concerns, but studies examining psychological research on the Internet suggest that advantages to its use far outweigh

its costs (Gosling & Mason, 2015). For example, using the Internet allows researchers to recruit beyond the traditional college student pool, resulting in a more diverse and representative sample of the general population (Gosling, Vazire, Srivastava, & John, 2004).

Finally, the current study examined only two indices of sexual disturbance: sexual anxiety and sexual dissatisfaction. Future studies examining a range of psychosexual variables are needed to expand our understanding of CCT-related sexual outcomes, including various forms of sexual dysfunction, as well as dyadic aspects of sexual functioning and well-being. Indeed, as noted by Dewitte (2014), including data for both partners when studying sexual and nonsexual aspects of relationships is crucial for a deeper understanding of the nature and extent of sexual problems and symptoms. This recommendation is especially relevant to survivors of CCT, who may be particularly vulnerable to the impact of their partner's responses before, during, and following sexual exchanges.

Practical Implications

The current study has implications for researchers and practitioners. First, it supports the validity of examining the deleterious impacts of CCT on the survivors' psychosexual adjustment, as opposed to solely on nonsexual psychological functioning. It further suggests the merit of studying gender differences in CCT survivors' psychosexual adjustment, ideally using gender invariance tests within a path analytic model.

Beyond the intuitive assumption that sexual difficulties can be linked to sexual trauma, the present research indicates that they can also be affected by an accumulation of nonsexual childhood traumas. The findings therefore support the clinical appropriateness of routinely assessing the presence and co-occurrence of early adverse relational experiences, both sexual and nonsexual, as potential risk factors for impairments in the sexual sphere. Second, phenomena that mediate the impact of CCT—for example, those found in the current study—may represent key intervention targets in treating sexual problems. In this regard, trauma-relevant interventions such as emotional processing (e.g., titrated exposure; Briere & Scott, 2014) and affect skills development (e.g., Cloitre, Koenen, Cohen, & Han, 2002) may be helpful in decreasing sexual anxiety and increasing affect regulation capacity, potentially affecting sexual satisfaction.

Most broadly, attention to emotional regulation difficulties and fearful apprehension regarding sexuality in a therapeutic setting is likely to be a promising way to help CCT survivors gain the opportunity to freely enjoy their sexual life. This may be most helpful in the context of a caring and supportive relationship (Cloitre et al., 2002; Courtois & Ford, 2009; Paivio & Kunzle, 2007), where traumatic events and their effects can be discussed and processed, and emotional skills can be developed.

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