



Childhood Maltreatment and Mid-Life Adult Sexuality: A 10-Year Longitudinal Study

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Abstract

One important long-term outcome of childhood maltreatment is thought to be impairments in intimate relationships. However, the specific nature of these impairments is not well understood. To address this gap, we examined the long-term relation of sexual, emotional, and physical abuse/neglect to four key aspects of sexuality in women and men: importance of sex, intimacy in sex, pain during sex, and pleasure during sex. As part of the U.S. longitudinal National Survey of Midlife Development, 807 participants in their mid-life (410 women, 397 men) completed measures of recollected childhood maltreatment and current aspects of adult sexuality. These measures were obtained at baseline (at which time the mean age was 53.28 years (SD = 10.97) and again 10 years later. For women at baseline, emotional abuse was positively associated with pleasure, emotional neglect was negatively associated with intimacy and with pleasure, physical abuse was positively associated with pain, and physical neglect was associated with importance of sex. For men, no significant associations were found. Prospectively, for women, sexual abuse predicted increases in pleasure during sex, and physical abuse significantly predicted increases in pain during sex. For men, physical neglect significantly predicted increases in pain. We discuss these sex differences and the role these results may play in the detrimental long-term effects of childhood maltreatment.

Keywords Childhood maltreatment · Sexuality · Intimacy · Pain during sex · Pleasure during sex

Introduction

Childhood maltreatment has a wide array of adverse consequences for adult functioning (e.g., Colangelo & Keefe-Cooperman, 2012; Norman et al., 2012). One domain that is thought to be particularly impacted is the domain of social relationships. These effects are evident both in social functioning in general (Crawford & Wright, 2007), and in intimate relationships in particular (DiLillo et al., 2007). In this study, we used a large, nationally representative longitudinal design to examine the contributions of childhood maltreatment to one aspect of adult intimate relationships, namely adult sexuality, with a focus on

importance of sex, intimacy in sex, pain during sex, and pleasure during sex.

Childhood Maltreatment

The plethora of mass-media reports, studies, and surveys across the globe have led to the recognition that childhood maltreatment constitutes a major public-health and social-welfare problem (Gilbert et al., 2009). Childhood maltreatment includes sexual abuse, emotional abuse, emotional neglect, and physical abuse, and neglect (Goodman et al., 2010).

Childhood sexual abuse is defined as attempted or actual sexual contact between a child and caregiver or other adult for sexual gratification or financial gain (Barnett et al., 1993). A meta-analysis of studies conducted among non-clinical populations concluded that approximately 18% of the women and 7.6% of the men reported experiences of childhood sexual abuse (Stoltenborgh et al., 2011). Childhood sexual abuse has been found to be related to poor psychological (Briere & Runtz, 1993) and physical health (Maniglio, 2009).

Childhood emotional abuse and childhood emotional neglect are defined as persistent and/or severe denial of the child's

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emotional needs for love, encouragement, sense of belonging, and support (Bernstein & Fink, 1998; Cicchetti & Toth, 2005). A recent meta-analytic review concluded that childhood emotional abuse has not received sufficient empirical attention, despite its high prevalence among non-clinical samples, estimated as 38.4% for women and 36.3% for men, and negative consequences (Stoltenborgh et al., 2012). Childhood emotional abuse and childhood emotional neglect often exact a heavy toll in terms of the adult's well-being (Webb et al., 2007).

Childhood physical abuse refers to infliction of bodily injury on a child by non-accidental means (Bernstein & Fink, 1998; Cicchetti & Toth, 2005) and includes practices such as kicking, shaking, throwing, burning, stabbing, and/or strangling (Kaplan et al., 1999). A meta-analysis of studies conducted among non-clinical populations concluded that approximately 22.6% of the women and 7.6% of the men reported experiences of childhood physical abuse (Stoltenborgh, 2011). Childhood physical abuse has been known for its negative long-term implication in terms of one's well-being (Norman et al., 2012).

Childhood physical neglect is defined as a lack of fulfillment of the basic physical needs of food, housing, security and supervision (Barnett et al., 1993; Bernstein & Fink, 1998; Cicchetti & Toth, 2005), which can be seen through the child's external appearance, in his/her lack of hygiene, and/or the absence of the child's supervisor. The frequencies of childhood physical neglect are estimated as 16.3% for both men and women (Stoltenborgh et al., 2013). Childhood physical neglect has negative long-term implications for physical health, mental health, and general quality of life (Leeb et al., 2011).

Childhood Maltreatment and Social Functioning

Childhood experiences of abuse and neglect are often characterized by a violation of trust in significant relationships (Freyd, 1998), which highlights the potential negative effects of abuse on social interactions via an undermining of a sense of security and trust in relationships (Cole & Putnam, 1992). This expectation of a link between childhood maltreatment, on the one hand, and impaired social functioning, on the other, is born out by a wide range of studies.

More specifically, childhood sexual abuse predicts enduring interpersonal difficulties (Herman, 1992; van der Kolk et al., 2005), social impairment and maladjustment (Maniglio, 2009), and difficulties in being assertive both in interpersonal relationships (Classen et al., 2001) and within the family (Roberts et al., 2004). These social impairments include isolation from social interactions and dissatisfaction with social interaction in general (Melssen, 2013). Adults who were exposed to childhood sexual abuse also tend to be involved in damaging and harmful intimate relationships characterized by abuse, violence, and a general sense of dissatisfaction (Crawford & Wright, 2007; Renner & Slack, 2006; Selby et al., 2008). However, the

implications for difficulties in intimate relationships in general, and sexuality in particular, are not well understood.

Childhood emotional abuse and childhood emotional neglect predict rejection expectancy, mistrust, dislike, and emotional indifference in social relationships (Berenson & Andersen, 2006). Adults who were exposed to childhood emotional abuse and childhood emotional neglect may also face difficulties when attempting to increase intimacy (Wright et al., 2009). Although there are studies showing that childhood emotional abuse and childhood emotional neglect have implications for social functioning in general, little is known about the link between childhood emotional abuse, childhood emotional neglect, and intimacy and sexuality in adult relationships.

Childhood physical abuse was found to have significant negative effects on social well-being, especially in the context of relationships with family members and peers (Weber et al., 2016). Reduced language abilities, which are often connected to social-emotional development, were observed among physically abused children (Lum et al., 2015; Pina, 2018). Altogether, childhood physical abuse was related to low adaptive social functioning, particularly as manifested by intense aggression (Lamis et al., 2014; Salzinger et al., 1993). Although adults with physical abuse histories reported less intimacy in relationships compared to a control group (Davis et al., 2001), little is known about the link to sexuality within these relationships.

Similarly, childhood physical neglect was found to be related to deficits in social functioning, as manifested by the tendency to be involved in social conflicts (Kaplan et al., 1999). Among adults who present for treatment, those exposed to physical neglect during their childhood showed higher levels of social and functional impairments compared to those without neglected histories (Gil et al., 2009). Moreover, a prospective study of both men and women who were physically neglected as children revealed difficulties in intimate relationships (Colman & Widom, 2004). However, less is known about the relation between childhood physical neglect and later sexuality.

Childhood Maltreatment and Adult Sexuality

Human sexuality is thought to include multiple components (Dennerstein & Emma Dudley, 2001; Snell et al., 1993), including sexual attitudes (as articulated by the importance attributed to sex and levels of intimacy) and satisfaction with sexual activity (pain and pleasure). Extrapolating from the literature on different types of childhood maltreatment and social functioning, we might expect childhood maltreatment to have negative effects on each of these aspects of adult sexuality.

One of the primary sexual symptoms of adults who were maltreated as children is a lack of sexual desire (Kinzl et al., 1995), despite the tendency to be involved in high-risk frequent sexual behaviors (Roller et al., 2009). This pattern of fluctuation between hypo- and hypersexuality among individuals who were exposed to childhood maltreatment has been observed in other

studies as well (for a systematic review see Rellini, 2008). In addition, women who were exposed to childhood sexual abuse have been shown to have more negative experiences with sex compared to a control group (Schloretdt & Heiman, 2003), and the sexual activity is often marked by negative attitudes and connected to concepts of shame and confusion (Staples et al., 2012). Because the vast majority of the research literature focuses on sexual dysfunction of women with childhood sexual abuse histories (e.g., Sarwer & Durlak, 1996; Zwickl & Merriman, 2011), little is known about the impact of childhood sexual abuse in men (Ahmad, 2006; Bigras et al., 2015).

It is known, however, from previous studies on sexuality in non-maltreated samples that men tended to report high levels of satisfaction and more positive attitudes toward sexuality, as manifested by high levels of sexual arousal (e.g., Chivers et al., 2004) and sexual fantasies (e.g., Ellis & Symons, 1990). In contrast, women tended to express more negative attitudes toward sexuality, manifested by lower levels of desire and the tendency to be engaged passively during intercourse, and to emphasize its intimacy-related aspects (Peplau, 2003). However, these general tendencies may be context dependent. In particular, in the context of long-standing intimate relationships, sexual desire discrepancies between men and women seem modest to non-existent, while the general satisfaction from the relationships seems to be a major factor (Santtila et al., 2007; Willoughby et al., 2014).

These gender differences in the general population raise the issue of whether childhood maltreatment might have a different impact on men and women. Unfortunately, few studies have examined sexuality in men with childhood maltreatment histories. Of the studies that have been conducted, most have focused on the physical aspect of sexuality, labeled sexual arousal (Easton et al., 2011; Najman et al., 2005), but overlooked other aspects, and have used cross-sectional designs, and thus have not examined change over time.

The Present Study

The goal of the present study was to clarify the links between childhood maltreatment, on the one hand, and adult sexuality, on the other, with attention to each gender. To achieve this goal, we assessed retrospective reports of childhood maltreatment and current adult sexuality in the context of a large, nationally representative longitudinal study. This enabled us to examine the associations between childhood maltreatment and adult sexuality in men and women at two different time points, allowing us to examine stability and change over a 10-year period. Based on work conducted to date, we hypothesized that childhood maltreatment would be associated with more negative attitudes and less satisfaction in both men and women, at baseline and over time. More specifically, we hypothesized that childhood maltreatment would be negatively associated with *sexual attitudes* (as articulated by the importance attributed to sex and

levels of intimacy) at baseline and over time and negatively associated with pleasure during sex and positively associated with pain during sex. Given that it is hard to fashion specific hypotheses for specific types of childhood maltreatment based on the literature to date, a secondary goal was to examine whether this relation varies by childhood maltreatment type. Moreover, although there is a general agreement that childhood sexual abuse has a very negative effect, in one meta-analysis this consensus was challenged (Rind et al., 1998) although this meta-analysis by itself has been criticized (Dallam et al., 2001). This leaves open the important question of the impact of childhood sexual abuse.

Method

Participants and Procedure

We used data from the National Survey of Midlife Development in the United States (MIDUS) project. MIDUS began in 1995–1996 with a random digit dial probability sample of non-institutionalized, English-speaking residents of the contiguous U.S. between the ages of 24 and 74 (Ryff et al., 2017). Follow-up surveys were administered in 2004–2006 (Wave 2) and in 2013–2014 (Wave 3). The MIDUS project consists of several nationwide data sets that span over 20 years (Love et al., 2010). Childhood maltreatment data were available in one of the data sets that involve a subset of MIDUS II respondents (Biomarkers Data). Prospective data on sexuality outcome variables were drawn from MIDUS II for the baseline and MIDUS III for the ten-year follow-up. At baseline, a total of $N=807$ (397 men, 410 women) participants responded to the sexuality items used in this study, of which a total of $N=478$ (242 men, 236 women) participants completed the same items 10 years later. Mean age at baseline was 53.28 ($SD=10.97$) with a range of 34 to 83. The majority of participants identified themselves as married (83.4%), heterosexual (96.3%), white (93.1%), with a college or higher education (77%). More information about the project and data sets can be found on the project's website (<http://midus.wisc.edu/data/index.php>).

Completers and non-completers differ on their age, levels of exposure to physical and emotional neglect, and two of the sexuality variables. More specifically, no significant differences were observed in exposure to physical abuse ($t(824) = .85, p = .40$), sexual abuse ($t(824) = -.12, p = .91$), and emotional abuse ($t(824) = 1.66, p = .10$). However, non-completers reported higher levels of physical neglect ($M=6.94, SD=2.74$) than completers ($M=6.45, SD=2.48$), $t(824)=2.67, p < .01$, and also higher levels of emotional neglect ($M=10.04, SD=4.59$) than completers ($M=9.29, SD=4.19$), $t(824)=2.45, p < .05$.

No significant difference was observed in pain during sex at baseline ($t(799)=1.39, p = .17$). However, completers

reported higher levels of importance in sex at baseline ($M=3.07$, $SD=.80$) than non-completers ($M=2.87$, $SD=.92$), $t(805) = -3.18$, $p < .001$. Completers also reported higher levels of intimacy in sex at baseline ($M=3.28$, $SD=.85$) than non-completers ($M=3.16$, $SD=.90$), $t(803) = -1.98$, $p < .05$, and higher levels of pleasure during sex at baseline ($M=3.32$, $SD=.73$) than non-completers ($M=3.11$, $SD=.84$), $t(800) = 3.68$, $p < .001$.

Measures

Childhood Maltreatment

Childhood maltreatment was assessed with the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003), which consists of 28 items reflecting five forms of childhood maltreatment: sexual abuse, childhood sexual abuse (e.g., "Was touched sexually," "Was hurt if didn't perform a sexual act that was requested"); emotional abuse, childhood emotional abuse (e.g., "Was called names by family members," "Felt that parents wished I was never born"); emotional neglect, childhood emotional neglect (e.g., "Felt loved"—reverse scored; "Was made to feel important"—reverse scored); physical abuse, childhood physical abuse (e.g., "Hit hard enough to see a doctor," "Hit severely enough that bruises were noticed"); and physical neglect, childhood physical neglect (e.g., "Did not have enough to eat," "Wore dirty clothes"). The items were rated on a five-point scale with response options ranging from 1 (*never true*) to 5 (*very often true*). Sum scores were used, with higher scores representing greater levels of childhood maltreatment. Bernstein and Fink (1998) demonstrated high structural validity (via confirmatory factor analysis) and high convergent validity of the CTQ (via positive correlations with therapist's ratings ($r = .36-.75$, $p < .01$) and with Childhood Trauma Interview Severity Ratings (CTISR; $r = .42-.58$, $p < .01$). The following common cutoff norms were used to identify participants with no/low levels of childhood maltreatment versus those with maltreatment histories: sexual abuse > 5 , emotional abuse > 8 , physical abuse > 7 , emotional neglect > 9 , and physical neglect > 7 (MacDonald et al., 2016). Alpha reliability of the emotional abuse scale was .88, sexual abuse .93, physical abuse .80, physical neglect .71, and emotional neglect .89.

Adult Sexuality

Four aspects of sexuality were measured, each of them through single question, as is typical in field surveys of this type (e.g., Barrientos & Páez, 2006; Higgins et al., 2011). The first is the place that sex has within one's relationship ("To what extent would you say that sexual expression is an important part of your relationships?"). The second is the presence of emotional intimacy within the sexual relationship ("To what extent would you say that your sexual relationships include emotional

intimacy?"). Both items were measured using a scale of 1 (*a lot*) to 4 (*not at all*) and were recoded so that high scores reflected higher importance and intimacy. The third aspect is pain during sex ("How often do you experience pain or discomfort in your sexual interactions?") and the fourth pleasure during sex ("How often do you experience pleasure in your sexual interactions?"). Both were measured using a scale of 1 (*never*) to 4 (*always*). The items did not show very high correlations ($r = .54$, $p < .001$; see Table 1) and were therefore analyzed separately. A study with one of these measures of sexuality was previously published (Thomas et al., 2015).

Demographic Covariates

Following past research on sexuality with MIDUS data, we used age, income, marital status, number of children, and sexual orientation as covariates (Carr et al., 2013). As reported below, all analyses were conducted both with and without control variables to assess stability of the findings.

Data Analytic Approach

Because one of the goals of this study was to assess the role of gender, we conducted all analyses separately for men and women. To test our hypotheses, we ran separate linear regression analyses for each of the four items that measured sexuality. In all analyses, the first step included only the predictor variables (different types of childhood maltreatment), whereas the second step added the demographic control variables. We first conducted the analyses using the sexuality measures from MIDUS 2 data to examine the baseline associations. Next, we conducted longitudinal analyses to test whether childhood maltreatment is related to changes in the sexuality outcomes after ten years, using both MIDUS 2 and MIDUS 3 data, and while controlling for the same outcome at baseline.

In secondary analyses, we used each childhood maltreatment scale's cutoff score to determine presence versus absence of that type of childhood maltreatment, with 1 = present and 0 = absent, and then summed across the five childhood maltreatment categories (scores ranged from 0 to 5). We then related this maltreatment index to each of the dependent variables, at baseline and longitudinally.

Results

Preliminary Analyses

Descriptive analyses showed that among women, 29.5% ($n = 121$) reported low to severe childhood sexual abuse, 31.7% reported low to severe childhood emotional abuse, 43.2% reported low to severe childhood emotional neglect, 20.7% of

Table 1 Pearson correlations between study variables for women and men

	Mean [SD] (women)										Mean [SD] (men)			
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1. Sexual abuse	7.03 [4.29]													5.6 [2.15]
2. Emotional abuse	8.31 [4.52]	.37***												7.43 [3.43]
3. Emotional neglect	9.65 [4.59]	.33***	.75***											9.55 [4.12]
4. Physical abuse	6.77 [2.99]	.39***	.70***	.57***										6.94 [2.83]
5. Physical neglect	6.69 [2.78]	.35***	.61***	.62***	.61***									6.56 [2.33]
6. Importance of sex T1	2.95 [.84]	.02	.01	-.04	-.02	-.01								3.02 [.88]
7. Importance of sex T2	2.91 [.85]	-.00	.06	.07	.03	.15*	.30***	.20**	.51***	-.15*	-.20**	.20**	.33***	2.99 [.85]
8. Intimacy in sex T1	3.25 [.88]	-.03	-.10*	-.22***	-.06	-.15**	.30***	-.44***	-.44***	-.01	-.10	.32***	.13*	3.20 [.87]
9. Intimacy in sex T2	3.31 [.85]	.10	.00	-.05	-.03	-.01	.22***	.39***	-.39***	-.12	-.05	.20**	.36***	3.15 [.88]
10. Pain during sex T1	1.48 [.67]	.03	.04	.04	.11*	.01	.00	.02	-.02	-.38***	-.38***	-.18***	-.10	1.14 [.45]
11. Pain during sex T2	1.58 [.70]	-.02	.09	.14*	.16*	.06	-.00	-.02	-.04	-.24***	-.24***	-.34***	-.15*	1.15 [.43]
12. Pleasure during Sex T1	2.98 [.77]	-.09	-.09	-.12*	-.01	-.09	.29***	.05	.35***	-.11*	-.11*	-.34***	.34***	3.48 [.72]
13. Pleasure during sex T2	2.93 [.81]	.10	.03	-.00	.01	.05	.42***	.22***	.43***	-.05	-.32***	.34***	-.34***	3.41 [.76]

Note: Women presented below diagonal and men above it

* $p < .05$, ** $p < .01$, *** $p < .001$

participants reported exposure to low to severe childhood physical abuse, and 24.1% reported low to severe childhood physical neglect. Among men, 13.6% ($n = 54$) reported low to severe childhood sexual abuse, 24.9% reported low to severe childhood emotional abuse, 43.6% reported low to severe childhood emotional neglect, 21.7% of participants reported exposure to low to severe childhood physical abuse, and 22.9% reported low to severe childhood physical neglect.

A chi-square test showed no significant associations between gender and exposure to childhood emotional neglect, $\chi^2(1, N = 807) = .01, p = .91$, childhood physical abuse, $\chi^2(1, N = 807) = .11, p = .75$, and childhood physical neglect, $\chi^2(1, N = 807) = .17, p = .68$. There were significant relations between gender and exposure to childhood sexual abuse and childhood emotional abuse. Women were more likely than men to have childhood sexual abuse, $\chi^2(1, N = 807) = 30.06, p < .001$ as well as childhood emotional abuse, $\chi^2(1, N = 807) = 4.55, p < .05$.

A series of *t*-tests were conducted to examine sex differences in the levels of sexuality measures. Results showed that at baseline, no significant differences were observed in either importance of sex ($t(805) = 1.14, p = .26$) or intimacy in sex ($t(803) = -.79, p = .43$). However, women reported higher levels of pain during sex ($M = 1.48, SD = .67$) than men ($M = 1.14, SD = .45$), $t(711) = -8.48, p < .001$. Women also reported lower levels of pleasure during sex ($M = 2.98, SD = .77$) than men ($M = 3.48, SD = .72$), $t(800) = 9.52, p < .001$.

A similar pattern was observed with sexuality variables after 10 years. More specifically, no significant differences were observed in either importance of sex ($t(476) = 1.07, p = .28$) or intimacy in sex ($t(472) = -1.81, p = .07$). However, women reported higher levels of pain during sex ($M = 1.57, SD = .70$) than men ($M = 1.15, SD = .43$), $t(474) = -7.89, p < .001$. Women also reported lower levels of pleasure during sex ($M = 2.94, SD = .82$) than men ($M = 3.42, SD = .75$), $t(473) = 6.63, p < .001$.

Means, standard deviations, and correlations among the study variables, organized by gender, are provided in Table 1. As can be seen, for both women and men, all types of childhood maltreatment are significantly positively correlated to each other.

Baseline Analyses

For importance of sex, there were no significant relations for either women or men (Table 2). For intimacy in sex, childhood emotional neglect was negatively associated with intimacy in sex for women ($\beta = -.33, p < .001$), meaning that the higher the exposure to childhood emotional neglect, the lower the emotional intimacy in sexual relationships. This result remained significant after controlling for age, number of children, marital status, and sex orientation. However, for men, no significant associations were found in intimacy in sex (see Table 3).

For pain during sex, as can be seen in Table 4, childhood physical abuse was positively associated with pain during sex for women ($\beta = .18, p < .05$); that is, the higher the exposure to childhood physical abuse, the higher the pain during sex. This remained significant after controlling for the control variables. However, no associations were found for men in pain during sex. Lastly, Table 5 presents the regression model for predicting pleasure during sex for both women and men. As can be seen, after controlling for the covariates, childhood emotional abuse was positively associated with pleasure during sex for women ($\beta = .19, p < .05$), while childhood emotional neglect was negatively associated with pleasure during sex for women ($\beta = -.25, p < .001$). Similar to other sexuality outcomes at baseline, for men, no associations were found in pleasure during sex.

Longitudinal Analyses

For importance of sex (Table 6), childhood physical neglect was significantly associated with importance of sex for women ($\beta = .24, p < .01$), meaning that the higher the levels of childhood physical neglect, the greater the importance of sex in relationships. This relation remained significant after controlling for the control variables. However, there was a significant association of childhood sexual abuse for men ($\beta = -.17, p < .05$); that is, the higher the exposure to childhood sexual abuse, the lower the importance of sex. This relation remained significant after controlling for the control variables. There were no associations for other types of childhood maltreatment for either women or men. For intimacy in sex, there were no significant associations between any of the types of childhood maltreatment for either women or men (Table 7).

For pain during sex, childhood physical abuse was significantly associated with increases in pain during sex over 10 years for women ($\beta = .26, p < .05$), meaning that the higher the levels of childhood physical abuse, the greater the pain during sex. This relation remained significant after controlling for the control variables. However, childhood physical neglect was significantly associated with increases in pain during sex over 10 years for men ($\beta = .21, p < .01$); that is, the higher the exposure to childhood physical neglect, the greater the pain. This relation remained significant after controlling for the control variables. Finally, for pleasure during sex, childhood sexual abuse was associated with increases in pleasure during sex for women ($\beta = .15, p < .05$); however, this relation became significant only after adding the control variables. No significant association was found for men. These results are presented in Tables 2, 3, 4, 5, 6, 7, 8, and 9.

Secondary Analyses

Baseline Analyses: For importance of sex, there were no significant relations for either women or men ($p = .18$ and $p = .76$, respectively). For intimacy in sex, childhood maltreatment cutoff's sum was negatively associated with intimacy in sex for women ($\beta = -.10, p < .001$), meaning that the higher the exposure to childhood maltreatment, the lower the emotional intimacy in sexual relationships. This result remained significant after controlling for age, number of children, marital status, and sex orientation. However, for men, no significant associations were found in intimacy in sex ($p = .19$). For pain during sex, childhood maltreatment abuse was positively associated with

Table 2 Predicting importance of sex at Time 1 (baseline)

	Women					Men				
	B	SE	β	R^2 (adjusted)	F	B	SE	β	R^2 (adjusted)	F
<i>Block 1</i>				-.01	.51				-.00	.66
Emotional abuse	.01	.01	.04			-.03	.02	-.11		
Physical abuse	.02	.02	.10			.03	.02	.09		
Sexual abuse	-.02	.02	-.10			.02	.02	.05		
Emotional neglect	-.02	.02	-.05			.00	.02	.00		
Physical neglect	.00	.02	.01			.00	.02	.01		
<i>Block 2</i>				.01	1.29				.00	1.01
Emotional abuse	.01	.01	.06			-.03	.02	-.12		
Physical abuse	.02	.02	.09			.02	.02	.07		
Sexual abuse	-.02	.02	-.10			.03	.02	.07		
Emotional neglect	-.02	.02	-.08			.00	.02	.00		
Physical neglect	.00	.02	.02			.01	.02	.02		
Age	-.01	.00	-.10			-.01	.00	-.11*		
Number of children	.00	.03	.01			.00	.03	.00		
Marital status	.06	.04	.07			-.03	.05	-.03		
Sex orientation	.67	.31	.11*			.22	.26	.05		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 Predicting intimacy in sex at Time 1 (baseline)

	Women					Men				
	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>
<i>Block 1</i>				.06	5.78***				.00	1.10
Sexual abuse	.01	.01	.03			.02	.02	.05		
Emotional abuse	.03	.02	.14			-.01	.02	-.03		
Emotional neglect	-.06	.02	-.33***			-.02	.02	-.10		
Physical abuse	.02	.02	.06			.02	.02	.07		
Physical neglect	-.03	.02	-.08			-.01	.02	-.04		
<i>Block 2</i>				.05	3.57***				-.00	.84
Sexual abuse	.01	.01	.04			.02	.02	.06		
Emotional abuse	.03	.02	.14			-.00	.02	-.00		
Emotional neglect	-.06	.02	-.33***			-.02	.02	-.11		
Physical abuse	.02	.02	.05			.02	.02	.06		
Physical neglect	-.02	.02	-.07			-.02	.02	-.04		
Age	-.00	.00	-.01			-.00	.00	-.02		
Number of children	-.04	.03	-.07			.02	.03	.05		
Marital status	.14	.14	.06			.03	.14	.01		
Sex orientation	.16	.32	.03			.19	.25	.04		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4 Predicting pain during sex at Time 1 (baseline)

	Women					Men				
	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>
<i>Block 1</i>				.01	1.50				.01	2.14*
Sexual abuse	-.00	.01	.00			.00	.01	.00		
Emotional abuse	-.01	.03	-.10			.01	.01	.10		
Emotional neglect	.01	.01	.06			.01	.01	.09		
Physical abuse	.04	.02	.19**			-.01	.01	-.07		
Physical neglect	-.02	.02	-.09			.01	.01	.05		
<i>Block 2</i>				.00	1.11				.02	1.89*
Sexual abuse	.00	.01	.01			-.01	.01	-.03		
Emotional abuse	-.01	.01	-.08			.01	.01	.10		
Emotional neglect	.01	.01	.07			.01	.01	.10		
Physical abuse	.04	.02	.18*			-.01	.01	-.08		
Physical neglect	-.02	.02	-.10			.01	.01	.04		
Age	.00	.00	.00			.00	.00	.02		
Number of children	.01	.02	.03			.02	.01	.09		
Marital status	.09	.09	.05			.02	.07	.01		
Sex orientation	.19	.25	.04			-.26	.13	-.11*		

* $p < .05$, ** $p < .01$, *** $p < .001$

pain during sex for women ($\beta = .04$, $p < .05$) and for men ($\beta = .04$, $p < .05$). Lastly, childhood maltreatment was negatively associated with pleasure during sex for women ($\beta = -.07$, $p < .01$). For men, no associations were found in pleasure during sex ($p = .23$).

Longitudinal Analyses: For importance of sex, there was no significant association of childhood maltreatment for

women ($p = .34$). However, there was a significant association of childhood maltreatment for men ($\beta = -.01$, $p < .001$); that is, the higher the exposure to different types of childhood maltreatment, the lower the importance of sex. For intimacy in sex, there were no significant associations between any of the types of childhood maltreatment for either women or men ($p = .77$ and $p = .51$, respectively).

Table 5 Predicting pleasure during sex at Time 1 (baseline)

	Women					Men				
	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>
<i>Block 1</i>				.03	3.77**				.02	2.54*
Sexual abuse	-.01	.01	-.08			-.03	.02	-.08		
Emotional abuse	.04	.02	.23**			.02	.02	.09		
Emotional neglect	-.04	.01	-.26***			-.02	.01	-.11		
Physical abuse	.01	.02	.05			.02	.02	.09		
Physical neglect	-.02	.02	-.07			-.04	.02	-.12^		
<i>Block 2</i>				.04	2.93**				.06	3.84***
Sexual abuse	-.02	.01	-.10			-.02	.02	-.05		
Emotional abuse	.03	.02	.19*			.02	.02	.10		
Emotional neglect	-.04	.01	-.25***			-.02	.01	-.10		
Physical abuse	.01	.02	.04			.01	.02	.05		
Physical neglect	-.01	.02	-.04			-.03	.02	-.11		
Age	-.01	.00	-.11*			-.01	.00	-.20***		
Number of children	.00	.02	.01			.02	.02	.05		
Marital status	-.02	.10	-.00			.12	.11	.06		
Sex orientation	-.41	.28	-.08			.40	.20	.11		

* $p < .05$, ** $p < .01$, *** $p < .001$ **Table 6** Predicting importance of sex at Time 2

	Women					Men				
	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>
<i>Block 1</i>				.01	1.62				.02	1.87
Sexual abuse	-.01	.02	-.04			-.05	.03	-.14		
Emotional abuse	.00	.02	.01			.02	.03	.09		
Emotional neglect	-.00	.02	-.00			.00	.02	.00		
Physical abuse	-.04	.03	-.14			.05	.03	.14		
Physical neglect	.08	.03	.26**			-.06	.03	-.13		
<i>Block 2</i>				.10	4.90***				.12	6.19***
Sexual abuse	-.01	.01	-.04			-.06	.03	-.16*		
Emotional abuse	-.00	.02	-.01			.03	.03	.12		
Emotional neglect	-.00	.02	-.01			.00	.02	.01		
Physical abuse	-.03	.03	-.11			.03	.03	.09		
Physical neglect	.07	.03	.24**			-.05	.03	-.12		
Importance of sex baseline	.33	.07	.29***			.32	.06	.32***		
<i>Block 3</i>				.09	3.05***				.13	4.44***
Sexual abuse	-.01	.02	-.06			-.07	.03	-.17*		
Emotional abuse	-.01	.02	-.03			.02	.03	.08		
Emotional neglect	-.00	.02	-.01			.00	.02	.01		
Physical abuse	-.03	.03	-.09			.04	.03	.10		
Physical neglect	.07	.03	.24**			-.05	.03	-.11		
Importance of sex baseline	.34	.08	.30***			.32	.06	.32***		
Age	.00	.01	.01			-.01	.01	-.15*		
Number of children	-.03	.04	-.05			.01	.03	.03		
Marital status	.06	.17	.02			.02	.17	.01		
Sex orientation	-.33	.36	-.06			-.29	.29	-.08		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7 Predicting intimacy in sex at Time 2

	Women					Men				
	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>
<i>Block 1</i>				.00	1.16				.01	1.25
Sexual abuse	.03	.02	.15*			-.03	.03	-.06		
Emotional abuse	.02	.02	.13			.04	.03	.13		
Emotional neglect	-.03	.02	-.16			-.04	.02	-.18^		
Physical abuse	-.03	.03	-.09			.04	.04	.11		
Physical neglect	.01	.03	.02			-.02	.04	-.05		
<i>Block 2</i>				.15	7.61***				.19	9.95***
Sexual abuse	.03	.01	.14*			-.04	.03	-.09		
Emotional abuse	.01	.02	.03			.04	.03	.14		
Emotional neglect	-.01	.02	-.03			-.04	.02	-.16		
Physical abuse	-.02	.03	-.08			.02	.03	.06		
Physical neglect	.01	.03	.03			-.01	.03	-.01		
Intimacy in sex baseline	.43	.07	.40***			.42	.06	.43***		
<i>Block 3</i>				.15	4.80***				.20	6.82***
Sexual abuse	.02	.01	.12			-.03	.03	-.07		
Emotional abuse	.00	.02	.01			.04	.03	.13		
Emotional neglect	-.01	.02	-.03			-.04	.02	-.17^		
Physical abuse	-.02	.03	-.06			.02	.03	.07		
Physical neglect	.01	.03	.04			-.01	.03	-.02		
Intimacy in sex baseline	.43	.07	.40***			.42	.06	.43***		
Age	.00	.01	.00			-.01	.01	-.15**		
Number of children	-.02	.04	-.04			.03	.03	.06		
Marital status	-.00	.16	-.00			.04	.17	.02		
Sex orientation	-.48	.34	-.09			.25	.29	.06		

* $p < .05$, ** $p < .01$, *** $p < .001$

For pain during sex, there was no significant association of childhood maltreatment for women ($p = .24$). However, childhood maltreatment was significantly associated with increases in pain during sex over 10 years for men ($\beta = .04$, $p < .05$); that is, the higher the exposure to childhood maltreatment, the higher the pain. This relation remained significant after controlling for the control variables. Finally, for pleasure during sex, no significant association was found for women ($p = .46$) and men ($p = .59$).

Discussion

Results from this study reveal a high prevalence of childhood maltreatment in this community sample, estimated at 13.6–29.5% for childhood sexual abuse, 24.9–31.7% for childhood emotional abuse, 43.2–43.6% for childhood emotional neglect, 20.7–21.7% for childhood physical abuse, and 22.9–24.1% for childhood physical neglect. The observed frequencies of childhood emotional abuse and childhood emotional neglect are lower than in previously reported studies, which have concluded that approximately

36.3% of the general population reported having experienced these forms of maltreatment (Stoltenborgh et al., 2015). The observed frequencies of childhood physical abuse and childhood physical neglect are higher than those in previous studies (Stoltenborgh et al., 2011, 2013). However, the levels of sexual abuse among men (13.6%) are in line with previous findings (12.7%), but much higher for women (29.5%) (Stoltenborgh et al., 2015). This sample's relatively high prevalence of childhood maltreatment allowed us to consider both cross-sectional and prospective associations with adult sexuality in both women and men.

Cross-Sectional Findings

Results from baseline suggest that childhood emotional neglect and childhood emotional abuse are more important in predicting sexuality measures than childhood sexual abuse, and these findings contrast with those obtained in previous studies. More specifically, no associations between childhood maltreatment types and importance of sex among both women and men were found. However, we found that childhood emotional neglect is related to lower levels of intimacy in sexual interactions for

Table 8 Predicting pain during sex at Time 2

	Women					Men				
	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>
<i>Block 1</i>				.02	2.03				.04	2.69*
Sexual abuse	-.01	.01	-.08			.03	.02	.14 [^]		
Emotional abuse	-.02	.02	-.14			-.01	.01	-.03		
Emotional neglect	.02	.02	.16			.00	.01	.00		
Physical abuse	.06	.03	.27**			-.02	.02	-.14		
Physical neglect	-.03	.02	-.11			.04	.02	.20**		
<i>Block 2</i>				.07	3.88***				.17	8.86***
Sexual abuse	-.01	.01	-.07			.02	.01	.10		
Emotional abuse	-.02	.02	-.14			-.01	.01	-.04		
Emotional neglect	.02	.02	.14			-.01	.01	-.06		
Physical abuse	.05	.02	.023*			-.01	.02	-.05		
Physical neglect	-.02	.02	-.09			.04	.02	.19**		
Pain during sex baseline	.29	.08	.23***			.40	.07	.38***		
<i>Block 3</i>				.08	3.01***				.18	5.95***
Sexual abuse	-.01	.01	-.08			.01	.01	.06		
Emotional abuse	-.03	.02	-.17			-.01	.01	-.07		
Emotional neglect	.02	.02	.14			-.01	.01	-.05		
Physical abuse	.06	.03	.26*			-.01	.02	-.05		
Physical neglect	-.02	.02	-.08			.04	.02	.21**		
Pain during sex baseline	.31	.08	.25***			.38	.07	.36***		
Age	.00	.01	-.02			.00	.00	.00		
Number of children	-.06	.03	-.13*			.00	.01	.02		
Marital status	.00	.13	.00			.15	.08	.12		
Sex orientation	-.35	.29	-.08			-.32	.14	-.17*		

* $p < .05$, ** $p < .01$, *** $p < .001$

women. This is in line with previous findings suggesting that childhood psychological abuse was a significant predictor of fear of intimacy (Davis et al., 2001). Moreover, other studies revealed that child psychological maltreatment is related to schemas of mistrust and to emotional inhibition (Crawford & Wright, 2007).

Findings also revealed that a history of physical abuse is related to increased pain during intercourse for women. These findings are novel, since most of the studies conducted previously have focused on childhood sexual abuse and have found that pain complaints are more common in women reporting childhood sexual abuse (Jamieson & Steege, 1997). Moreover, in another study, emotional abuse, but not physical abuse, was associated with women sexual dysfunction (Lutfey et al., 2008). Our findings could be indirectly explained by findings of gynecological disturbances among women living in physically abusive relationships (Schei, 1990), as Ornduff et al. (2001) have demonstrated an association between childhood physical abuse and adult intimate-relationship violence.

Regarding pleasure during sex among women, childhood emotional abuse was positively associated, and childhood

emotional neglect was negatively associated with it. The positive association between childhood emotional abuse and pleasure during sex may be interpreted in two ways. First, since the simple correlation between these two variables was not significant, the positive association to pleasure could be marked as artifact. However, it could also be explained by resilience, which was found to be common among emotionally abused adults (Iwaniec et al., 2006). Future research is needed to identify protective factors. No previous study (e.g., Bigras et al., 2015), to the best of our knowledge, has looked at the relation between childhood emotional neglect and pleasure in sex. This relation could be explained indirectly by negative self-schemes and evaluation, which are common among adults who were emotionally neglected as children (Glassman et al., 2007; Wright et al., 2009), and consist the basis for healthy interpersonal relationship.

Counter to our hypotheses, the baseline findings indicated no discernible associations between any of the childhood maltreatment types and men's sexuality at baseline. This is in line with a few studies, suggesting no effects of childhood maltreatment on intimacy and sexuality for men (DiLillo et al., 2007). It bears emphasizing, however, that few studies in the field of sexuality

Table 9 Predicting pleasure during sex at Time 2

	Women					Men				
	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>	<i>B</i>	SE	β	R^2 (adjusted)	<i>F</i>
<i>Block 1</i>				-.01	.72				.01	1.26
Sexual abuse	.02	.01	.11			-.04	.03	-.13		
Emotional abuse	.01	.02	.07			.01	.03	.03		
Emotional neglect	-.02	.02	-.10			-.03	.02	-.15		
Physical abuse	-.02	.03	-.08			.03	.03	.08		
Physical neglect	.02	.03	.08			.02	.03	.05		
<i>Block 2</i>				.12	6.16***				.13	6.85***
Sexual abuse	.03	.01	.17*			-.03	.03	-.10		
Emotional abuse	.02	.02	.09			-.01	.02	-.03		
Emotional neglect	.00	.02	-.02			-.02	.02	-.11		
Physical abuse	-.04	.03	-.16			.02	.03	.06		
Physical neglect	.02	.03	.05			.04	.03	.12		
Pleasure during sex baseline	.42	.07	.37***			.43	.07	.37***		
<i>Block 3</i>				.12	4.04***				.16	5.28***
Sexual abuse	.03	.01	.15*			-.02	.03	-.07		
Emotional abuse	.01	.02	.08			-.01	.02	-.05		
Emotional neglect	.00	.02	-.02			-.02	.02	-.11		
Physical abuse	-.04	.03	-.15			.02	.03	.06		
Physical neglect	.02	.03	.07			.04	.03	.12		
Pleasure during sex baseline	.41	.07	.37***			.39	.07	.34***		
Age	.00	.01	.04			-.01	.01	-.19**		
Number of children	-.01	.04	-.03			.00	.03	-.01		
Marital status	.19	.16	.08			.07	.15	.03		
Sex orientation	-.48	.34	-.10			.29	.25	.09		

* $p < .05$, ** $p < .01$, *** $p < .001$

of childhood maltreatment include men in their samples, and even fewer present the relation for each gender separately. In such cases, where the entire sample includes a substantial majority of women and there is no information on men, the pattern of relations for men remains unclear (e.g., Easton et al., 2011). It will therefore be important to replicate the present findings in other samples.

Prospective Findings

Findings from the prospective analyses underscore the unique role of childhood physical abuse/neglect in explaining different aspects of participants' sexuality, along with an unexpected contribution of childhood sexual abuse. More specifically, results revealed that for women, childhood physical neglect predicts importance in sex, meaning that the higher the levels of exposure to physical neglect during childhood, the higher the importance of sexual expression in relationships. This association could be understood as a compensation mechanism for disturbed and negative body image. More specifically, while childhood physical neglect is associated with body image dissatisfaction (Emirtekin et al., 2019), establishing a new and

positive body image is often a common practice to gain control and sense of self-evaluation (Pierce, 2014). This is consistent with previous findings regarding the lack of capacity for women with childhood experiences of physical neglect to establish and maintain intimate personal boundaries (Colman & Widom, 2004).

Findings from prospective analyses also revealed the relation between childhood physical abuse and increased pain during sex for women over 10 years. This emphasizes the unique contribution of exposure to physical abuse during childhood not only to general health (Annerbäck et al., 2018), but specifically for pain during sex. This is consistent the psychodynamic notion about the "remembering ability" of the body, which is not limited specifically to the injured origin, but could be triggered in any vulnerable circumstances (Rothschild, 2000), such as sexual intercourse.

Findings from the prospective analyses also revealed significant associations between childhood sexual abuse and childhood physical neglect and pain during sexual interaction for men, and the negative association between childhood sexual abuse and importance of sex. This finding is consistent with a study in the field of men who were

exposed to childhood sexual abuse, which emphasizes the link between childhood sexual abuse and later discomfort during sex (Denov, 2004), although other studies did not find supportive evidence for this association (e.g., Najman et al., 2005; Rind et al., 1998). This link is also evident in a study employing autobiographical interviews with adult men with childhood sexual abuse exposure (Lisak, 1994), yet no previous studies have been conducted on childhood physical neglect. Clinically, studies have found that childhood sexual abuse significantly increased the risk of negative health outcomes in a similar way for men and women (e.g., Dube et al., 2005). Therefore, results from this study suggest that sexual dysfunctions should be treated while keeping in mind previous life experiences, as is done in trauma-oriented therapy (Meston et al., 2013).

The findings also reveal unexpected associations between childhood maltreatment and adult sexuality. In particular, for women, childhood sexual abuse predicted increases from baseline to 10-year follow-up in pleasure in sexual interactions. These findings are in line with some but not all previous studies of the relation between childhood sexual abuse and women sexual functioning: some prior studies have found only modest positive relations between childhood sexual abuse and sexual dysfunction, while others have found no effect at all on sexual satisfaction or sexual dysfunction (for review of these studies see Loeb et al., 2002). The present findings are also consistent with a qualitative study of women who were exposed to childhood sexual abuse, who reported having a positive sexual self-schema, with high levels of sexual satisfaction (Hitter et al., 2017). One interpretation of these prospective findings is that they represent a testament to the power of these women's resilience. As such, these findings may shed light on the phenomenon of posttraumatic growth (Lev-Wiesel et al., 2005). Analyses of semi-structured interviews with women who were exposed to childhood sexual abuse suggest that for some of the women, the abuse enabled them to express a clear definition of good sex through their self and body awareness and to identify which factors could contribute to this experience (Rosen, 2018).

Importantly, no associations between childhood emotional abuse and either women's or men's adult sexuality were found in our prospective analyses. We are not aware of any prior studies that have addressed this issue prospectively, so confirmation of these effects will be needed. This is especially important given the prevalence of emotional abuse, and the fact that less is known about the long-term implications of emotional abuse than other forms of abuse and/or neglect (Glaser, 2002).

Lastly, a similar pattern of results was observed when childhood maltreatment was considered in a more global manner. The co-occurrence of multiple categories of abuse was negatively associated with intimacy and pleasure in sex for women and positively associated with pain during sex for both genders.

Longitudinally, the co-occurrence of multiple categories of abuse was associated with importance of sex and pain for men. Previous studies have indicated that the effect of co-occurrence of multiple categories of maltreatment on individuals' well-being is stronger than traditional classifications of childhood maltreatment types (e.g., Edwards et al., 2003). This is in line with our findings, as none of the childhood maltreatment types were related to men's sexuality at baseline, while the cumulative observation of childhood maltreatment was related to pain among men.

Limitations and Future Directions

The present study has a number of positive features, including the large sample, the assessment of four aspects of adult sexuality, and the 10-year prospective design. It is also among the few studies that focus on childhood maltreatment implications among mid-life adults, as most studies have focused on young adults. However, this study also has several limitations.

First, the use of self-report questionnaires implies that the tested variables are consciously accessible and one must take into consideration the fact that they represent self-perceptions and may reflect a biased response tendency. Second, the assessment of childhood maltreatment was based on retrospective reporting (for the various limitations of retrospective assessments, see Schwarz & Sudman, 2012; Senn et al., 2011), and the nature of abusive acts that were measured in this study is unwanted, forced events, while excluding other abusive experiences (Felson et al., 2019). This retrospective report involved a substantial lag over which participants needed to recall these experiences. However, one recent study highlighted the idea that these retrospective reports of childhood maltreatment may play a major role in determining long-term outcomes (Danese & Widom, 2020). Third, although large, this sample contains mainly heterosexual, white, and educated individuals from the U.S., which limits our ability to generalize to other populations. This is especially a disadvantage given the evidence on the relations between childhood maltreatment, sexual orientation, and adult sexuality (Xu et al., 2020). Fourth, the information about sexuality was based on very few items, and there is no information on participants' sexuality during early periods of their life; further research is needed in order to observe changes across different times of the life cycle. Such research will enable us to clarify whether these findings are best considered to be childhood maltreatment outcomes or might reflect natural maturational processes. Finally, because a number of statistical tests were conducted, Type I error is a potential concern. For this reason, future studies should replicate these findings, which will provide guidance both in terms of the types of maltreatment that are more likely to be predictive and the direction and effect sizes.

In sum, this is one of the few studies to examine the long-term implications of childhood maltreatment on women's and

men's sexuality, and its trajectory over the period of 10 years. Our findings suggest that individuals who were abused and/or neglected as children might struggle to adequately engage in healthy and satisfying sexual interactions. Our findings also indicate the need for clinicians to take a cautious approach when treating adults with childhood maltreatment background who report sexuality difficulties. However, this current study is far from conclusive, and much more work is needed to develop a more complete understanding of these issues.

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Availability of data and material The dataset are available online in the MIDUS website.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval MIDUS data collection is reviewed and approved by the Education and Social/Behavioral Sciences and the Health Sciences IRBs at the University of Wisconsin-Madison.

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