

# The Impact of Childhood Sexual Abuse on Women's Sexual Health: A Comprehensive Review



Carey S. Pulverman, PhD,<sup>1</sup> Chelsea D. Kilimnik, MSc,<sup>2</sup> and Cindy M. Meston, PhD<sup>2</sup>

## ABSTRACT

**Introduction:** Childhood sexual abuse (CSA) has been identified as a potent risk factor for sexual dysfunction. Certain characteristics of the abuse experience, such as repeated abuse, appear to affect the risk of developing sexual dysfunction. Despite the robust findings that CSA can be detrimental to sexual function, there is little consensus on the exact mechanisms that lead to these difficulties.

**Aim:** To summarize the most up-to-date research on the relation between CSA and women's sexual function.

**Methods:** The published literature examining the prevalence of sexual dysfunction among women with CSA histories, various types of sexual dysfunctions, and mechanisms proposed to explain the relation between CSA and later sexual difficulties was reviewed.

**Main Outcome Measures:** Review of peer-reviewed literature.

**Results:** Women with abuse histories report higher rates of sexual dysfunction compared with their non-abused peers. The sexual concerns most commonly reported by women with abuse histories include problems with sexual desire and sexual arousal. Mechanisms that have been proposed to explain the relation between CSA and sexual dysfunction include cognitive associations with sexuality, sexual self-schemas, sympathetic nervous system activation, body image and esteem, and shame and guilt.

**Conclusion:** Women with CSA histories represent a unique population in the sexual health literature. Review of mechanisms proposed to account for the relation between CSA and sexual health suggests that a *lack of positive* emotions related to sexuality, rather than greater negative emotions, appears to be more relevant to the sexual health of women with CSA histories. Treatment research has indicated that mindfulness-based sex therapy and expressive writing treatments are particularly effective for this group. Further research is needed to clarify the mechanisms that lead to sexual dysfunction for women with abuse histories to provide more targeted treatments for sexual dysfunction among women with abuse histories. **Pulverman CS, Kilimnik CD, Meston CM. The Impact of Childhood Sexual Abuse on Women's Sexual Health: A Comprehensive Review. Sex Med Rev 2018;6:188–200.**

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**Key Words:** Childhood Sexual Abuse; Sexual Abuse; Sexual Trauma; Sexual Dysfunction; Sexual Health; Women's Sexual Health

## INTRODUCTION

Childhood sexual abuse (CSA) is generally defined as unwanted sexual contact between a child and an adult and can include oral, vaginal, and/or anal penetration with a penis, digits, or foreign objects, forced sexual touching, and non-contact sexual abuse (eg, exposure to another's genitals). Experiencing

sexual abuse in childhood has been identified as one of the most salient risk factors for the development of sexual dysfunction in adulthood, including problems with sexual desire, arousal, orgasm, and sexual pain.<sup>1,2</sup> Unfortunately, CSA is a common experience for women. According to a recent meta-analysis of studies from 22 countries that defined CSA as contact and non-contact sexual abuse before 18 years of age, approximately 20% of women have experienced CSA.<sup>3</sup> In studies from the United States, using the same definition of CSA, 17% to 51% of women reported CSA histories.<sup>4</sup> The present review focused on the relation between sexual function and CSA specifically, because research has indicated that women with histories of CSA *and* adulthood sexual abuse experience sexual dysfunction at the same rates as women abused solely in childhood.<sup>5,6</sup>

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<sup>1</sup>VISN 17 Center of Excellence for Research on Returning War Veterans, Waco, TX, USA;

<sup>2</sup>Department of Psychology, The University of Texas at Austin, Austin, TX, USA

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In this review, we examined meta-analyses, literature reviews, and empirical studies obtained through keyword searches in the PsychInfo and PubMed databases. The keywords included child(hood) sex(ual) abuse + sexual (ity; function, functioning, health, behaviors, mechanisms, schemas). The bibliographies of previous literature reviews and meta-analyses were examined for additional relevant studies. Inclusion criteria included measurement of CSA and sexual health variables, an all or primarily female sample, and written in English. Review of the articles showed 4 primary topics of interest that became the focus for this review: prevalence of sexual dysfunction among women with CSA histories, types of sexual dysfunction among women with CSA histories, characteristics of abuse that increase the risk of sexual dysfunction, and mechanisms related to the development of sexual dysfunction among women with CSA histories. Because previous reviews on this topic focused on research before 2000,<sup>1,2</sup> the present review gave priority to research conducted since 2000; however, for certain areas (eg, prevalence rates) in which there was little new research or few large studies, older studies were included to provide a comprehensive summary of the current state of knowledge on this topic.

Research on CSA is complicated by inconsistencies in the operationalization of this construct. Indeed, the definitions of *childhood* and *abuse* have varied greatly among studies, and these methodologic issues have been previously reviewed in detail elsewhere.<sup>7–9</sup> Briefly, researchers have typically defined *childhood* with an age cutoff, such that sexual abuse experiences before a certain age are classified as CSA and abuse after that age is classified as adulthood sexual abuse. However, the age cutoff for childhood has varied from 12 to 18 years old,<sup>8</sup> and some researchers have suggested that developmental events such as age at menarche might be more relevant markers for distinguishing childhood from adulthood.<sup>10</sup> Some definitions of CSA also require a specific age difference between the victim and the perpetrator. The definition of *abuse* has included a range of experiences, including non-contact experiences (ie, propositions and exposure to another's genitals) and contact experiences (genital touching or fondling and oral, vaginal, or anal rape).<sup>3</sup> Specific characteristics of the abuse experience, including relationship to perpetrator, use of force, and chronicity of the abuse, also are sometimes included as additional criteria in CSA operationalization. Abuse characteristics are relevant to the present review because research has indicated that certain characteristics can place women at greater risk for sexual dysfunction than others. Typically, broader definitions of CSA that include more types of experiences and less specific criteria tend to yield higher prevalence rates than narrower definitions of abuse that include specific criteria. These methodologic issues likely contribute to the variation in CSA prevalence rates observed among studies.<sup>4</sup> To address these methodologic concerns, we provide detailed information on the methods used in the prevalence studies cited in this review.

In contrast to the methodologic issues present in operationalizing CSA, female sexual dysfunction has been more consistently defined in the literature. The *Diagnostic and Statistical*

*Manual of Mental Disorders, 5th Edition (DSM-5)*<sup>11</sup> and the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision*<sup>12</sup> define specific criteria for female sexual dysfunctions, including problems with desire, sexual arousal, orgasm, and sexual pain. In the 2 classification systems, the exact criteria for each sexual dysfunction have evolved over the various editions, with controversy arising over the distinction between sexual desire and subjective sexual arousal<sup>13,14</sup> and the distinction between different types of sexual pain.<sup>15</sup> In addition to the specific sexual symptoms, the *DSM-5* requires that the sexual symptoms are accompanied by “clinically significant distress,” meaning that the patient reports increased distress associated with her sexual symptoms.<sup>11</sup> The “distress criterion” can affect prevalence rates. For example, in the general population of women, approximately 43% report sexual difficulties,<sup>16,17</sup> yet when including the distress criterion, only 12% of women report clinically significant sexual dysfunction.<sup>17</sup> Unfortunately, not all studies assess for the distress criterion; however, both subclinical sexual difficulties and clinically significant sexual dysfunction have been associated with lower quality of life in women,<sup>18</sup> and thus the 2 types of sexual sequela are included in this review.

## SEXUAL DYSFUNCTION AMONG WOMEN WITH CSA HISTORIES

CSA has been identified as an important risk factor for sexual dysfunction in adulthood because the rates of sexual dysfunction among women with CSA histories are significantly higher than the rates of dysfunction among non-abused women.<sup>1,2,19</sup> We review the prevalence of sexual dysfunction from different types of studies, characteristics of abuse that affect the risk of sexual dysfunction, and the prevalence of the various types of sexual dysfunctions reported by women with CSA histories.

### Prevalence Rates

The prevalence of sexual dysfunction among women with CSA histories has been examined in random probability, clinical, community, and college samples (Table 1).<sup>\*</sup> To determine the *average* rate of sexual dysfunction in women with CSA histories, we turn to the research on random probability samples. Using data from the National Health and Life Survey of 1,749 women, Laumann et al<sup>20</sup> found that 17% reported CSA histories, and that 59% of those women reported sexual difficulties. Mullen et al<sup>21</sup> surveyed 1,376 women and found a CSA prevalence of 32%, and 47% of women with abuse histories reported at least 1 sexual problem, constituting an odds ratio of 2.44 for the risk of sexual dysfunction after CSA. In a study with 898 women, the prevalence of CSA was 35%, and 25% of women with non-penetrative CSA histories developed sexual problems and 32% of women with penetrative CSA histories developed sexual problems.<sup>22</sup> In summary, the rates of sexual dysfunction among

\* When studies reported effect sizes, these statistics are included in the review.

**Table 1.** Prevalence of sexual dysfunction among women with CSA histories\*

Study	Sample	N	Assessment	Findings
Mullen et al, 1994 <sup>21,†</sup>	Random probability	1,376 women	Semistructured interview; CSA defined as contact abuse before 16 y; sexual function assessed with measure developed for the study	32% reported history of CSA; 47% of abused women reported sexual dysfunction
Najman et al, 2005 <sup>22</sup>	Random probability	898 women	Structured interview; CSA defined as contact and non-contact abuse before 16 y; sexual function assessed with 8-items based on <i>DSM-IV</i> sexual dysfunctions	35% reported history of CSA; 25% of abused women with non-penetrative CSA reported sexual dysfunction; 32% of abused women with penetrative CSA reported sexual dysfunction
Becker et al, 1984 <sup>47</sup>	Clinical	364 women	Structured interview; CSA defined as contact abuse before 16 y; sexual dysfunction assessed with questions created for the study	100% reported history of CSA; 40% of abused women reported sexual dysfunction
Becker et al, 1986 <sup>46</sup>	Clinical	471 women	Structured interview; CSA defined as contact abuse before 16 y; sexual dysfunction assessed with questions created for the study	79% reported history of CSA; 58% of abused women reported sexual dysfunction
Jehu et al, 1988 <sup>23</sup>	Clinical	51 women	Semistructured interview; CSA defined as genital contact before 15 y; sexual function assessed with items created for this study	100% reported history of CSA; 94% reported sexual dysfunction
Sarwer and Durlak, 1996 <sup>24</sup>	Clinical	359 women	Structured interview; CSA defined as contact abuse before 14 y and assessed with single item; sexual function assessed with <i>DSM-III</i> clinical interview	20% reported history of CSA; 63% of abused women reported sexual dysfunction
Kristensen and Lau, 2011 <sup>29</sup>	Clinical	158 women	Self-report questionnaires; CSA defined as contact abuse before 16 y perpetrated by family member; 7-item questionnaire on sexual function created for this study	100% reported history of CSA; 62% of abused women reported sexual dysfunction
Gorcey et al, 1986 <sup>26</sup>	Community	97 women	Structured interview; CSA defined as abuse before 14 y; sexual dysfunction assessed with 12-item Impact Interview created for this study	58% reported history of CSA; 85% of abused women reported sexual dysfunction
Saunders et al, 1992 <sup>27,‡</sup>	Community	391 women	Structured interview; CSA defined as contact and non-contact abuse before 18 y; sexual dysfunction assessed with <i>DSM-III</i> clinical interview	33.5% reported history of CSA; 26–32% of abused women reported sexual dysfunction
Swaby and Morgan, 2009 <sup>28</sup>	Community	70 women and 30 men	Self-report questionnaires; CSA defined as contact abuse before age 18; sexual function assessed with the Derogatis Interview for Sexual Functioning—Self Report	50% reported history of CSA; 29% of abused men and women reported sexual dysfunction (rates were not reported for women only)
Jackson et al, 1990 <sup>38</sup>	College	40 women	Semistructured interview; CSA defined as sexual abuse before 18 y perpetrated by family member $\geq 5$ y older than victim; sexual function assessed with <i>DSM-III</i> clinical interview	55% reported history of CSA; 65% of abused women reported sexual dysfunction
Kinzl et al, 1995 <sup>41</sup>	College	202	Self-report questionnaires; CSA defined as contact and non-contact abuse before 18 y; sexual function assessed with 7-item measure based on <i>DSM-III</i> sexual dysfunction created for this study	22% reported history of CSA; 73% of abused women reported sexual dysfunction

CSA = childhood sexual abuse; *DSM-III* = *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition*; *DSM-IV* = *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition*.

\*Although few prevalence studies reported effect sizes, we include effect sizes for all studies in which they were reported.

†In Mullen et al, the odds ratio was 2.44 for risk of sexual dysfunction among abused women compared with non-abused women.

‡In Saunders et al, the risk ratio was 50%; thus, there was a 50% greater risk for sexual dysfunction among abused women compared with non-abused women.

women with CSA histories in random probability studies ranged from 25% to 59%.

Although random probability samples provide the most representative and generalizable estimates, the prevalence of sexual dysfunction among women with histories of CSA also has been examined in clinical, community, and college samples. Clinical samples, typically composed of women seeking treatment for sexual or mental health concerns, tend to show the highest rates of sexual dysfunction. In studies of women with CSA histories presenting for sex therapy, 63% to 94% reported sexual dysfunction.<sup>23,24</sup> In another clinical sample of women with abuse histories who were not seeking treatment, 84% reported sexual dysfunction.<sup>25</sup> Similar rates of sexual problems have been observed in community samples. Community studies tend to recruit a sample of women with abuse histories and a comparison sample of non-abused women matched on demographic characteristics to compare the sexual health of these 2 groups. In community studies, 26% to 85% of women with CSA histories reported sexual dysfunction.<sup>26–29</sup> 1 of those studies indicated that women with histories of CSA had a 50% higher risk of developing sexual dysfunction compared with non-abused women.<sup>27</sup> In addition, some community studies identified higher rates of sexual dysfunction among women with CSA histories compared with non-abused women but did not report the individual rates for each group.<sup>30,31</sup> Notably, 1 community study reported no difference in the rates of sexual dysfunction between women with and those without histories of CSA, yet also failed to report the individual rates for each group.<sup>32</sup> In clinical and community samples of women with CSA histories, the rates of sexual dysfunction ranged from 26% to 94%.

Studies of college women tend to report the lowest rates of sexual problems for women with CSA histories. Multiple studies have cited no differences in sexual function between college women with and those without histories of CSA,<sup>33–36</sup> particularly when accounting for other childhood traumas<sup>37</sup>; however, 1 study found lower sexual function among the college women with abuse histories than their non-abused counterparts.<sup>5</sup> College samples inherently select for high-functioning individuals with a particular demographic composition (ie, generally higher education and higher socioeconomic status), which could in part explain the lower rates of sexual problems for women with CSA histories observed in these samples compared with other samples. Notably, 1 study of college women found that 55% of the sample had CSA histories, and that 65% of those women reported sexual dysfunction.<sup>38</sup>

Sexual dysfunction is clearly a concern for women with CSA histories; however, it is important to note that early experiences of sexual abuse do *not necessarily* lead to sexual problems for all women. Most research studies described in the Prevalence Rates section assessed sexual dysfunction with self-report instruments or structured interviews based on the *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition (DSM-III)*<sup>39</sup> criteria for sexual dysfunction, which did not yet include the “distress cri-

terion” that was added to later editions of the *DSM*. This discrepancy in the assessment of sexual dysfunction among studies complicates the comparison of prevalence rates for sexual dysfunction between women with CSA histories and the general population of women. Keeping this methodical concern in mind, it appears that in the general population of women, approximately 43% report sexual difficulties<sup>16,17</sup> and 12% report clinically significant sexual dysfunction,<sup>17</sup> yet for women with CSA histories, 25% to 94% report sexual difficulties (with unknown rates of distress), suggesting that women with abuse histories show an increased risk for sexual dysfunction compared with the general population of women. Table 1 presents details on the operationalization and assessment of CSA and sexual function in the prevalence studies examined.

### Abuse Characteristics and Sexual Dysfunction

Certain characteristics of the abuse experience can increase the risk of sexual dysfunction. For example, abuse that was repeated,<sup>40,41</sup> included multiple abusers,<sup>40,42</sup> was of longer duration,<sup>43</sup> included threat or force,<sup>24,43</sup> and in which the father was the abuser<sup>43,44</sup> has been related to higher rates of sexual dysfunction. Mixed findings have been recorded for the role of penetration or attempted penetration on risk for sexual dysfunction. Multiple studies have indicated that CSA including penetration or attempted penetration increases the risk for sexual difficulties.<sup>5,21,24,45</sup> However, other studies have noted that penetrative and non-penetrative abuse experiences are equally associated with risk for sexual dysfunction,<sup>22,36</sup> and 1 study found that non-penetrative CSA experiences conferred a higher risk for sexual dysfunction than penetrative experiences.<sup>31</sup> In summary, CSA that included threat or force, was chronic, and committed by the father or multiple perpetrators appears to increase the risk for subsequent sexual concerns. Given the mixed findings observed for the impact of penetration on risk for sexual difficulties, more research is needed to clarify the potential importance of that abuse characteristic.

### Types of Sexual Dysfunction

Women with CSA histories report the full spectrum of female sexual dysfunction disorders, including disorders of desire, arousal, orgasm, and sexual pain. In this population sexual dysfunctions are often comorbid, with 1 study noting that 66% of women with abuse histories and sexual dysfunction reported multiple types of dysfunction.<sup>46</sup> The sexual dysfunctions most frequently reported by this population are desire and arousal dysfunctions.<sup>1</sup> In a national probability sample of 1,749 women, sexual abuse histories indicated a greater risk for sexual arousal disorder than any other type of sexual dysfunction.<sup>16</sup> In a non-treatment-seeking clinical sample of women with abuse histories, 84% reported arousal difficulties and 53% reported desire difficulties.<sup>25</sup> In clinical samples of women with CSA histories seeking sex therapy, 49% to 62% reported arousal difficulties<sup>23,46,47</sup> and 51% to 59% reported desire diffi-



culties.<sup>23,24,46,47</sup> Orgasm difficulties and sexual pain also were common in this population.<sup>41</sup> For the general population of women, low sexual desire is the most commonly reported sexual dysfunction<sup>16,17</sup>; therefore, the major difference between women with and those without CSA histories appears to be that women with abuse histories report equally increased rates of arousal *and* desire dysfunctions. Table 2 presents details on the operationalization and assessment of CSA and sexual function and rates for the types of sexual dysfunction disorders.

## MECHANISMS CONTRIBUTING TO SEXUAL DYSFUNCTION

Women with CSA histories report higher rates of sexual dysfunction compared with non-abused women and show a somewhat unique presentation of sexual dysfunction, with higher rates of arousal difficulties than in non-abused women. In addition, women with CSA histories show a lower response to standardized sex therapy, including pharmacologic<sup>48,49</sup> and psychological<sup>50,51</sup> approaches, compared with their non-abused peers. In a study on sildenafil citrate (Viagra, Pfizer, New York, NY, USA) including women with and without histories of CSA, the women with CSA histories showed a lower treatment response, and of the women who responded with genital arousal to the drug, some reported that the enhanced arousal made intercourse unpleasant or disturbing.<sup>48</sup> That is, women with histories of abuse report greater fear, anger, and disgust *during* sexual arousal with a partner than non-abused women.<sup>25,52,53</sup> Clinical experts have suggested that treatments for sexual dysfunction that directly enhance genital sexual arousal might move too quickly for women with CSA histories.<sup>50,51</sup> In contrast, women with abuse histories responded better than their non-abused peers to mindfulness-based sex therapy that focused on non-judgmental body awareness.<sup>54</sup>

The differences in prevalence rates, presentation of sexual dysfunction, and response to sex therapy suggest that sexual difficulties may develop through differential pathways for women with and without CSA histories. Researchers have proposed several potential pathways or mechanisms of action to account for these differences, including cognitive associations with sexuality, sexual self-schemas, sympathetic nervous system (SNS) activation, body image and esteem, and the emotions of shame and guilt. Research on mechanisms is necessarily limited by the nature of sexual trauma and research ethics, such that it is impossible to conduct a randomized controlled experiment on CSA.<sup>55</sup> Therefore, studies on the mechanisms underlying the relation between CSA and sexual dysfunction are susceptible to potential confounds and the complex context in which CSA occurs. These issues inevitably limit the ability to draw directional inferences from research studies.<sup>53,56</sup>

### Cognitive Associations With Sex

A large body of research has indicated that women with histories of CSA process sexual stimuli somewhat differently than

their non-abused peers. The cognitive processing of sexual stimuli in women with abuse histories has been examined in studies on unconscious associations. Meston and Heiman<sup>57</sup> used a card-sort task involving the categorization of positive and negative self-information and sexually relevant information. They found that women with CSA histories were more likely than non-abused women to describe themselves in negative terms and less likely to attribute positive meaning to sexual stimuli. Another study evaluating unconscious associations with the Implicit Association Test (IAT) found that for non-abused women sexual pictures were more strongly associated with positive valence than neutral pictures (effect size,  $f = 0.28$ ), yet for women with abuse histories there were no differences in valence between the sexual and neutral pictures.<sup>58</sup> Notably, they found that for women with histories of CSA, lower positive implicit associations with sexual stimuli were not associated with lower sexual function but were associated with lower sexual satisfaction. Research on women's unconscious biases has indicated that sexual stimuli are less strongly associated with positive valence for women with abuse histories than non-abused women.

Another approach to studying the cognitive processes of women with histories of CSA has been to examine the language used in women's expressive writing essays on sexuality. 1 study asked women with and without CSA histories to write a neutral essay on their previous day and an essay on an ambiguous picture of a couple in a bedroom.<sup>59</sup> In this study, women with CSA histories showed a greater tendency toward a threatening interpretation of the picture and used significantly more negative affect words (Cohen  $d = 0.77$ ) and less sexual words (Cohen  $d = 0.81$ ) in the bedroom picture essay than the non-abused women. The researchers assessed sexual desire function in their sample and did not find an association between the greater negative word use of women with sexual abuse histories and their sexual desire function. It appears that women with histories of CSA have a tendency toward more negative interpretations of sexually relevant information, but those interpretations might not necessarily be associated with their sexual desire function. In a similar study, women were asked to write a neutral essay on their previous day and a sexual essay on their sexual self-schemas.<sup>60</sup> Similar to the previous study, women with abuse histories used significantly more negative emotion words in the sexual essay than non-abused women. Across the 2 essays, the women with histories of CSA used less positive emotion words than the non-abused women, and for the 2 groups of women greater use of positive emotions words was associated with better sexual function ( $R^2 = 0.20$ ). These findings suggest that *positive emotions* toward sexuality might be more relevant to the sexual function of women with abuse histories than negative emotions.

The sample of women with abuse histories from the study by Lorenz and Meston<sup>60</sup> also participated in a 5-session expressive writing treatment study that led to improved mental and sexual health ( $R^2$  for resolution of hypoactive sexual desire disorder = 0.13;  $R^2$  for resolution of female sexual arousal disorder = 0.09)

**Table 2.** Types of sexual dysfunctions reported by women with CSA histories

Study	Sample	N	Assessment	Findings for women with abuse histories reporting sexual dysfunction
Jehu et al, 1988 <sup>23</sup>	Clinical	51 women	Semistructured interview; CSA defined as genital contact before 15 y; sexual function assessed with items created for this study	59% reported sexual aversion; 57% reported desire dysfunction; 45% reported orgasm dysfunction; 34% reported sexual pain
Sarwer and Durlak, 1996 <sup>24</sup>	Clinical	359 women	Structured interview; CSA defined as contact abuse before 14 y and assessed with single item; sexual function assessed with <i>DSM-III</i> clinical interview	59% reported desire dysfunction; 33% reported orgasm dysfunction; 9% reported sexual pain
Becker et al, 1984 <sup>47</sup>	Clinical	364 women	Structured interview; CSA defined as contact abuse before 16 y; sexual dysfunction assessed with questions created for the study	62% reported arousal dysfunction; 59% reported sexual aversion; 51% reported desire dysfunction; 18% reported orgasm dysfunction; 12% reported sexual pain
Becker et al, 1986 <sup>46</sup>	Clinical	471 women	Structured interview; CSA defined as contact abuse before 16 y; sexual dysfunction assessed with questions created for the study	56% reported desire dysfunction; 51% reported arousal dysfunction; 25% reported orgasm dysfunction; 13% reported sexual pain
Kristensen and Lau, 2011 <sup>29</sup>	Clinical	158 women	Self-report questionnaires; CSA defined as contact abuse before 16 y perpetrated by family member; sexual dysfunction assessed with 7-item questionnaire on sexual function created for this study	62% reported desire dysfunction; 39% reported orgasm dysfunction; 37% reported sexual pain; 18% reported sexual arousal problems
Gorcey et al, 1986 <sup>26</sup>	Community	97 women	Structured interview; CSA defined as abuse before 14 y; sexual dysfunction assessed with 12-item Impact Interview created for this study	43% reported fear of sex; 11% reported flashbacks during sex
Jackson et al, 1990 <sup>38</sup>	College	40 women	Semistructured interview; CSA defined as sexual abuse before 18 y perpetrated by family member $\geq 5$ y older than victim; sexual function assessed with <i>DSM-III</i> clinical interview	50% reported desire dysfunction; 45% reported orgasm dysfunction; 35% reported arousal dysfunction; 35% reported sexual pain
Kinzl et al, 1995 <sup>41</sup>	College	202	Self-report questionnaires; CSA defined as contact and non-contact abuse before 18 y; sexual function assessed with 7-item measure based on <i>DSM-III</i> sexual dysfunction created for this study	36% reported orgasm dysfunction; 23% reported desire and arousal dysfunction; 14% reported sexual pain

CSA = childhood sexual abuse; *DSM-III* = *Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition*.

and then wrote a new set of neutral and sexual essays.<sup>61</sup> In the post-treatment sexual essay, women showed a decrease in their use of negative emotion words (Cohen  $d = 0.23$ ) and an increase in positive emotion words (Cohen  $d = 0.27$ ). Notably, the decrease in negative emotion words was associated with improvement in sexual function ( $r = 0.21$ ) and sexual satisfaction ( $r = 0.31$ ), but the increase in positive emotion words showed no association with these sexual health variables.<sup>62</sup> Across studies on expressive writing, positive affect was related to improved sexual function, except for the treatment study in which only a decrease in negative emotion was related to improved sexual function.

In addition to the implicit associations and language analysis approaches, cognitive associations with sexuality in women with abuse histories also have been tested with more direct measures. During a sexual psychophysiology study, women with CSA histories reported more negative affect before the presentation of an erotic film than non-abused women.<sup>63</sup> Women with abuse histories also retrospectively reported greater fear, anger, and disgust *during* sexual arousal with a partner than their non-abused counterparts.<sup>25,52,53</sup> Greater negative affect before and during exposure to sexual stimuli could contribute to the development and maintenance of sexual dysfunction, particularly arousal dysfunction. The evidence suggests that greater negative appraisals and a deficit of positive appraisals of sexual stimuli are related to sexual function in women with CSA histories. The differences between the responses of women with and without CSA histories to sexual stimuli reviewed here suggest that CSA can affect the way women cognitively process information related to sexuality.

### Sexual Self-Schemas

The tendency to appraise sexual stimuli more negatively and less positively also has been demonstrated in women's perceptions of their sexual selves. Sexual self-schemas are deeply held views and attitudes about the self as a sexual being that affect the processing of sexually relevant cues and inform sexual behavior.<sup>64</sup> Sexual self-schemas have primarily been studied with a self-report measure, the Sexual Self-Schema Scale, in which women are asked to rate themselves on a series of positive and negative trait adjectives (eg, uninhibited, serious, romantic).<sup>64</sup> Research using the Sexual Self-Schema Scale found that women with abuse histories reported less positive sexual self-schemas ( $R^2 = 0.06^{54}$ ) but no difference in negative sexual self-schemas ( $R^2 = -0.07^{54}$ ) compared with their non-abused peers, and that positive sexual self-schemas were associated with sexual function.<sup>53,65</sup> Another study found that women with histories of CSA reported lower positive sexual self-schemas and greater negative sexual self-schemas than non-abused women, and that the 2 types of sexual self-schemas were related to sexual function and sexual satisfaction.<sup>63</sup> Taken together these studies suggest that lower positive associations with sexuality are more important to the sexual function of women with abuse histories than greater negative associations with sexuality.

Recently the sexual self-schemas of women with abuse histories have been explored with text analysis approaches that extract common themes, or schemas, from natural language. In contrast to self-report questionnaires, this text analysis approach enables schemas to arise organically from the data. The 1st study to use this approach examined sexual essays written by women with and without abuse histories and identified 7 unique schemas including family and development, virginity, abuse, relationship, sexual activity, attraction, and existentialism.<sup>66</sup> When comparing the essays of women with and without abuse histories, it was noted that non-abused women used the virginity and relationship schemas significantly more than the women with abuse histories, and the women with abuse histories used the abuse and attraction schemas significantly more than the non-abused women. The investigators posited that although the loss of virginity might be a highly salient event in the sexual development of non-abused women, this might not apply to the women with CSA histories. For women with CSA histories, it is likely that abuse experiences were more central to their early psychosexual development than the loss of virginity.

Meston et al<sup>61</sup> conducted a randomized clinical trial of a 5-session expressive writing treatment for women with histories of CSA and current sexual dysfunction. The study included 2 treatment conditions that asked women to write about their trauma history or their sexual self-schemas. Women in the sexual self-schemas condition showed significant improvement in sexual function and greater improvement than women in the trauma condition, reiterating the importance of sexual self-schemas to the sexual function of women with abuse histories. In further support of the impact of sexual self-schemas on study outcomes, women's post-treatment essays were examined with the text analysis approach described earlier, and women with CSA histories showed decreases in their use of the abuse, family and development, virginity, and attraction schemas and an increase in their use of the existentialism schema.<sup>67</sup> Expressive writing on sexual self-schemas could aid women with histories of CSA to process their abuse experiences and thus diminish the prominence of abuse in their sexual self-schemas.

### Sympathetic Nervous System Activation

One common reaction to CSA is chronic elevated SNS activity or physiologic hyperarousal. Symptoms of increased SNS activity can include increased heart rate, increased respiration, muscle tension, perspiration, exaggerated startle response, and difficulty sleeping. Increased SNS activation has been linked to trauma exposure in general and to certain psychological disorders, especially anxiety disorders and post-traumatic stress disorder (PTSD).<sup>68</sup> Although this physiologic response is common to all major traumas, in childhood trauma the increased SNS activity begins so early in life that it can fundamentally alter the individual's overall physiologic functioning and put that individual at increased risk for stress-related disorders.<sup>69</sup>

Activity of the SNS naturally increases during sexual arousal. Studies on the relation between SNS arousal and sexual arousal in women have identified an optimal level of SNS arousal for facilitating genital sexual arousal.<sup>70</sup> Research using exercise and ephedrine to increase SNS arousal before viewing an erotic film showed that, in sexually functional women, increases in SNS arousal provided a jumpstart to genital sexual arousal, resulting in enhanced genital sexual arousal to an erotic film.<sup>71–73</sup> The enhancement to genital sexual arousal provided by exercise also has been demonstrated in (non-abused) sexually dysfunctional women.<sup>70,74</sup> However, in an exercise study comparing women with CSA histories with and without PTSD with non-abused women, the women with abuse histories did *not* show an increase in genital sexual arousal in the exercise condition, in contrast to their non-abused peers who showed the expected increase<sup>75</sup> (Cohen  $d = 0.95$ ). In fact, the investigators found an inverse relation between PTSD symptoms and genital arousal, such that women with CSA histories and greater symptoms of PTSD showed *lower* levels of genital sexual arousal *after* exercise (the opposite of the non-abused women). The investigators concluded that, for women with CSA histories, SNS arousal could already be so elevated that the increase in SNS arousal that occurs naturally during sexual arousal might push their SNS activation beyond the optimal range, leading to impaired sexual function. Alternate methods of assessing SNS activation including measurement of the stress hormone cortisol have shown different profiles between women with and those without CSA histories ( $\eta^2 = 0.264^{76}$ ), and these differences were related to sexual function ( $\eta^2 = 0.105^{76}$ ).<sup>75–77</sup>

### Body Image and Esteem

Research also has suggested that the body image or body esteem of women with CSA histories could account for the higher rates of sexual dysfunction reported by this group. Body esteem refers to cognitive and affective appraisals of one's own body that are influenced by individual experiences and socialization.<sup>78</sup> In the general population of women, higher body image is associated with better sexual function. Specifically, negative appraisals of the body *during* sexual activity negatively affect sexual function (for review, see Woertman and van den Brink<sup>79</sup>). Women with abuse histories report lower overall body esteem than their non-abused peers<sup>80–82</sup> (Cohen  $d = 0.68^{79}$ ;  $\eta^2 = 0.28^{81}$ ), particularly for the sexual attractiveness element of body image ( $d = 0.68^{79}$ ).<sup>80,82</sup> Two studies have linked body image to the sexual function of women with abuse histories. Wenninger and Heiman<sup>82</sup> found that a lower evaluation of the sexual attractiveness element of body esteem was associated with poorer sexual function for women with abuse histories. Kilimnik and Meston<sup>83</sup> found that abuse history moderated the relation between overall body esteem and sexual excitation (defined as brain processes related to approaching sexual stimuli; Cohen  $d = 0.30$ ), and that the sexual attractiveness element of body esteem explained the most variance in the sexual excitation of women with CSA histories (partial  $\eta^2 = 0.28$ ).<sup>80</sup> In other words, decreases in body esteem were associated with

decreases in sexual excitation, but *only* for women with histories of CSA. The investigators suggested that during CSA a child might learn to associate her body with the abuse, thereby leading to negative appraisals of her body that continue into adulthood and impair sexual function.

Research on the treatment of eating disorders also sheds light on the relation between CSA and body esteem. Rates of eating disorders are increased among women with histories of CSA compared with non-abused women, and a relation between history of CSA and low body image has been noted in the eating disorder literature (effect size range  $r = -0.273$  to  $0.431$ , median  $r = 0.18$ ).<sup>84,85</sup> A treatment study for women with anorexia and bulimia identified a differential treatment response between participants with and those without histories of abuse. Specifically, the researchers found that women with CSA histories reported less improvement in sexual function after treatment compared with their non-abused counterparts.<sup>85</sup> Although body image improved significantly among the non-abused women, there was no change in body image for the women with abuse histories. This treatment study suggests an important association between low body image and sexual function and indicates that the low body image of women with CSA histories might be particularly intractable.

### Shame and Guilt

The emotions of guilt, shame, and self-blame related to CSA have been identified as potential mechanisms underlying the development of sexual dysfunction in women with CSA histories. In a prospective longitudinal study of CSA survivors, beginning immediately after the abuse was reported to authorities, greater shame and self-blame at 1 year after abuse predicted greater sexual difficulties at 6 years after abuse.<sup>56</sup> Notably, shame and self-blame predicted sexual difficulties over and above abuse severity (defined as presence of penetration, use of force, duration of abuse, number of events, and familial or non-familial perpetrator), suggesting that emotional reactions to CSA might be more relevant to the development of later sexual problems than characteristics of the abuse itself. The investigators suggested that shame and self-blame might negatively affect women's sexual self-schemas,<sup>56</sup> although to date no empirical studies have examined the relation between those 2 constructs. In another study, women with abuse histories reported higher rates of sex guilt (defined as expectations of punishment for "improper" sexual behavior) than non-abused women; however, this study did not assess sexual function.<sup>86</sup> These studies provide preliminary evidence that negative emotions of guilt, shame, and self-blame could serve as 1 of the pathways through which early abuse affects women's later sexual function.

### Mechanisms Suggested by Treatment Research

Because the effect of CSA on sexual health cannot ethically be studied with randomized controlled experiments, treatment research provides an alternative method of examining



mechanisms. Women with histories of CSA show a lower response to standardized sex therapy treatments than non-abused women.<sup>50,51</sup> In a study on sildenafil citrate (Viagra) women with CSA histories showed a significantly lower response to the drug for genital arousal, lubrication, and orgasm than non-abused women. Of the women who responded to the drug, 70% of the non-abused women reported that the enhanced arousal made intercourse more pleasant and satisfying, whereas only 14% of the women with CSA histories reported that the drug made intercourse more pleasant and satisfying and another 14% of the women with CSA histories reported that the enhanced arousal made intercourse *unpleasant or disturbing*.<sup>48</sup> Rather than improving sexual function, the treatment actually made sexual function worse. In a study of testosterone and vardenafil (Levitra, GlaxoSmithKline, London, UK) for treating female sexual dysfunction, non-abused women responded with enhanced genital sexual arousal to the drugs, whereas women with histories of CSA did not show any change in genital arousal (partial  $\eta^2 = 0.25$ ).<sup>49</sup> Clinical experts have posited that treatments that directly enhance genital sexual arousal might move too quickly and feel too explicitly sexual for women with histories of sexual abuse.<sup>50,51</sup>

In contrast to the pharmacologic studies just reviewed, women with abuse histories responded better than their non-abused peers to mindfulness-based sex therapy.<sup>54</sup> To further explore this notable finding, a follow-up study compared group cognitive behavioral sex therapy with group mindfulness-based sex therapy for women with CSA histories and sexual dysfunction.<sup>87</sup> After treatment, women in the mindfulness condition showed an increase in subjective sexual arousal to an erotic film in the laboratory compared with their pretreatment responses and compared with the responses of women in the cognitive behavioral sex therapy condition. Notably, this increase in subjective arousal was *not* accompanied by an increase in genital sexual arousal. Although treatment did not affect women's genital arousal, it appeared to affect the relation between their genital and subjective sexual arousal, such that they were more aware or more responsive to their genital arousal after treatment. The investigators speculated that the mindfulness orientation of the treatment might have enabled the women to disconnect from negative cognitions such as memories of the abuse and fully attend to the sexual stimulus in the present moment.<sup>87</sup> Although several active mechanisms have been proposed to account for the improvements in sexual function conferred by mindfulness-based sex therapy,<sup>88</sup> it is unclear whether a unique mechanism is at work when these treatments are provided to women with histories of CSA.

Expressive writing treatments focused on the sexual function of women with histories of CSA also have pointed toward potential mechanisms of action. Meston et al<sup>61</sup> tested a 5-session expressive writing treatment focused on sexual self-schemas and found that the schema-focused group and the trauma-focused group showed improvements in sexual function and sexual satisfaction. Expressive writing is proposed to improve mental health through the mechanisms of exposure and habituation to

traumatic memories, decreased desire to conceal traumatic memories, emotional expression, and cognitive re-evaluation.<sup>89</sup> Because the trial reported on by Meston et al was the 1st to test expressive writing as a treatment for sexual dysfunction in women with abuse histories, it is unknown exactly which mechanisms might be most salient for this group. The investigators suggested that the expressive writing treatment approach might have been especially appropriate for women with abuse histories because it provided them with ultimate control over the content of their essays and the pace of treatment.<sup>61</sup> The private nature of expressive writing might have improved treatment efficacy for this group of women.

## CONCLUSION

Sexual abuse in childhood has been identified as one of the most important risk factors for sexual dysfunction in adulthood. Indeed, our review of prevalence studies showed that in random probability studies 25% to 59% of women with CSA histories report sexual dysfunction, which increases to 84% to 94% in studies of clinical samples. Notable differences emerged in the sexual health of women with vs without histories of abuse for the prevalence of dysfunction, types of dysfunctions, and treatment response. Sexual dysfunction is more prevalent among women with CSA histories than non-abused women. Although desire difficulties are the most common issue for women in general, desire *and* arousal difficulties are increased among women with histories of abuse. For treatment response, women with a history of CSA show a lower response to treatments that directly enhance genital sexual arousal compared with non-abused women, yet show a better treatment response to mindfulness-based sex therapy. Differences in the sexual health of women with vs without a history of abuse indicate that the sexual problems of women with CSA histories might develop through distinct mechanisms from the sexual problems of non-abused women. A better understanding of the mechanisms underlying sexual dysfunction among women with CSA histories is vital to developing targeted treatments for sexual dysfunction in this population.

To date researchers have proposed several potential mechanisms to account for the robust relation between histories of CSA and sexual dysfunction in adulthood. These proposed mechanisms include cognitive associations with sexuality, sexual self-schemas, SNS activation, body image and esteem, and the negative emotions of shame and guilt. Our review of the literature suggests that women with a history of CSA appraise sexual stimuli, and even their own sexual identities, as more negative and less positive than non-abused women, with the *lower positive* appraisals showing a stronger relation to sexual function. Emotional reactions to the abuse including increased levels of shame, guilt, and self-blame also have been associated with lower sexual function. Relatedly, elements of the physical body have been linked to the lower sexual function of women with abuse histories. Women with CSA histories show increased baseline

SNS activation that can impair sexual arousal response and less positive appraisals of their own body, particularly for perceived sexual attractiveness.

## RECOMMENDATIONS

We provide the following recommendations to improve the state of knowledge about the impact of CSA on sexual function. It is imperative to improve the methodologic practices in this field. The inconsistencies in the definitions of *childhood*, *abuse*, and to a lesser extent, *sexual dysfunction* used by this literature complicate our understanding of the impact of CSA on sexual health. We recommend that investigators explicitly define these variables and report on the method of recruitment, assessment instruments, and effect sizes for all observed effects. Effect sizes provide a non-biased estimate of the importance or magnitude of an effect and thus help scientists and clinicians to critically evaluate research findings, compare across studies, and increase the feasibility of future meta-analyses or reviews. We recommend the comprehensive assessment of CSA history including identification-based questions (ie, Were you ever raped as a child?) and behavior or activity-based questions (ie, Has anyone ever made you have oral, vaginal, or anal sex against your will?). For the assessment of sexual dysfunction, we recommend the use of validated questionnaires that assess the various domains of sexual function, perhaps with some additional options for non-sexually active women, as described next.

An unforeseen complication of studying women with a history of CSA is that some of these women abstain from sexual activity entirely.<sup>90,91</sup> The gold-standard measures for sexual function, such as the Female Sexual Function Index,<sup>92</sup> were developed for a sexually active population and might not render valid scores for non-sexually active women. Thus, the literature just reviewed might fail to account for the sexual function of women with CSA histories who abstain from sexual activity. A different profile of active mechanisms might be more relevant for the group who abstain from sexual activity. We recommend that researchers attempt to capture the sexual health variables of women who abstain from sexual activity, perhaps with modified versions of existing measures or additional answer choices to indicate a lack of sexual activity and reasons underlying that lack of sexual activity. Another approach would be to use prospective longitudinal designs (eg, Feiring et al<sup>56</sup>) to identify women's sexual function and sexual behavior over time. Prospective designs also enable a detailed examination of potential mechanisms of action. The use of improved methods will facilitate future literature reviews on this topic and contribute to our ability to more accurately describe the impact of CSA on later life sexual function.

As scientists and clinicians attempt to identify the mechanisms through which CSA impacts later life sexual function, robust support has been identified for the role of cognitive associations with sexuality, sexual self-schemas, and SNS activation. Comparatively less work has been conducted on body image and esteem and the emotions of shame and guilt. We propose a

further exploration of the role of shame and guilt in women's sexual self-schemas, perhaps through additional text analysis studies. Research has indicated that women with abuse histories hold less positive associations with their sexuality than their non-abused peers, but that field has room to grow in its understanding of the specific content of women's negative associations. We also propose further exploration of the relation between shame and guilt and low body image. Research with non-abused women has indicated that state body image (eg, body image *during* sexual activity) is more relevant to sexual function than trait body image.<sup>79</sup> Currently the field is lacking information on cognitions and associations in women with abuse histories when they engage in sexual activity with a partner.

Another potentially untapped resource is the mechanisms of action suggested by treatment research. To date, mindfulness-based sex therapy and expressive writing therapies have been particularly effective for addressing sexual dysfunction in women with a history of abuse compared with non-abused women; however, the active mechanisms of these treatments for this particular population remain unknown. For example, the finding that mindfulness-based sex therapy was superior in treating sexual dysfunction among women with abuse histories compared with non-abused women suggests that some element of teaching women non-judgmental body awareness and genital awareness enhances sexual function. As a 2nd example, research suggests that expressive writing about sexual self-schemas is particularly healing for women with abuse histories, suggesting a number of potential mechanisms such as exposure and habituation to traumatic memories, decreased desire to conceal traumatic memories, emotional expression, and cognitive re-evaluation. Looking deeper into the potential agents of change suggested by treatment research and combining these ideas with prior work on cognitive, physiologic, and emotional mechanisms create new opportunities to clarify potential mechanisms of action. Ideally future treatment studies will assess multiple potential mechanisms repeatedly to shed greater light on this area. Further research on the complex interactions of cognitive appraisals of sexual stimuli, sexual self-schemas, physiologic sexual arousal, body image, and negative emotions could help clarify the unique contribution of each element to the development of sexual dysfunction in women with abuse histories. Future treatments to improve sexual function in women with CSA histories might need to target several of these mechanisms simultaneously to lead to clinically significant improvement.

**Corresponding Author:** Cindy M. Meston, PhD, Department of Psychology, The University of Texas at Austin, 108 East Dean Keaton Street, Stop A8000, Austin, TX 78712, USA. Tel: 512-232-4644; Fax: 512-471-6175; E-mail: [meston@psy.utexas.edu](mailto:meston@psy.utexas.edu)

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## STATEMENT OF AUTHORSHIP

### Category 1

#### (a) Conception and Design

Carey S. Pulverman; Chelsea D. Kilimnik; Cindy M. Meston

#### (b) Acquisition of Data

Carey S. Pulverman; Chelsea D. Kilimnik

#### (c) Analysis and Interpretation of Data

Carey S. Pulverman; Chelsea D. Kilimnik; Cindy M. Meston

### Category 2

#### (a) Drafting the Article

Carey S. Pulverman

#### (b) Revising It for Intellectual Content

Chelsea D. Kilimnik; Cindy M. Meston

### Category 3

#### (a) Final Approval of the Completed Article

Carey S. Pulverman; Chelsea D. Kilimnik; Cindy M. Meston

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