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Child Abuse & Neglect

Associations among childhood sexual abuse, language use, and adult sexual functioning and satisfaction☆

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ABSTRACT

Objectives: To better understand the link between childhood sexual abuse (CSA) and adult sexual functioning and satisfaction, we examined cognitive differences between women with (N = 128) and without (NSA, N = 99) CSA histories.

Methods: We used the Linguistic Inquiry Word Count, a computerized text analysis program, to investigate language differences between women with and without CSA histories when writing about their daily life (neutral essay) and their beliefs about sexuality and their sexual experiences (sexual essay).

Results: Compared to NSA women, women with CSA histories used fewer first person pronouns in the neutral essay but more in the sexual essay, suggesting women with CSA histories have greater self-focus when thinking about sexuality. Women who reported CSA used more intimacy words and more language consistent with psychological distancing in the sexual essay than did NSA women. Use of positive emotion words in the sexual essay predicted sexual functioning and satisfaction in both groups.

Conclusions: These findings support the view that language use differs in significant ways between women with and without sexual abuse histories, and that these differences relate to sexual functioning and satisfaction.

Childhood sexual abuse (CSA) has been shown to have profound effects on adult sexual functioning and satisfaction in intimate relationships (for review, see Leonard & Follette, 2002). Women with histories of CSA report lower sexual desire, inhibited sexual arousal and orgasm, and higher sexual pain than women without such histories in both clinical (DiLillo, 2001) and community samples (Najman, Dunne, Purdie, Boyle, & Coxeter, 2005). Additionally, CSA survivors report significantly lower satisfaction with their sexuality (Rellini & Meston, 2007a), which in turn is associated with lower marital or relationship satisfaction (DiLillo et al., 2009) and higher rates of divorce (Nelson et al., 2002).

Many studies have documented these difficulties but few have aimed to understand the mechanisms by which early abuse experiences precipitate or maintain problems in adulthood. However, of this small body of literature, it appears that cognitive mechanisms play a significant role. Survivors of CSA appear to process and interpret information related to sex differently from individuals who have no history of sexual abuse (NSA). Women with CSA histories devote more cognitive resources to sexual information, which is perceived as threatening (Amir, McNally, & Wiegartz, 1996; Devilly et al., 2007), leading to a relative under-processing and subsequent memory deficit for non-threatening information (Bremner, Vermetten, Afzal, & Vythilingam, 2004; McNally, Metzger, Lasko, Clancy, & Pitman, 1998). Moreover, women with CSA histories differ from NSA women in processing sexual stimuli, with CSA survivors less likely to categorize sexual stimuli as connected to positive

emotions than are NSA women (Meston & Heiman, 2000). Beliefs about one's sexual self are also affected by CSA, as women reporting CSA histories are more likely to report negative sexual belief structures, or schema, about their sexual selves, and less likely to report positive schemas than NSA women (Meston, Rellini, & Heiman, 2006; Reissing, Binik, Khalife, Cohen, & Amsel, 2003). Similarly, women with CSA histories have more negative attitudes towards sexuality in general (Schloredt & Heiman, 2003).

In short, sexual abuse may create maladaptive beliefs and attitudes towards sexuality, which cause survivors to process sex-related information through a threatening lens. This would lead women with CSA histories to experience less reward and greater distress when thinking about sex, which would lead to lower frequency of and less pleasure during sexual activity—both of which have been shown to lead to greater sexual dysfunction and less sexual satisfaction (Laumann, Paik, & Rosen, 1999). One study in women with sexual dysfunction found that degree of sexual dysfunction was associated with level of attentional bias to sexuality-based words (Beard & Amir, 2010), suggesting that the differences in sexual functioning between women with and without CSA histories may lie in their differential cognitive processes.

One way to examine cognitive processes and their possible effects on sexual functioning and satisfaction is to examine linguistic differences between women with and without CSA histories. There are two broadly defined methods for capturing differences in language use: qualitative analysis, generally used to describe the thematic content or context of a language sample, and quantitative analysis, which uses word or thematic categorization to create counts that can be used for statistical tests. Within the latter category, word count strategies have emerged as a technique that captures psychological information not immediately apparent through literal readings (Pennebaker, Mehl, & Niederhoffer, 2003). That is, word count strategies measure implicit differences in language use, which removes some of the effect of socially desirable reporting—a particular concern in sexuality research (Meston, Heiman, Trapnell, & Paulhus, 1998). For example, unless instructed, few people consciously monitor their usage of pronouns, a commonly counted category of speech: thus it is unlikely that word count analyses would be influenced by participant's conscious manipulation of their response for social desirability or to please a researcher. Similarly, such linguistic dimensions are not as subject to cognitive distortions, such as memory loss, which are often seen in women who report CSA (Gray & Lombardo, 2001). In other words, linguistic analysis may reveal cognitive characteristics of CSA survivors that are not accessible through direct assessments such as interviews because they are not aware of, or comfortable discussing, their thought patterns or attitudes towards sexuality.

To date, only three studies have examined the potential linguistic differences between women with and without histories of CSA. Rellini and Meston (2007b) examined body words (e.g., "shoulder") and sexual words (e.g., "orgasm") used to describe their day (neutral condition) and a sexually ambiguous picture (sexual condition). They found that on average, CSA survivors used significantly more sexual words in the neutral condition but fewer in the sexual condition. Although the authors predicted that women with a history of CSA would use more body words than NSA women, they found no difference between groups. However, higher usage of body words was associated with higher sexual desire, marking this word group important for further investigation. Another study found that CSA survivors were more likely to link body words to sexual words, implying that they would be more likely to use body words when describing their sexuality (Meston & Heiman, 2000). Also, Meston et al. (2006) found that women with CSA histories were less likely to endorse intimacy and romance (e.g., "loving") words as "very characteristic" of their sexual selves than were women without CSA histories.

Previous research would predict a number of other linguistic dimensions to differ between women with and without CSA histories. First person singular pronoun usage, in particular usage of the word "I," is thought to represent an inward focus and is associated with depression (Rude, Gortner, & Pennebaker, 2004), suicidality (Stirman & Pennebaker, 2001), and anxiety (Weintraub, 1981), all of which are elevated in CSA populations (Cutler & Nolen-Hoeksema, 1991; Leonard & Follette, 2002). Of particular interest is the finding that women, more than men, tend to use "I" more often when describing dramatic or traumatic life experiences than everyday events (Gleser, Gottschalk, & Watkins, 1959). This effect is seen solely in recounting personally relevant trauma and not traumatic experiences in general (Pennebaker & Lay, 2002). Thus it is likely that women with CSA histories would have higher first person pronoun use than those without when discussing a topic related to a personally relevant trauma, such as sexuality.

Another category of interest is affect words (e.g., "happy" or "sad"). Women with CSA histories tend to demonstrate blunted affect in everyday situations but heightened affect, particularly negative affect, in sexual contexts (Marx & Sloan, 2002; Schloredt & Heiman, 2003). Some researchers on psychotherapy for CSA-related issues such as PTSD have suggested that changes in emotion words used during therapy are a marker of progress (Foa, Molnar, & Cashman, 1995); however, differences in emotion words used in everyday speech between women with and without CSA histories have not been documented. We would expect that women with CSA histories would use fewer emotion words in describing their everyday lives but more in writing about sexuality.

Psychological distancing, or attempting to emotionally remove oneself from a situation or problem, may also differ between NSA and CSA women. Within the context of word-count linguistic analysis psychological distancing is a factor derived from articles, words greater than 6 letters, inverse-scored personal pronoun usage, words indicating discrepancy from reality such as "should," and present tense verbs, all of which have been shown to increase in people reacting to the Sept 11th attacks on the World Trade Center (Cohn, Mehl, & Pennebaker, 2004). Women with CSA histories, who often report dissociation in sexual contexts (Chu & Dill, 1990), would be more likely to use language indicating psychological distancing when describing sexual topics than women without CSA histories.

We expanded on prior work by examining language use in a large, ethnically diverse community sample of women with and without CSA histories. We made the following predictions about the differences in language usage between these

groups of women. First, in keeping with previous research, CSA survivors would use more body words but fewer sexual and intimacy words when writing about a sexual topic than would women in the NSA comparison group. Second, women in the CSA group would use "I" more often than women in the NSA group, in particular when writing about a sexual topic. Third, women in the CSA versus NSA group would use fewer affect words when writing about a neutral topic, but would use more affect words when writing about a sexual topic. Finally, women with CSA histories would have higher usage of linguistic markers of psychological distancing when writing about a sexual topic than NSA women.

Method

All study procedures were conducted in compliance with the University of Texas at Austin Institutional Review Board.

Participants

Participants were recruited from the community via newspaper and online advertisements and screened for eligibility by telephone. They were given information regarding study procedures at their first laboratory visit, and gave informed consent. Participants in both groups were required to be over 18 and sexually active, and were excluded if they reported a traumatic experience in the previous 3 months, sexual abuse in the past 2 years, unstable psychosis, or suicidality. Because the present study took place in the context of a treatment study for survivors of CSA, women receiving psychological treatment for sexual or abuse issues at the time of the study were also excluded. Advertisements for the CSA group were targeted towards survivors of CSA and included information about the potential for free psychological treatment for CSA-related problems in adult intimate relationships; advertisements for the NSA group identified the study as a study of women's sexual health and experiences. Both sets advertisements were otherwise identical.

CSA group. For the purposes of this study, CSA was defined as having experienced at least 1 involuntary sexual event before age 16 and no less than 2 years before intake. "Sexual events" included 1 or more of the following: oral, anal, or vaginal intercourse, penetration of the vagina or anus using objects or digits, or genital touching or fondling. The experiences reported by this group were mostly forced oral, anal, or vaginal intercourse (92%) with a few solely sexual touching (8%).

The CSA group (*N* = 128) was of an average age of 34.0 (*SD* = 10.6). The ethnic breakdown was 56% Caucasian, 21% Hispanic, 13% Black, and 10% other ethnicity participants. Most participants had at least some college education (86%). The majority was predominantly heterosexual (72%) and was in a committed relationship or married (71%). At intake, 47% of the CSA group reported a prior diagnosis of mental illness, with the majority of these (96%) reporting an anxiety or mood disorder (or some combination). Also, according to scores on the Female Sexual Function Index (see details below), the majority of the CSA group (77%) met the clinical cutoff for sexual dysfunction.

NSA group. The NSA group participants were required to report no incidents of childhood sexual abuse or unwanted sexual experiences as an adult. Women in the NSA group (*N* = 99) were comparable to women in the CSA group in terms of age (*M* age = 32.7, *SD* = 11.5) and level of education (85% had at least some college education). The ethnic breakdown was 62% Caucasian, 9% Hispanic, 12% Black, and 17% other. Forty-eight percent of women in the NSA group were in a committed relationship or married and 86% were predominantly heterosexual.

In contrast with the CSA group, only 28% of women in the NSA group reported a history of diagnosis of mental illness; the majority of these (89%) were a mood or anxiety disorder. Also unlike the women with CSA histories, only a minority of NSA participants (30%) had FSFI scores indicative of sexual dysfunction.

Measures

Women filled out a battery of questionnaires at the beginning of the experimental session, including several measures not reported on here (e.g., personality inventories). Relevant to the present study, the battery included a demographics section in which participants gave information about their race, ethnicity, education level, type and length of current romantic relationships (if any), sexual orientation, and psychiatric history.

Sexual functioning and satisfaction. Sexual functioning was measured using the Female Sexual Function Index (FSFI, Rosen et al., 2000), a 19-item measure which assesses 6 factor-derived domains of sexual functioning: sexual desire, arousal, lubrication, orgasm, satisfaction, and pain, was administered as part of the questionnaire battery. The FSFI has been shown to differentiate between women with and without female sexual dysfunction (Rosen et al., 2000). All domains have good internal consistency (Cronbach's α = .95), inter-item reliability (Cronbach's α = .82–.92) and test-retest reliabilities during a four-week interval (Pearson's *r* = .85). The FSFI has an empirically validated clinical cutoff score of 26.55 and has good divergent validity with measures of marital and relationship satisfaction (Wiegel, Meston, & Rosen, 2005). In the present study, participants were categorized as currently sexually dysfunctional if they fell below the clinical threshold.

Sexual satisfaction was measured with the Sexual Satisfaction Scale for Women (SSS-W, Meston & Trapnell, 2005). The SSS-W has 30 items which assess 5 separate factor-derived domains of sexual satisfaction: ease and comfort discussing sexual issues (communication), compatibility between partners (compatibility), contentment with the relationship (contentment), personal distress concerning sexual problems (intrapersonal distress), and distress due to the influence of sexual problems on their relationships (interpersonal distress). Like the FSFI (Meston, 2003; Rosen et al., 2000), the SSS-W reliably differentiates

between women with and without sexual dysfunction (Meston & Trapnell, 2005). The SSS-W measure has demonstrated acceptable internal consistency (Cronbach's $\alpha \geq .74$) and test-retest reliability in women with ($r = .62–.79$) and without sexual dysfunction ($r = .58–.79$) (Meston & Trapnell, 2005).

Writing procedure

Following the recommendations of Pennebaker (1997) for creating a writing exercise that elicits the most naturalistic writing, we asked participants to write for 20 minutes on each topic. They were encouraged to write as continuously as possible without worrying about spelling, punctuation, or grammar issues. By default, women entered their essays into a word processing program on a computer, but were given the option of handwriting their essays. A total of 7 women chose this option; their essays were later transcribed by a blinded researcher. Women were oriented to the general writing procedures by a researcher, who then left them alone to read the prompt from the computer and complete the writing task. The participant was asked to alert the researcher when she had finished, saved, and closed her essay. As the linguistic analysis program used relies on picking up correctly spelled words, clear spelling errors were corrected by a blinded researcher after the participant had completed her participation. To reduce carry-over effects of the sexual essay, all women completed the neutral essay first and then the sexual essay. Participants were informed that their essays would be read only by someone blinded to their identity and CSA status, and they could withdraw their essays if they did not feel comfortable having others read it; none of the participants chose this option.

Stimuli

Neutral essay. For the neutral essay, women were asked to write objectively about the events they experienced in the previous 24 hours in as much detail as possible. The neutral essay was based on control conditions used in previous writing studies (e.g., Rellini & Meston, 2007b) and was used to elicit individual differences in writing style and provide an emotionally and cognitively neutral control stimulus.

Sexual essay. For the sexual essay, women were asked to write about their deepest thoughts and feelings about sex and sexuality, including their own sexual experiences and/or relationships and view of themselves as a sexual person. The sexual essay was designed to elicit sexual schema and act as a personally relevant sexual stimulus.

Linguistic analysis

Participants' essays were analyzed using the Linguistic Inquiry and Word Count software program (LIWC; Pennebaker et al., 2001). The LIWC was designed to track the features of language which mark physical and mental health variables (Pennebaker & Francis, 1996) through a word count and categorization strategy. The LIWC searches texts for words within its dictionary of over 2300 words (those identified as most commonly used in texts by 1695 different writers) and tallies their usage into over 70 different linguistic dimensions. These dimensions were originally determined by three independent judges and include pure basic linguistic categories (e.g., pronouns, articles), as well as content categories (e.g., sexual words, emotion words) and psychological processes or styles (e.g., psychological distance). The LIWC uses a hierarchical organization such that words can fall into multiple categories: for example, the word "laughed" would be coded within the "happy," "positive emotion," "affect words," and "past tense verb" categories. The linguistic dimensions used for this study were first person personal pronouns ("I" usage), body words, sexual words, intimacy words, positive emotion words, negative emotion words, overall affect, and words indicative of psychological distancing.

Results

Group differences in demographics

There were no statistically significant differences between the CSA and NSA groups in age or level of education. Women in the CSA group were significantly more likely to report a history of mental illness [$\chi^2(4) = 12.89$, $p < .05$] and to meet clinically relevant cutoffs for sexual dysfunction [$\chi^2(1) = 36.05$, $p < .001$] than women in the NSA group. Women with CSA histories were significantly more likely to be married [$\chi^2(4) = 19.20$, $p < .001$]. Women in the CSA group were also significantly more likely to be Hispanic than the NSA women [$\chi^2(6) = 15.58$, $p < .05$] and more likely to be non-heterosexual [$\chi^2(1) = 5.89$, $p < .05$]. The analyses below did not change in significance or direction when controlling for ethnicity, sexual orientation, nor type of relationship (including no relationship), and thus results are reported without controlling for these variables. History of psychiatric diagnosis did not change the overall findings of any of the planned analyses, but emerged as a significant factor in several analyses and was thus included as an additional between-subjects factor.

Group differences in experimental manipulation

Two of the measures LIWC provides allowed us to check similarities across essays, namely the words per sentence and percentage of words within the essay found in LIWC's dictionary (dictionary words). Assuming equal time spent writing
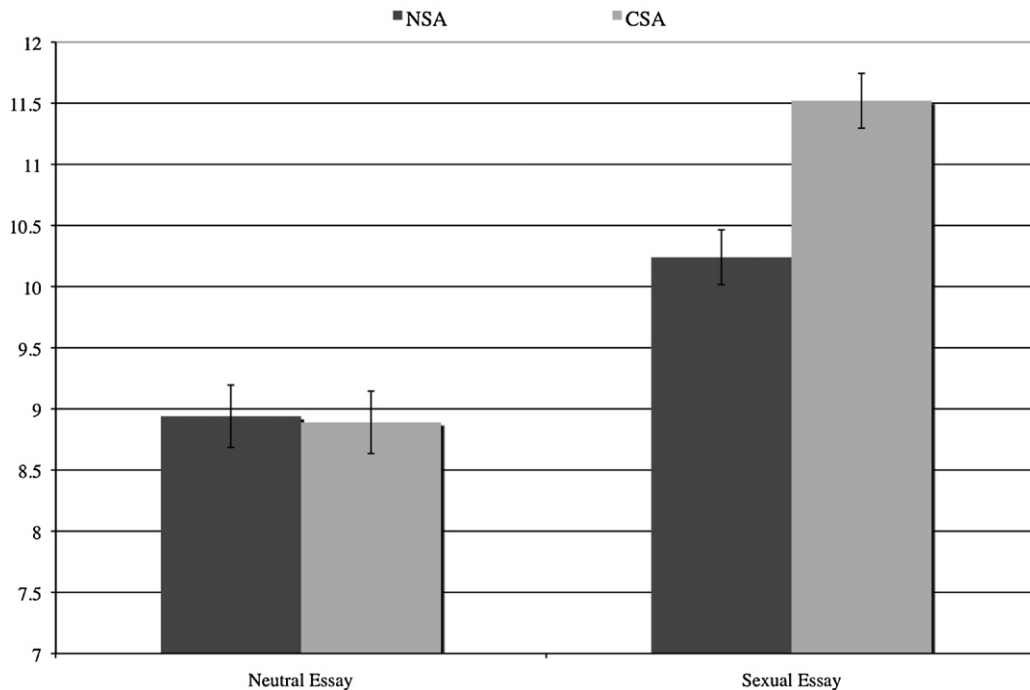
Fig. 1. Interaction of group by essay condition on "I" usage.

and complexity of the assigned writing task, these variables should be approximately equal across conditions and groups. There were no significant effects of condition or group on words per sentence. However, there was a significant effect of condition on dictionary words [$F(1, 225) = 729.60$, $p < .0001$] such that there were more words recognized by LIWC in the sexual essays than in the neutral essays. From an inspection of a representative sample of essays, it appears women used more proper nouns—brand names in particular—in describing their everyday lives than in describing their sexuality. As such, we controlled for dictionary words in all analyses.

Effects of group and condition on word categories

For each group level analysis, we conducted a repeated measures ANOVA with condition (neutral, sexual) as the repeated measures variable, group (CSA, NSA) and presence of psychiatric history (present, not present) as the between-subjects variables, and dictionary words as the covariate.

Personal pronoun usage. There was a significant main effect of condition on first person singular pronoun use [$F(1, 210) = 16.63$, $p < .001$] such that women in both groups used more personal pronouns in the sexual versus neutral essays. In the case of the word "I" specifically, there was a significant interaction [$F(1, 212) = 6.43$, $p < .05$]: relative to NSA women, women in the CSA used "I" less in their neutral essays, but more in their sexual essays (see Fig. 1).

Emotion word usage. There was a significant main effect of group on positive emotion words [$F(1, 213) = 9.66$, $p < .01$]; women in the NSA group used more positive emotion words overall than did women in the CSA group. Regarding negative emotion words, 2 significant interactions emerged: condition by group [$F(1, 213) = 24.18$, $p < .001$], and condition by psychiatric history [$F(1, 213) = 8.43$, $p < .01$]. In both cases, the interactions were such that there was no difference in negative emotion word use in the neutral essay. Women in the CSA group used more negative emotion words in the sexual essay than did women in the NSA group; similar effects were seen in women with psychiatric histories.

When looking at all affect words, 2 significant interactions were observed—condition by group [$F(1, 213) = 5.07$, $p < .05$], and condition by psychiatric history [$F(1, 213) = 7.87$, $p < .01$]. Both relationships followed similar patterns: women with CSA histories (or psychiatric histories) had lower affect word usage for neutral essays but higher for sexual essays than women without CSA or psychiatric histories (see Fig. 2).

Body word usage. For non-sexual body words, there was a significant 3-way interaction of group, psychiatric history, and condition [$F(1, 212) = 4.832$, $p < .05$]; these results are best interpreted visually (see Fig. 3). Women in the CSA group *with* a psychiatric history used significantly more body words in the neutral essay than sexual essay, while those without a psychiatric history used approximately the same number of body words in both essays. In contrast, women in the NSA group *without* a psychiatric history used significantly more body words in the neutral essay than the sexual essay, while those with a psychiatric history used only slightly more body words in the neutral than sexual essay.
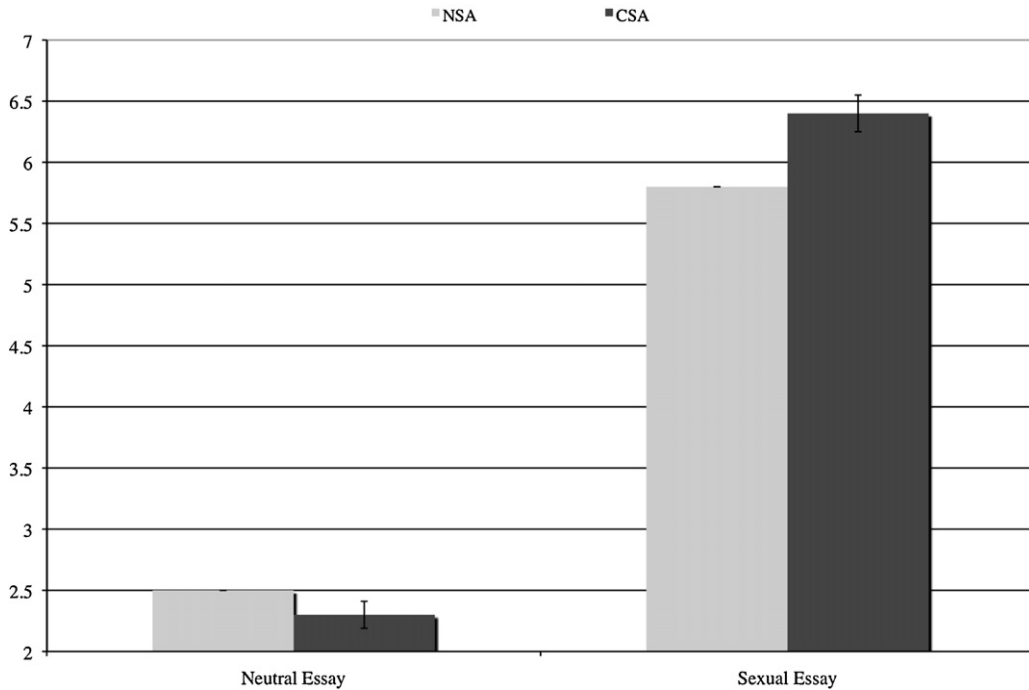
Fig. 2. Interactions of group by essay condition in affect word usage.
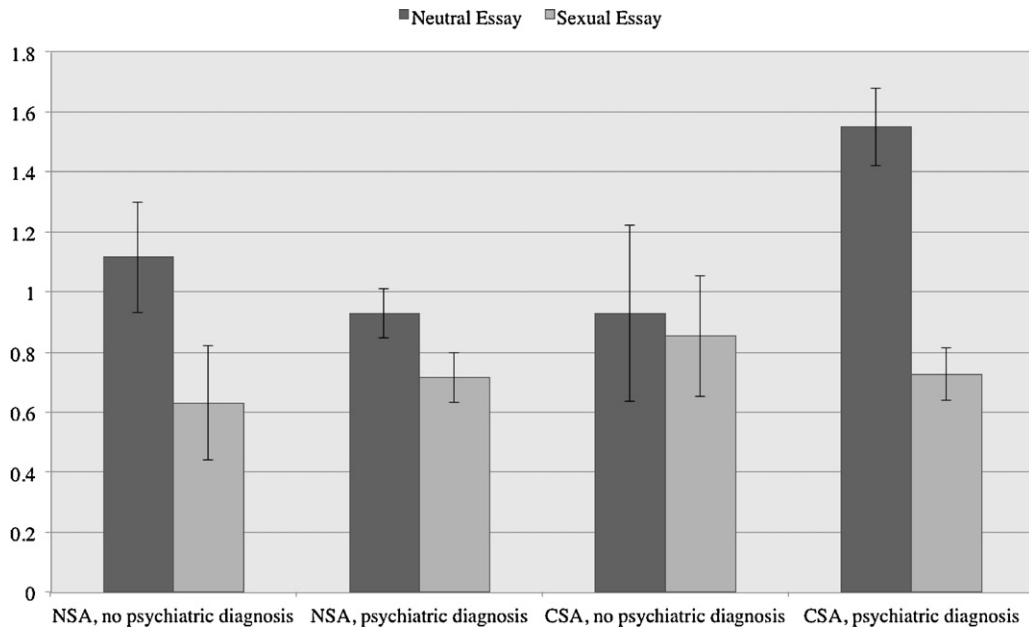

Fig. 3. Three-way interaction of group, psychiatric history, and essay condition on body word usage.

Sexual word usage. Women across groups used more sexual words in the sexual essays than in the neutral essays [$F(1, 213) = 4.75$, $p < .05$]; the interaction of group and condition was not significant, $F(1, 213) < 1$, $p = $ n.s.

Intimacy word usage. As predicted, there was a significant interaction of group and condition in intimacy word usage [$F(1, 213) = 3.94$, $p < .05$]. However, the direction of the interaction was different from that predicted; women with CSA histories were *more* likely to use intimacy words in the sexual condition than were women without CSA histories. The groups were comparable in intimacy word use in the neutral essay.
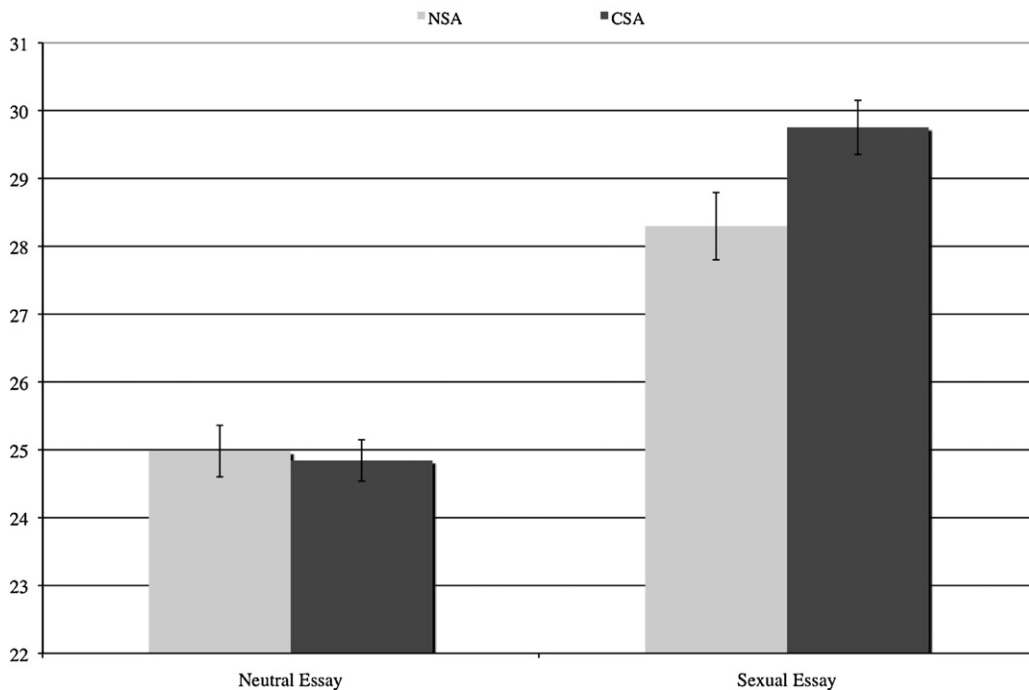
Fig. 4. Interaction of group by essay condition in psychological distancing composite scores.

Psychological distancing. There was a significant interaction between condition and group [$F(1, 207) = 4.68$, $p < .05$] in psychological distancing language, such that women in the CSA group used language indicative of psychological distancing more in the sexual essay than did the women in the NSA group; the neutral essay were similar across groups (see Fig. 4).

Effects of linguistic markers on sexual functioning and satisfaction

To explore the role of LIWC variables in sexual functioning and satisfaction, we conducted separate hierarchical linear regressions with sexual functioning (as measured by the FSFI) or sexual satisfaction (as measured by SSS-W) as the dependent variable. Each regression had two steps: in the first step, we entered a dummy-coded group variable (CSA, NSA) and in the second step, we used a stepwise entry to identify the strongest possible predictors among the LIWC variables. We tested only the LIWC variables that were identified as different between groups, and in keeping with previous studies (e.g., Rellini & Meston, 2007b) used LIWC variables from the sexual essay. Of the variables tested in this manner, positive emotion emerged as a significant predictor of sexual functioning [$R^2 = .20$, $F(2, 176) = 21.01$, $p < .001$] and sexual satisfaction [$R^2 = .24$, $F(2, 183) = 28.44$, $p < .001$]. Higher use of positive emotion words in describing sexual schemas was associated with higher sexual functioning and satisfaction.

Follow-up regressions were used to test the interaction of CSA status and positive emotion word use in predicting sexual functioning and satisfaction. In both cases, the interaction terms were non-significant and their addition did not contribute significantly to the model, indicating that the effect of positive emotion words was similar across groups. Put another way, positive emotion word use was predictive of sexual functioning and satisfaction above and beyond CSA status, but no more or less predictive for women with or without CSA histories.

Discussion

It appears that the cognitive differences noted between women with and without CSA histories extend into their language use in several content and stylistic dimensions, including both purely linguistic particles, such as the word "I", and in content domains, such as intimacy words. Moreover, a number of content domains that have been assumed to differ between women with and without CSA histories (e.g., sexual words) appeared similar across groups. Greater use of positive emotion words in the sexual essay predicted better sexual functioning and satisfaction above and beyond the effect of CSA histories. The effect of positive emotion words in predicting sexual functioning did not differ between women with and without a history of CSA. Each finding is discussed separately below.

Use of positive emotion words significantly predicted sexual functioning and satisfaction above and beyond the effect of CSA status. This was true for both groups of women, suggesting that the experience of CSA does not disrupt the ability of positive emotions to improve sexual function. Interestingly, the effect was not also observed for negative emotions, which

are often assumed to be the driving factor for sexual dysfunction and dissatisfaction (Schloredt & Heiman, 2003). These findings imply that, at least at a linguistic level, a lack of positive emotions may be more predictive of sexual problems than the presence of negative emotions. Indeed, research on marital satisfaction suggests that while rates of expression of negative emotion may be similar between satisfied and dissatisfied couples, satisfied couples express affection and other positive emotions at much higher rates than dissatisfied couples (Gottman, Coan, Carrere, & Swanson, 1998).

When talking about sexuality, women with CSA histories used the word "I" more than women without such histories. Sexuality is a topic often tied to depression and anxiety for this group (Molnar, Buka, & Kessler, 2001), and thus these results are consistent with the literature showing increased "I" usage in depressed and depression-vulnerable individuals (Rude et al., 2004). It is thought that the use of "I" reflects the relative emphasis of self in social relationships (Pennebaker & Stone, 2004). Use of first person pronouns can also be a marker of cognitive inflexibility and an inability to take on other's perspectives, particularly in depressed women (Campbell & Pennebaker, 2003). However, one study conducted in couples in which one member was diagnosed with an anxiety disorder found that use of first person pronouns during couple's therapy predicted relationship satisfaction (Simmons, Gordon, & Chambless, 2005). The authors speculated that use of "I" in a joint conversation indicated recognition of each individual's role in a couple's problems. Thus, it is possible that CSA survivor's tendency to use more first person pronouns when talking about sexuality reflects a psychological defense of taking mental control and directing the point of view.

Previous research has suggested that CSA survivors tend to have lower outward affect than NSA women in their everyday lives, but heightened or dysregulated affect in reaction to sexual stimuli (Cicchetti & Toth, 1995). This is often a target of clinical work with CSA survivors (Wolfsdorf & Zlotnick, 2001). These trends were apparent in CSA survivor's writing: relative to women without CSA histories, they used fewer affect words to describe their everyday lives but more to describe sex. It is important to note that this is the composite of two factors: negative and positive emotion. It is likely that what drove this effect was the tendency for women with CSA histories to use less positive emotion words in the neutral condition and many more negative emotion words in the sexual condition. Research on emotion word usage in expressive writing suggests that CSA survivor's greater use of negative words in the sexual condition may be constructive. While positive emotion words used to describe traumatic experiences are linearly associated with better health scores, negative emotion words have an inverse-U function. In other words, women who do not use *any* negative emotion words to describe difficult topics are at a greater risk for health or psychological problems than those who use at least some (Pennebaker, Mayne, & Francis, 1997).

There was a complex interaction between group (CSA; NSA) and history of psychiatric diagnosis in the usage of body words. Previous studies have found no difference between CSA and NSA groups in use of body words (e.g., Rellini & Meston, 2007b), but these studies did not examine differences between women with and without psychiatric histories. It is possible that those women who have sought psychiatric treatment (and received a diagnosis) differ from those who have not in their focus on body and bodily concerns. One recent study found that women with CSA histories and psychiatric diagnoses are significantly more likely to use pain medications to deal with distress than women without a history of CSA or a psychiatric diagnosis (Lorenz & Meston, 2011). Thus it is possible that these findings reflect relative somatization of emotional concerns in each group.

Based on the previous findings of Rellini and Meston (2007b), we predicted that CSA survivors would use fewer sexual words in the sexual essay than women without CSA histories. Contrary to prediction, we found that the groups were equivalent in sexual word usage. That is, both women with and without a history of CSA used more sexual words in the sexual than neutral essay; there were no significant differences between groups. It is possible that this was due to differences in the sexual stimuli between studies. Rellini and Meston (2007b) asked women to write an essay about what two fictional characters might be doing in an intentionally ambiguous sexual picture; the present study explicitly asked women to reflect on their own sexual experiences. It is likely that overt instruction to write about a sexual topic reduced the between group variance seen in response to a more ambiguous stimuli, and thus had less of a range in which an effect could be observed.

Another unexpected finding was that women with a history of CSA were significantly more likely than NSA women to use intimacy related words when writing about sex. It is tempting to explain this finding as a function of negation. That is, women with a history of CSA may simply have used more negations preceding intimacy words (e.g., "Sex is not romantic"). However, research on language use has consistently shown that individuals who use negations of words are significantly different from those who do not use those words at all (e.g., "dissatisfied" is a different signal than "not satisfied"; see Pennebaker et al., 2003). It appears that CSA survivors, when given the same prompt, are more focused on the relationship between sex and intimacy than are NSA women. One reason may be that in our sample more women with CSA histories were in relationships, and thus more likely to refer to their current romantic relationship when talking about sexuality. However, the difference between groups was still significant even when controlling for presence or absence of current romantic relationship. Another possibility is that this difference came out of a need to resolve cognitive dissonance. Women who have been sexually abused have had at least one sexual experience that throws the common assumption that sex naturally arises out of intimacy into disarray. Because they have been confronted with this ambiguity, they have had to consciously resolve it, and thus use greater linguistic space to process that relationship; women who have not had such experiences can afford to remain agnostic on the issue. A study by Blake and Weinberger (2006) supports this interpretation. Using an emotional Stroop task with intimacy-related words, the authors found that women with CSA histories processed intimacy stimuli faster than NSA women, suggesting that the women with CSA histories had devoted more cognitive space to the task.

There were a few limitations to this study. First, there were some differences in demographics between the groups, including ethnicity, type of relationship, and sexual orientation. While we controlled for any demographics known to differ

between groups in our analyses, it is possible that there were other demographics not assessed that could have impacted our findings. Second, we investigated only word categories for which there is previous research suggesting a possible difference between groups. There are doubtless other word categories that differ between women with and without CSA histories; the present analysis is by no means exhaustive. A data-driven, post hoc approach would likely identify other potential categories of words that may eventually prove important in the comparison of these two groups. Finally, the CSA survivors were offered a treatment for relationship problems while NSA women were not: it is possible that the differences reported reflect, in part, treatment seeking in addition to CSA status.

Despite these limitations, our findings point to significant trends in language use differences between women with and without CSA histories. From a clinical perspective, these findings may help to inform treatments for psychological sequelae of CSA such as traumatic stress or depression. Indeed, psychoanalytic and psychodynamic theories have long posited that early sexual trauma is reflected in adult language use, particularly in elements of language that are not usually consciously monitored by the speaker (Ferenczi, 1988; Freud, 1905; Lacan, 1968/1981). Also, one of the most well established treatments for post-traumatic stress disorder resultant from early sexual abuse, Cognitive Processing Therapy (CPT; Resick & Schnicke, 1993), uses written accounts of sexual abuse and its impact on beliefs about sexuality and intimacy (among others). Therapists using CPT often track changes in language usage as these are thought to reflect the patient's cognitive processing of maladaptive beliefs (Chard, Weaver, & Resick, 1997). Specifically, in the treatment protocol for CPT, it is noted that "convincing a patient to modify his [*sic*] language use can have an immediate effect on the severity of secondary (manufactured) emotions." (Resick et al., 2007, p. 119). Given the links between positive emotion words and sexual functioning and satisfaction observed in this study, such treatments may also be beneficial for enhancing sexual well-being. Future research that investigates whether these linguistic differences change after successful integration of CSA memories or successful psychological treatment would help determine whether language usage is a viable target or marker of psychological change in the treatment of CSA-related concerns.

References

Amir, N., McNally, R., & Wiegartz, P. (1996). Implicit memory bias for threat in posttraumatic stress disorder. *Cognitive Therapy and Research*, *20*, 625–635.
Beard, C., & Amir, N. (2010). Attention bias for sexual words in female sexual dysfunction. *Journal of Sex & Marital Therapy, 36*, 216–226.
Blake, M., & Weinberger, J. (2006). The impact of childhood sexual abuse upon implicit processing of intimacy-related stimuli. *Stress, Trauma, and Crisis*, *9*, 29–44.
Bremner, J., Vermetten, E., Afzal, N., & Vythilingam, M. (2004). Deficits in verbal declarative memory function in women with childhood sexual abuse-related posttraumatic stress disorder. *The Journal of Nervous and Mental Disease*, *192*, 643–649.
Campbell, R. S., & Pennebaker, J. W. (2003). The secret life of pronouns: Flexibility in writing style and physical health. *Psychological Science*, *14*, 60–65.
Chard, K., Weaver, T., & Resick, P. (1997). Adapting cognitive processing therapy for child sexual abuse survivors. *Cognitive and Behavioral Practice*, *4*, 31–52.
Chu, J., & Dill, D. (1990). Dissociative symptoms in relation to childhood physical and sexual abuse. *American Journal of Psychiatry*, *147*, 887–892.
Cicchetti, D., & Toth, S. (1995). A developmental psychopathology perspective on child abuse and neglect. *Journal of American Academy of Child & Adolescent Psychiatry*, *34*, 541–565.
Cohn, M., Mehl, M., & Pennebaker, J. (2004). Linguistic markers of psychological change surrounding September 11, 2001. *Psychological Science*, *15*, 687–693.
Cutler, S., & Nolen-Hoeksema, S. (1991). Accounting for sex differences in depression through female victimization: Childhood sexual abuse. *Sex Roles*, *24*, 425–438.
Devilly, G., Ciorciari, J., Piesse, A., Sherwell, S., Zammit, S., Cook, F., & Turto, C. (2007). Dissociative tendencies and memory performance on directed-forgetting tasks. *Psychological Science*, *18*, 212–217.
DiLillo, D. (2001). Interpersonal functioning among women reporting a history of childhood sexual abuse: Empirical findings and methodological issues. *Clinical Psychology Review*, *21*, 553–576.
DiLillo, D., Peugh, J., Walsh, K., Panuzio, J., Trask, E., & Evans, S. (2009). Child maltreatment history among newlywed couples: A longitudinal study of marital outcomes and mediating pathways. *Journal of Consulting and Clinical Psychology*, *77*, 680–692.
Ferenczi, S. (1988). Confusion of tongues between adults and the child: The language of tenderness and of passion. *Contemporary Psychoanalysis*, *24*, 196–206.
Freud, S. (1905). Three essays on sexuality. In J. Stracheyh (Ed. and Trans.), The standard edition of the complete psychological works of Sigmund Freud (Vol. 3, pp. 189–221). London: Hogarth Press. (Reprint published 1957).
Foa, E., Molnar, C., & Cashman, L. (1995). Change in rape narratives during exposure therapy for posttraumatic stress disorder. *Journal of Traumatic Stress*, *8*, 675–690.
Gleser, G., Gottschalk, L., & Watkins, J. (1959). The relationship of sex and intelligence to choice of words: A normative study of verbal behavior. *Journal of Clinical Psychology*, *15*, 183–191.
Gottman, J., Coan, J., Carrere, S., & Swanson, C. (1998). Predicting marital happiness and stability from newlywed interactions. *Journal of Marriage and Family*, *60*, 5–22.
Gray, M. J., & Lombardo, T. W. (2001). Complexity of trauma narratives as an index of fragmented memory in PTSD: A critical analysis. *Applied Cognitive Psychology*, *15*, S171–S186.
Lacan, J. (1968). The language of the self: *The function of language in psychoanalysis*. (A. Wilden, Trans.) Baltimore, MD, US: Johns Hopkins University Press. (Reprint published 1981).
Laumann, E., Paik, A., & Rosen, R. (1999). Sexual dysfunction in the United States: Prevalence and predictors. *Journal of the American Medical Association*, *281*, 537–544.
Leonard, L., & Follette, V. (2002). Sexual functioning in women reporting a history of child sexual abuse: Review of the empirical literature and clinical implications. *Annual Review of Sex Research*, *13*, 346–388.
Lorenz, T. K., & Meston, C. M. (2011). Pain medication use is higher in female survivors of childhood sexual abuse. In *Poster presented at the annual meeting of the Association for Psychological Science (APS)* Washington, DC, May 2011.
Marx, B., & Sloan, D. (2002). The role of emotion in the psychological functioning of adult survivors of childhood sexual abuse. *Behavior Therapy*, *33*, 563–577.
McNally, R., Metzger, L., Lasko, N., Clancy, S., & Pitman, R. (1998). Directed forgetting of trauma cues in adult survivors of childhood sexual abuse with and without posttraumatic stress disorder. *Journal of Abnormal Psychology*, *107*, 596–601.
Meston, C. M. (2003). Validation of the Female Sexual Function Index (FSFI) in women with Female Orgasmic Disorder and in women with Hyposexual Desire Disorder. *Journal of Sex and Marital Therapy*, *29*, 39–46.
Meston, C. M., & Heiman, J. (2000). Sexual abuse and sexual function: An examination of sexually relevant cognitive processes. *Journal of Consulting and Clinical Psychology*, *68*, 399–406.
Meston, C. M., Heiman, J., Trapnell, P., & Paulhus, D. (1998). Socially desirable responding and sexuality self-reports. *Journal of Sex Research*, *35*, 148–157.

Meston, C. M., Rellini, A., & Heiman, J. (2006). Women's history of sexual abuse, their sexuality, and sexual self-schemas. *Journal of Consulting and Clinical Psychology*, *74*, 229–236.

Meston, C. M., & Trapnell, P. (2005). Development and validation of a five-factor sexual satisfaction and distress scale for women: The Sexual Satisfaction Scale for Women (SSS-W). *Journal of Sexual Medicine*, *2*, 66–81.

Molnar, B., Buka, S., & Kessler, R. (2001). Child sexual abuse and subsequent psychopathology: Results from the National Comorbidity Survey. *American Journal of Public Health*, *91*, 753–760.

Najman, J., Dunne, M., Purdie, D., Boyle, F., & Coxeter, P. (2005). Sexual abuse in childhood and sexual dysfunction in adulthood: An Australian population-based study. *Archives of Sexual Behavior*, *34*, 517–526.

Nelson, E., Heath, A., Madden, P., Cooper, L., Dinwiddie, S., Bucholz, K., & Martin, N. (2002). Association between self-reported childhood sexual abuse and adverse psychosocial outcomes: Results from a twin study. *Archives of General Psychiatry*, *59*, 139–145.

Pennebaker, J. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, *8*, 162–166.

Pennebaker, J., & Francis, M. (1996). Cognitive, emotional, and language processes in disclosure. *Cognition & Emotion*, *10*, 601–626.

Pennebaker, J., Francis, M., & Booth, R. (2001). *Linguistic Inquiry and Word Count (LIWC): LIWC 2001*. Mahwah, NJ: Erlbaum.

Pennebaker, J., & Lay, T. (2002). Language use and personality during crisis: Analyses of Mayor Rudolph Giuliani's press conferences. *Journal of Research on Personality*, *36*, 271–282.

Pennebaker, J., Mayne, T., & Francis, M. (1997). Linguistic predictors of adaptive bereavement. *Journal of Personality and Social Psychology*, *72*, 863–871.

Pennebaker, J., Mehl, M., & Niederhoffer, K. (2003). Psychological aspects of natural language use: Our words, our selves. *Annual Review of Psychology*, *54*, 547–577.

Pennebaker, J. W., & Stone, L. D. (2004). What was she trying to say? A linguistic analysis of Katie's diaries. In D. Lester (Ed.), *Katie's diary: Unlocking the mystery of a suicide* (pp. 44–67). New York, NY: Brunner-Routledge.

Reissing, E., Binik, Y., Khalife, S., Cohen, D., & Amsel, R. (2003). Etiological correlates of vaginismus: Sexual and physical abuse, sexual self-schema, and relationship adjustment. *Journal of Sex & Marital Therapy*, *29*, 47–59.

Rellini, A., & Meston, C. M. (2007a). Sexual function and satisfaction in adults based on the definition of childhood sexual abuse. *Journal of Sexual Medicine*, *4*, 1312–1321.

Rellini, A., & Meston, C. M. (2007b). Sexual desire and linguistic analysis: A comparison of sexually-abused and non-abused women. *Archives of Sexual Behavior*, *36*, 67–77.

Resick, P., & Schnicke, M. (1993). *Cognitive processing therapy for rape victims: A treatment manual*. Newbury Park, CA: Sage Publications.

Resick, P., Monson, C., & Chard, K. (2007). *Cognitive processing therapy: Veteran/military version*. Washington, DC: Department of Veterans' Affairs.

Rosen, R., Brown, C., Heiman, J., Leiblum, S., Meston, C., Shabsigh, R., Ferguson, D., & D'Agostino, R. (2000). The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*, *26*, 191–208.

Rude, S., Gortner, E., & Pennebaker, J. (2004). Language use of depressed and depression-vulnerable college students. *Cognition & Emotion*, *18*, 1121–1133.

Schloredt, K., & Heiman, J. (2003). Perceptions of sexuality as related to sexual functioning and sexual risk in women with different types of childhood abuse histories. *Journal of Traumatic Stress*, *16*, 275–284.

Simmons, R. A., Gordon, P. C., & Chambless, D. L. (2005). Pronouns in marital interaction: What do you and I say about marital health? *Psychological Science*, *16*, 932–936.

Stirman, S., & Pennebaker, J. (2001). Word use in the poetry of suicidal and nonsuicidal poets. *Psychosomatic Medicine*, *63*, 517–522.

Weintraub, W. (1981). *Verbal behavior: Adaptation and psychopathology*. New York: Springer Publications.

Wiegel, M., Meston, C. M., & Rosen, R. (2005). The Female Sexual Function Index (FSFI): Cross-validation and development of clinical cutoff scores. *Journal of Sex & Marital Therapy*, *31*, 1–20.

Wolfsdorf, B., & Zlotnick, C. (2001). Affect management in group therapy for women with posttraumatic stress disorder and histories of childhood sexual abuse. *Journal of Clinical Psychology*, *57*, 169–181.