

Sexual Abuse and Sexual Function: An Examination of Sexually Relevant Cognitive Processes

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Participants were 61 sexually abused and 57 nonsexually abused women. The authors examined whether recent methodologies adopted from social-cognitive psychology might prove helpful in understanding the previously reported negative relation between childhood sexual abuse (CSA) and adult sexual function. In Part 1, a card-sort task was used to explore potential differences between sexually abused and nonsexually abused women in the categorization of positive/negative self-information. In Part 2, sexually relevant information networks, believed to represent the way in which information is organized, accessed, and retrieved from memory, were compared. Sexually abused women differed from nonsexually abused women in the meanings they attributed to many sexuality-relevant concepts but not in how they compartmentalized positive/negative self-information. The findings provide insight into the cognitive processes by which CSA experiences might influence adult sexual function and provide a starting point for future research using this type of methodology.

Happy families are all alike; every unhappy family is unhappy in its own way.

—Leo Tolstoy, *Anna Karenina*

Among the long-term symptoms found to exist decades following childhood sexual abuse (CSA) is a broad spectrum of sexual difficulties in adulthood. These include sexual aversion or avoidance, decreased sexual desire or sexual self-esteem, inhibited sexual arousal or orgasm, vaginismus, dyspareunia, and negative attitudes toward sexuality and intimate relationships in general (for reviews, see Beitchman et al., 1992; Browne & Finkelhor, 1986; and Gilmartin, 1994). In addition, research on both clinical and nonclinical samples has noted that early sexual abuse is correlated with more sexuality in adulthood, as indicated by greater variety of sexual activity and more lifetime sexual partners (deYoung, 1982; Herman, 1981; Laumann, Gagnon, Michael, & Michaels, 1994; Seidner & Calhoun, 1984).

Although several researchers have documented the existence of relations between early sexual abuse and adult sexuality, disappointingly little research has aimed specifically at understanding

the psychological mechanisms and processes by which sexual abuse experiences in childhood might precipitate, magnify, or sustain sexual problems in adulthood. The range and nonspecificity of sexual symptoms, the absence of overt psychological symptoms in many victims, and the possibility that avoidant cognitive defenses such as denial and suppression are especially common in CSA victims make the diagnosis and treatment of suspected CSA-related sexual disorders highly complex. Consequently, most theoretical accounts of CSA-related adult symptomatology have focused on overt trauma-related outcomes, such as posttraumatic stress disorder (e.g., Wolfe, Gentile, & Wolfe, 1989) and "traumatic sexualization" (e.g., Finkelhor & Browne, 1985). As concluded by a recent review, there presently exists "a glaring inadequacy in the [CSA] literature: a nearly universal absence of theoretical underpinnings in the studies being conducted on this subject to date" (Kendall-Tackett, Williams, & Finkelhor, 1993, p. 175). When combined with the fact that treatment for sexual abuse survivors is often unsystematic and long-term, this suggests that the field could benefit from a more specific clarification of the processes by which sexual capacities and behavior are associated with a history of CSA.

Recently, the role of sexual scripts has gained increasing attention in the diagnosis and treatment of sexual disorders. Sexual scripts may be defined as plans for overt sexual activity, as intermittent guides or cues used during sexual performance, or as storage devices for organizing memories of past sexual experiences into coherent narratives (Gagnon, Rosen, & Leiblum, 1982). Sexual scripts function as plans for directing sexual actions and, at the same time, determine emotional responses and the meaning attributed to sexual encounters. According to theorists and researchers in this field (e.g., Gagnon et al., 1982), the development of sexual scripts is necessary throughout life for the management of cognitive and performance aspects of sexual conduct. Research to date has not explored the possibility that developmental changes in sexual scripts may be an important mediator in the relation

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between CSA and later adult sexual function. This is surprising given that one of the core symptom theories about the long-term consequences of CSA argues that such effects are primarily mediated by developmental disturbances in the self (Putnam, 1990). To date, cognitive developmental self-models of CSA effects have typically been defined only in terms of self-esteem or self-image (e.g., Bagley & Ramsay, 1985; Herman, 1981). Although research suggests that CSA victims frequently report low levels of self-esteem, poor body image, and negative affectivity (e.g., Browne & Finkelhor, 1986; Wenninger & Heiman, 1998), these are common to other etiologies as well (e.g., Herman, 1981). Such explicit, self-report means of self-evaluation may, consequently, provide an overly restricted conception of the self. As suggested by Cole and Putnam (1992) with regard to CSA research, "assessment of the self should be more comprehensive than a measure of self-esteem and should include measures that assess the ability to understand and integrate multiple elements of self" (p. 180).

Recent advances in social psychology include the development of implicit methodologies for evaluating cognitive self-structures, such as categorization (Showers, 1992). These methodologies may prove especially valuable in research on CSA effects on adult sexual adjustment in that they circumvent many of the frequently noted limitations of traditional self-report measures (e.g., reporting biases [Meston, Heiman, Trapnell, & Paulhus, 1998] and cognitive defenses, such as denial and suppression). The present investigation reports the results of a study designed to examine potential differences in the sexually relevant cognitive processes of sexually abused and nonsexually abused women using two recent methodologies adopted from social-cognitive psychology. The purpose was to examine whether such assessment techniques might provide insight into the relation between CSA and adult sexual function.

In Part 1, participants engaged in a version of the card-sort task (Linville, 1985) to explore potential differences between sexually abused and nonsexually abused women in the categorization of positive and negative self-information. From an information-processing perspective, multiple aspects of the self are idiographically defined categories that people use to organize self-knowledge (Showers, 1992). A multifaceted nature of the self allows one to differentiate or construct different selves to fit different contexts (e.g., Kihlstrom & Cantor, 1983). The types of categories that individuals construct may be related to whether they have self-aspects that are extremely positive or negative (Showers, 1992), and the nature of the categories influences the processing of old and new information by influencing the accessibility of self-relevant information (Klein & Kihlstrom, 1986).

Recently, Showers (1992) provided evidence to suggest that it is not only self-evaluative valence (i.e., the sheer number of positive and negative self-views) that is related to psychological well-being but also the manner in which positive and negative self-information is compartmentalized into uniformly valenced categories. When positive and negative self-information is organized into distinct categories, negative self-information is recalled only when specific negatively valenced categories are activated. On the other hand, when self-categories contain a mixture of both positive and negative information, negative self-information is activated regardless of which category is primed (Showers, 1992). Thus, the compartmentalization of positive and negative self-information may limit the accessibility of negative knowledge, thereby serving as an important defensive mechanism for coping with negative

experiences and negative self-information. Part 1 of this study examined whether differences exist between sexually abused and nonsexually abused women in the compartmentalization of self-information and in the proportion of positive to negative adjectives used to define one's self-views.

In Part 2 of this study, sexually relevant information networks were derived for all the participants using the computer program Pathfinder (Schvaneveldt, 1990). This program allows for examination of such memory networks by mathematically computing network links based on proximity estimates derived from similarity judgments. This methodology was recently successfully used by Geer (1996) to map gender differences in the knowledge representation of sexual information. In the present study, Pathfinder was used to identify potential differences between sexually abused and nonsexually abused women in the cognitive representation of sexuality-relevant word clusters. Such networks are believed to represent the way in which information is organized, accessed, and retrieved from memory. Comparisons are made between the networks of sexually abused and nonsexually abused women. This methodology is based on the network model of information processing, which posits that concepts make up nodes in memory and links between nodes represent associations between concepts. The meaning of the concept is defined by the pattern of associates that are linked to the node. Differences in the number of links within and between concepts represent differences in the way specific information is organized in memory. These organizational differences subsequently influence memory storage, accessibility, and retrieval processes pertaining to that information.

Method

Participants

Sixty-one female sexual abuse survivors and 57 female controls enrolled in this study. Participants were recruited by advertisements in the university and local Seattle newspapers. CSA was defined as sexual activity that occurred prior to age 16 by someone at least 5 years older and that was experienced as coercive or forced. A sexual abuse composite score was derived using Carlin and Ward's (1992) Sexual Abuse Questionnaire. Individuals indicated on a 4-point scale (0 = *never*, 1 = *once*, 2 = *2–10 incidents*, 3 = *more than 10 incidents*) whether they experienced a number of unwanted sexual experiences, what their relation to the person involved was (dating partner, family member, acquaintance, or stranger), and whether the person involved was male or female. A positive endorsement ("yes") to the question, "I have been casually touched, pinched, or fondled in a sexual manner when I did not want that to happen" was scored as 1 and multiplied by the endorsed frequency rating. Positive endorsements to acts that involved unwanted genital and/or breast touching—or being forced to touch or fondle another person's genitals—were each scored as 2 and multiplied by the endorsed frequency ratings. Positive endorsements to acts involving unwanted oral-genital sex or sexual intercourse were each scored as 4 and multiplied by the endorsed frequency ratings. Scores were summed to provide an overall measure of sexual abuse. For all the abuse measures, only experiences that occurred either in childhood (prior to age 12) or in adolescence (ages 12–15) were included in the composite scoring. On the basis of the sexual abuse composite scores, a dichotomous sexually abused/nonsexually abused variable was created for certain analyses as follows: Individuals who received a score of less than or equal to 1 were considered nonsexually abused. This means that the most severe sexual abuse incident a nonsexually abused individual could have experienced was one isolated incident of being casually touched, pinched, or fondled in a sexual manner as either a child or an adolescent. Individuals who

received a composite score of greater than or equal to 4 were considered sexually abused. This means the minimum severity of sexual abuse these individuals experienced was at least two incidents of being touched, pinched, or fondled in a sexual manner as either a child or an adolescent and at least one incident of genital/breast touching or being forced to touch or fondle another person's genitals as either a child or an adolescent. Persons who experienced one incident of forced oral sex or intercourse qualified as sexually abused using this scoring procedure. This scoring procedure is consistent with that of past research, which used these abuse measures (Meston, Heiman, Trapnell, & Carlin, 1999). Data from individuals who did not meet any of these criteria ($n = 7$) were excluded from further analyses.

Because the focus of this study was to help understand the link between early sexual abuse and adult sexuality, and because past research has shown a relation between early physical abuse and adult sexuality (Meston, Heiman, & Trapnell, 1999), participants were screened for absence of severe physical abuse using a telephone interview. In addition, study participants were administered the Emotional and Physical Abuse Questionnaire (Carlin et al., 1994). This scale consists of 32 abuse items that range in severity from relatively common (e.g., "I was shaken") to relatively severe (e.g., "I have had broken bones following a beating") forms of abuse. Participants who endorsed severe forms of physical abuse ($n = 4$) were excluded from further analyses (for further details on this scoring procedure, see Meston et al., 1999), leaving 57 sexually abused women and 50 nonsexually abused women.

Nonsexually abused participants. A demographic analysis revealed that the mean age for nonsexually abused participants was 27 years ($SD = 4.9$, range = 21–38); the mean level of education was 16 years (degrees earned: high school, $n = 8$; AA, $n = 5$; BA, $n = 25$; BS, $n = 7$; MA, $n = 2$; PhD, $n = 2$). Fourteen individuals were employed full-time, 8 were employed part-time, 5 were unemployed, 3 were on leave, 1 was disabled, and 18 were students. Racial distribution of the group was 4 African Americans, 1 Hispanic, 6 Asians, and 35 non-Hispanic Whites. Marital status was 78% single, 18% married, and 4% divorced. Ninety-six percent of the group reported being exclusively or mostly heterosexual, and 4% reported being mostly or exclusively homosexual. Ninety-two percent of the group reported growing up in a city or town, and 8 percent reported growing up in a rural area.

Sexually abused participants. The mean age for sexually abused participants was 28 years ($SD = 6.0$, range = 20–40); there was no significant difference in the mean age between sexually abused and nonsexually abused participants ($p > .05$). The mean level of education was 15 years (degrees earned: high school, $n = 21$; AA, $n = 7$; BA, $n = 21$; BS, $n = 5$; MA, $n = 1$); sexually abused participants were significantly less educated than were nonsexually abused participants, $t(104) = 2.08$, $p = .04$. Fifteen sexually abused women were employed full-time, 10 were employed part-time, 3 were unemployed, 1 was on leave, 6 were disabled, and 21 were students. Racial distribution of the group was 5 African Americans, 2 Hispanics, 3 Asians, 2 American Indians, and 42 non-Hispanic Whites. Marital status was 72% single, 16% married, and 12% divorced. Ninety-three percent of the group reported being exclusively or mostly heterosexual, and 7% reported being mostly or exclusively homosexual. Ninety-five percent of the group reported growing up in a city or town, and 5% reported growing up in a rural area.

Among sexually abused participants, 24% and 37% reported being forced to have vaginal intercourse as a child and as an adolescent, respectively; 34% and 24% reported being forced to engage in oral-genital sexual relations as a child and as an adolescent, respectively; 47% and 37% reported being forced to touch or fondle another's genitals as a child and as an adolescent, respectively; and 63% and 59% reported having their genitals/breasts touched as a child and as an adolescent, respectively. Averaged across these sexual abuse categories, approximately 24% of the reported incidents that occurred as a child involved an acquaintance, 72% involved a family member, and 4% involved a stranger. Also averaged

across these sexual abuse categories, approximately 28% of the reported incidents that occurred as an adolescent involved an acquaintance, 40% involved a family member, 7% involved a stranger, and 25% involved a dating partner. In all but two cases, the person involved was male.

Procedures

Participants who met the study criteria were scheduled for one experimental session that lasted approximately 2.5 hr. The study was conducted at the Human Sexual Psychophysiology Laboratory, University of Washington Outpatient Psychiatry Center. Participants were first shown the laboratory and equipment and given an opportunity to ask questions. The study was conducted exclusively by female researchers. Participants were told that they would be participating in a series of tests that involved understanding the way in which sexual information is organized and stored in memory and the quality of intimate interpersonal relationships among women both with and without a history of CSA. They were told that they were free not to answer any questions that they felt uncomfortable about and were free to withdraw from the study at any time without penalty. Participants were paid \$25 on completion of the study.

Part 1

Procedure

Participants completed a demographic questionnaire, the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, & Erbaugh, 1961), the Beck Anxiety Inventory (BAI; Beck, 1988), and a number of other sexuality and psychopathology inventories (results not reported here). For both the BDI and the BAI, participants indicate on a scale ranging from 0 to 3 the degree to which they are currently experiencing a variety of depressive/anxiety symptoms. Scores are summed to provide overall depression/anxiety scores. Participants were then given a deck of 49 cards, each containing an adjective used to describe a personal characteristic. Twenty-five of these cards contained positive characteristics (e.g., *friendly*, *confident*, and *intelligent*), and 24 contained negative characteristics (e.g., *self-centered*, *thoughtless*, and *useless*). Participants were asked to sort the cards into groups where each group described an aspect of themselves or their life. They were told that they could form as many or as few groups as needed, they could use the cards in as many different categories as they liked, and they could set aside any cards that did not fit into any of their groups. They were given 25 min to complete the task. These instructions are comparable with those used by Linville (1985) to assess self-complexity and by Showers (1992) to assess compartmentalization.

Compartmentalization across multiple self-aspects was measured using phi coefficients that were based on chi-square statistics computed for each participant's sort (Showers, 1992). As explained by Showers, the sort may be viewed as a contingency table in which each self-aspect is a column of the table. There are two columns, one for the number of positive characteristics and one for the number of negative characteristics in that self-aspect. Expected frequencies of positives and negatives in each column are calculated from the overall ratio of positives to negatives in that person's sort. The chi-square statistic is a measure of deviation from a random sort, and $\phi = \sqrt{\chi^2/N}$, where N is the number of groups. Phi ranges from 0 (perfectly random sort) to 1 (perfect compartmentalization) and is independent of the number of categories and the proportion of positives and negatives in that sort.

Results and Discussion

In accordance with statistical procedures outlined by Showers (1992), data from participants who used fewer than two negative adjectives in their sort were excluded from further analyses ($n = 2$). For the remaining participants, the minimum number of negative adjectives used was three. Among sexually abused and nonsexually abused women, the average sorts consisted of 6.3 ($SD = 2.5$) and 6.2 ($SD = 2.2$) categories, respectively. The mean compartmentalization scores for sexually abused ($\phi = .37$, $SD = 0.2$) and nonsexually abused ($\phi = .39$, $SD = 0.2$) women did not differ significantly, $t(96) = 0.70$, $p = .49$ (Fisher's exact Z transformations). Hence, in this study, the degree to which self-information was organized into uniformly valenced categories did not prove to be a useful construct in understanding the way in which cognitive processes may be altered as a consequence of CSA.

The average proportion of positive to negative adjectives for sexually abused and nonsexually abused women was 3.67 ($SD = 3.84$) and 6.06 ($SD = 6.74$), respectively; these numbers differed significantly between groups ($Z = 2.72$, $p = .007$). Results from separate Pearson correlations revealed a significant negative relationship between proportion of positive to negative adjectives and both depression (the BDI), $r(101) = -.37$, $p < .001$, and anxiety (the BAI), $r(100) = -.32$, $p < .001$. Total CSA scores were significantly correlated with both depression, $r(109) = .28$, $p = .003$, and anxiety, $r(109) = .26$, $p = .006$. To examine whether differences existed between sexually abused and nonsexually abused women in the proportion of positive to negative adjectives after the effects of depression and anxiety were accounted for, we performed a logistic regression in which abuse status was the dependent variable and anxiety and depression were treated as continuous independent variables. The unique variance attributed to the proportion of positive to negative adjectives when anxiety and depression were entered into the model was negligible ($p = .69$). This suggests that although differences exist between sexually abused and nonsexually abused women in the degree to which self-categories are defined in positive and negative terms, this effect may be largely accounted for by negative affectivity.

It is important to note that compartmentalization, as a construct in social psychology, is typically measured using a phi coefficient that is based on a chi-square test of association. Highly compartmentalized individuals have very definite affect-laden components; for example, they feel very positive about their relationships and negative about their job. Although the chi-square statistic captures this notion, its use here may be problematic. First, the contingency table used to derive the statistic was not filled out with independent samples, an assumption used in evaluating the significance of the phi coefficient. Second, in practice and certainly in this work, a large portion of the cells contained as few as two or three responses, leading to unstable estimates. Third, the overall pattern of responding—the number of positive and negative endorsements—varied widely between groups. This last problem can lead to erroneous differences in phi coefficients even when the underlying contingency structures are the same between two groups. For these reasons, this statistic must be used with caution. In the present study, compartmentalization appeared to play a small role in the psychology of abuse as we found virtually no differences in compartmentalization between groups. Further, the

differences we found are probably overestimates of the true differences, given the large difference in the proportion of positive to negative responses between the two groups. This, however, does not justify the continued use of the phi coefficient, nor does it diminish the fact that psychology is in need of a more appropriate statistical test of compartmentalization than that which has been used to date. We hope this article will assist in bringing this need to the attention of future researchers and statisticians.

Part 2

Procedure

After participants completed the card-sorting task, using the computer program Pathfinder, we presented participants with word pairs and asked them to rate the similarity of each pair on a continuous scale from 1 (*highly similar*) to 9 (*highly dissimilar*). Word pairs of each of the possible pairwise combinations (120 pairs) of 16 words were randomly presented to each participant. The 16 words were based on those used by Geer (1996) and form six sexuality-relevant clusters: positive evaluation (*pleasurable*, *enjoyable*, and *desirable*), negative evaluation (*unpleasant*, *distasteful*, and *repulsive*), female genitalia (*vagina* and *clitoris*), male genitalia (*penis* and *ejaculation*), interpersonal relationship (*tender*, *affectionate*, *respectful*, and *caring*), and sexual behavior (*intercourse* and *lovemaking*).

Results and Discussion

Because sexual orientation is likely to impact the meaning and relatedness of sexuality-relevant words, data from participants who endorsed their sexual orientation as being either exclusively or mostly homosexual (nonsexually abused, $n = 2$; sexually abused, $n = 4$) were excluded from analyses. Using Pathfinder, we computed individual networks from each participant's judgments of similarity between words. The Pathfinder program defines a network using the similarity judgments such that the words correspond to the nodes of the generated network, and the links in the network are determined by the patterns of proximities (Schvaneveldt, 1990). The parameters $r = \text{infinity}$, which assesses ordinal data, and $q = n - 1$, which means Pathfinder will provide the least dense network, were used to generate the networks. (For a discussion of these constants and the computations and mathematics involved in Pathfinder, see Schvaneveldt, 1990.) A measure of data coherence was then calculated for each participant's network. The coherence computation is based on the assumption that relatedness between a pair of items can be determined by the relationship of the items to other items in the set. For each pair of items, the correlation of the proximities for those items with all other items is computed. This correlation is an indirect measure of relatedness for the pair of items. Coherence is computed by correlating the original proximity data with the indirect measures. The higher this correlation, the more consistent are the original proximities (Schvaneveldt, 1990). To guard against random word pairing, we omitted networks with coherence ratings less than .50 (sexually abused, $n = 4$; nonsexually abused, $n = 3$) from further analyses. Data files for sexually abused women were averaged together, and data files for nonsexually abused women were averaged together. Similarity scores (the ratio of links in common

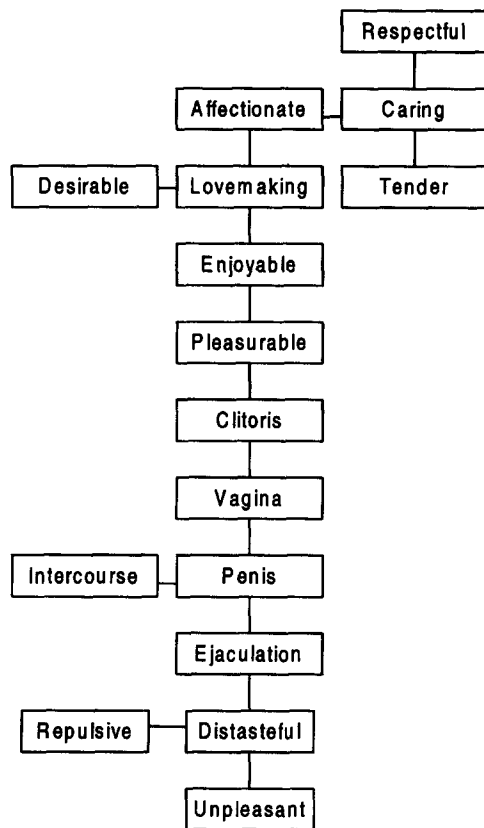


Figure 1. Mean connections between sexuality-relevant concepts for sexually abused women.

over unique links in two networks) were then computed between the average network for sexually abused and nonsexually abused persons. Figures 1 and 2 represent these average networks. Note, first, that the links are nondirectional and, second, that link length does not represent link strength. The average similarity score between the sexually abused and nonsexually abused women's networks was .36 (0 = networks that share no links in common, 1 = two identical networks), indicating that the networks differ but that there are a substantial number of links in common between the two networks.

Network similarity scores were computed for each pair of participants. Comparison target scores were then calculated for each participant: the average similarity score of that individual with all other women in her group (i.e., sexually abused with sexually abused and nonsexually abused with nonsexually abused) and the average similarity score of that participant with all other women outside her group (sexually abused with nonsexually abused). Without duplication of scores, this yielded 44 average similarity scores within the nonsexually abused sample and 49 average similarity scores within the sexually abused sample. Mean average similarity scores for comparisons between nonsexually abused and nonsexually abused women, between sexually abused and sexually abused women, and between nonsexually abused and sexually abused women were .18 ($SD = .03$), .16 ($SD = .03$), and .16 ($SD = .03$), respectively. Differences between similarity scores were then calculated by subtracting each participant's similarity

score with nonsexually abused women from that participant's similarity score with sexually abused women. Differences less than zero indicate that that participant is more similar to nonsexually abused women than she is to abused women; differences greater than zero indicate the reverse. An unpaired-samples t test on CSA status was conducted between these difference scores. Results indicated a significant difference between groups, $t(91) = -3.03$, $p = .003$. As can be seen in Figure 3, nonsexually abused women had networks more similar to other nonsexually abused women than to sexually abused women. In other words, for nonsexually abused women, knowledge concerning sexual concepts is more like other nonsexually abused women's than it is like sexually abused women's. Sexually abused women, on the other hand, had networks equally similar to those of both other sexually abused women and nonsexually abused women. Given, however, that there was so little similarity among the women's networks in general, including the nonsexually abused women, differences between groups must be interpreted with caution.

To examine where in the networks differences between sexually abused and nonsexually abused women occurred, first we visually inspected the average networks and then conducted analyses to examine whether significant group differences existed both between word clusters and within word clusters. The following differences were noted: (a) *lovemaking* was related to positive affect words *desirable* and *enjoyable* for nonsexually abused women but unrelated to any of the positive affect words for

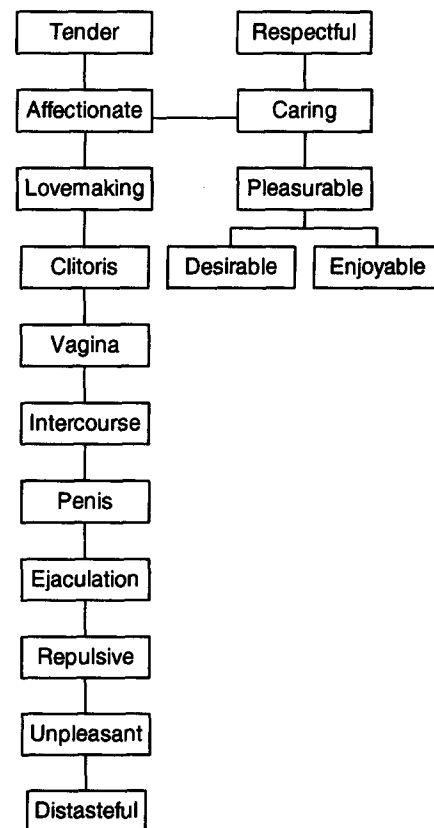


Figure 2. Mean connections between sexuality-relevant concepts for nonsexually abused women.

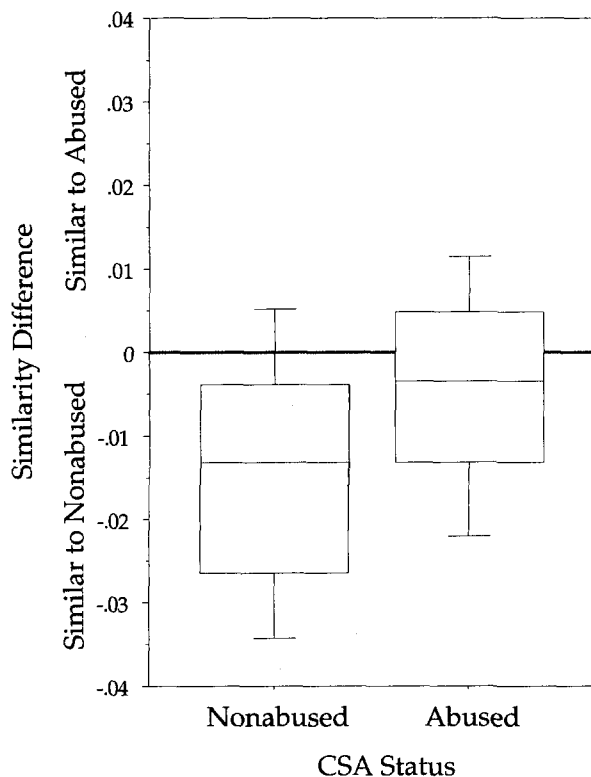


Figure 3. Similarity network comparisons ($\pm SD$) for sexually abused ($n = 49$) and nonsexually abused ($n = 45$) women. CSA = childhood sexual abuse.

sexually abused women, (b) *clitoris* was directly linked to the positive affect word *pleasurable* for nonsexually abused women but unrelated to any of the positive affect words for sexually abused women, and (c) *intercourse* and *lovemaking* were both directly linked to female genitalia words for sexually abused women but not for nonsexually abused women. Results from t tests indicated that two of these apparent differences were statistically significant. The number of links (associations) between words in the positive affect cluster and the sexual behavior (*intercourse* and *lovemaking*) cluster differed significantly between groups (nonsexually abused, $M = 1.45$, $SD = 0.85$; sexually abused, $M = 1.00$, $SD = 1.00$), $t(91) = 2.35$, $p = .02$, as did the number of links between words in the sexual behavior and female genitalia clusters (nonsexually abused, $M = 0.57$, $SD = 0.79$; sexually abused, $M = 0.96$, $SD = 0.82$), $t(91) = -2.34$, $p = .02$. Nonsexually abused women were more likely than sexually abused women to associate sexual behavior with positive affect, and sexually abused women were more likely than nonsexually abused women to associate sexual behavior words with female genitalia.

To examine whether group differences also existed in the number of links within word clusters, we conducted a 2 (sexually abused vs. nonsexually abused) \times 6 (word clusters) repeated measures analysis of variance (ANOVA). Word cluster here refers to the number of links each participant had between words within each cluster. Results of the overall ANOVA yielded a significant effect for abuse status, $F(1, 90) = 2.31$, $p = .04$. Follow-up univariate F tests revealed that nonsexually abused women

($M = 1.98$, $SD = 0.34$) had significantly more links within the negative affect (*repulsive*, *unpleasant*, and *distasteful*) cluster than did sexually abused women ($M = 1.79$, $SD = 0.46$), $F(1, 90) = 4.77$, $p = .03$, and nonsexually abused women ($M = 0.39$, $SD = 0.49$) had significantly more links within the sexual behavior (*intercourse* and *lovemaking*) cluster than did sexually abused women ($M = 0.19$, $SD = 0.39$), $F(1, 90) = 4.61$, $p = .04$. In practical terms, this means that the sexually abused women viewed the concepts of lovemaking and intercourse to be less related to each other than did the nonsexually abused women. Finally, we conducted a 2 (sexually abused vs. nonsexually abused) \times 16 (words) repeated measures ANOVA to examine whether sexually abused and nonsexually abused women differed on the number of links made on individual words. Results from the overall ANOVA did not reach statistical significance.

The present findings provide the first empirical evidence that there are systematic differences between sexually abused and nonsexually abused women in the meanings attributed to sexuality-relevant words, as well as negative affect words presented in a context of sexual and relationship words. If one accepts that these information networks represent differences in the way information is organized and stored in memory, then these findings provide a preliminary suggestion that there may be systematic differences between sexually abused and nonsexually abused women in the processing of sexually relevant information. One notable limitation to the present findings, however, involves our selection of sexuality-relevant words. We selected the six word clusters on the basis of research that indicates significant differences between sexually abused and nonsexually abused women on measures of affectivity, relationship issues, and sexual behaviors (for reviews, see Browne & Finkelhor, 1986, and Cole & Putnam, 1992) and on the basis of research that suggests that these clusters are an appropriate representation of words in the sexuality domain (Geer, 1996). We acknowledge, however, that words centering on issues of, for example, trust, control, and fear may be equally as important in understanding the sexually relevant cognitive processes of CSA victims. The present findings highlight the potential use of information-processing theory to examine network differences between sexually abused and nonsexually abused populations.

Conclusions

The present study represents the first empirical examination of potential differences between sexually abused and nonsexually abused women in the processing of sexuality-relevant self-information. This research was guided by the assumption that if differences in sexual function exist between sexually abused and nonsexually abused women, they are likely to be mediated by changes in cognitive self-representations. Certainly, this would make sense from a developmental perspective in that a secure and integrated sense of self forms the core of the maturely functioning adult (Cole & Putnam, 1992). The present findings partially support this hypothesis. Sexually abused women differed from nonsexually abused women in the association they made between a number of sexuality-relevant concepts. They did not, however, differ in the manner in which they compartmentalized positive and negative self-information. This finding is limited by the fact that only two measures of self-representation were examined: the cat-

egorization and valence of self-aspects. It is not clear whether other aspects of self-representation derivable from card-sort tasks, such as the importance attributed to positive and negative self-aspects (Showers, 1992), may differ between women with and without a history of sexual abuse. Perhaps these other aspects of self-representation may prove more helpful in understanding such relations. Alternatively, it may be the case that CSA has a non-specific and variable effect on sexual functioning, in which case there may not be a consistent pattern of cognitive changes identifiable among CSA survivors. This would be consistent with past research, which suggests there is no delimited, replicable pattern of sequelae to CSA (Nash, Hulsey, Sexton, Harralson, & Lambert, 1993), and with the findings of Part 2 of the present study, which indicate substantial dissimilarity between the sexuality-relevant information networks of sexually abused women. This was not the case for nonsexually abused women who had information networks similar to other nonsexually abused women.

One consistent theme that emerged from this study was the role of negative affect in self-representation among sexually abused women. Sexually abused women were more likely than nonsexually abused women to describe themselves in negative terms and less likely than nonsexually abused women to give a positive meaning to sexual behavior words. From a developmental perspective, it makes sense that a history of CSA may have shaped the women's worldview and frame of reference and that this, in turn, may have created negative associations with sexuality in a broad sense. The manner in which this finding has implications for the treatment of CSA-related sexual dysfunctions depends to a large extent on whether these findings reveal underlying, unconscious self-representations or whether they represent a conscious motivation to communicate distress. Although the present study used methodologies that were less direct (and presumably less subject to reactivity and demand characteristics) than the more traditional self-report measures of self-esteem and affect used in earlier studies, it is unclear to what degree research demands were apparent. Future research that uses more implicit tasks, such as reactivity time, priming, and context effects, may better circumvent these issues (for a review, see Greenwald & Banaji, 1995).

There are several limitations to the present findings that warrant consideration. The first involves issues centered on cross-sectional versus longitudinal studies on CSA. Participants in the present study were simultaneously questioned on abusive events that had occurred many years ago and on their current level of psychological functioning. Although it is tempting to assume that the abuse experience antedated participants' current psychological distress, the reverse may also hold true. That is, current symptomology may have impacted retrospective recollections of abuse (Briere, 1992). A related consideration is the role of potential reporting biases. This study relied exclusively on subjective reports of prior events that may have been confounded by conscious suppression or by the impact of passing time on the accurate recall and interpretation of discrete life events (Briere, 1992). The issue of self-report validity is, of course, a general problem in all research relying solely on retrospective reports, and the associated problems are not specific to the CSA literature. The sensitive nature of CSA experiences, and the often secretive context in which they occur, may, however, present some unique challenges to this validity concern.

A third limitation to the present findings involves participant selection issues. As noted earlier, women in the present study

knew that the purpose of the study was to examine potential relations between CSA and adult sexuality and interpersonal relationships. This rather apparent hypothesis may have naturally selected for participants who were most negatively affected by their abuse experiences and were consciously motivated to verbally express their distress. This may explain why sexuality in the present study was consistently associated with measures of negative affectivity among sexually abused women. It is well-known in the trait literature that measures that tap affectivity are highly correlated among persons with a disposition toward negative affect (Watson & Clark, 1984). It may be the case that the sexuality measures used in the present study simply served as another means for expressing this disposition. The present findings represent only a preliminary examination of potential differences between sexually abused and nonsexually abused women in the processing of sexuality-relevant information and are intended only as a starting point for future research using this type of methodology.

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