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Assessing the Association Between Childhood Sexual Abuse and Adult Sexual Experiences in Women with Sexual Difficulties

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Self-report instruments for assessing sexual well-being in women with sexual difficulties have not to date been explicitly validated among women with a history of childhood sexual abuse (CSA). Given an extensive literature suggesting psychological differences between women with and without a history of CSA, it is possible that sexual well-being has a different meaning for these groups. Without validated scales, it is difficult to evaluate the impact of early sexual trauma on adult sexuality. The present study assessed whether the factor structure of widely used measures of sexual well-being were consistent across women experiencing sexual difficulties, with and without an abuse history, and to estimate effect sizes for the statistical effect of CSA on sexual well-being in this population. A sample of women with and without a history of CSA ($N = 238$) completed the Female Sexual Function Index and the Sexual Satisfaction Scale for Women. Structural equation models indicated generally consistent factor structures across groups, suggesting good construct validity. Effect size estimates indicated medium to large (0.53–0.72) effects of CSA on sexual well-being for women with sexual difficulties. These findings support and extend research regarding the potential effects of CSA that may inform treatment for this population.

Over 60% of American women report sexual difficulties with desire, arousal, or orgasmic ability (Hayes, Dennerstein, Bennet, & Fairley, 2008), and childhood sexual abuse (CSA) has been identified as an important risk factor for experiencing these sexual difficulties in adulthood (Leonard & Follette, 2002). According to recent research, almost 20% of adult women have experienced CSA (Pereda, Guilera, Forns, & Gomez-Benito, 2009), and among the population of women reporting sexual difficulties, important differences have emerged between women with and without a history of CSA. For example, women with a history of CSA tend to exhibit weaker associations between sexual impairment and subjective sexual distress than nonabused women (Stephenson, Hughan, & Meston, 2012). Additionally, women with a history of CSA respond differently from their nonabused counterparts to treatments for sexual problems (Brotto, Seal, & Rellini, 2012; Maltz, 2002), suggesting there may be something unique about the presentation of sexual problems in abused women.

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Although CSA is a risk factor for sexual difficulties in adulthood, there is not yet a clear picture of the magnitude of the association between early abuse and adult sexual and mental health. A series of meta-analyses have attempted to answer this question. Overall, these studies have reported small to medium effect sizes for the association between CSA and women's mental and sexual health (Maniglio, 2009). In one analysis, Jumper (1995) found small effect sizes of CSA for depression, self-esteem, anxiety, and suicidal ideation. Paolucci, Genuis, and Violato (2001) found medium effect sizes for the association between CSA and depression, posttraumatic stress disorder, suicide, and risky sexual behavior. In a meta-analysis of 38 studies, Neumann, Houskamp, Pollock, and Briere (1996) found a medium effect size for the association between CSA and sexual problems ($d = 0.36$).

Unfortunately, these studies have been hindered by obstacles including small sample sizes, absence of control groups, and inconsistent definition and measurement of CSA (Maniglio, 2009). The operationalization of CSA in particular is complicated by variables including type of sexual contact, age of abuse, age of perpetrator, relationship to perpetrator, and chronicity of abuse. The lack of a consistent definition for CSA has resulted in research on a heterogeneous group of women, producing a range of findings (Rellini, 2008). Individual characteristics of abuse experiences, as well as the resilience of individual women also influence the variability of abuse outcomes (Briere & Elliott, 2003). For the purposes of this study, CSA was defined as having, before age 16, at least one experience of unwanted oral,

anal, or vaginal intercourse; penetration with digits or objects; or sexual fondling.

Thus, although the relationship between CSA and sexual difficulties has been consistently demonstrated in the literature, there are currently no large-scale studies or meta-analyses of which we are aware that effectively outline the degree to which CSA potentially affects later adult sexual experiences, an important question in the treatment of sexual dysfunction in this population. The first step towards answering this question is the validation of assessment instruments for use with women reporting a history of abuse and sexual difficulties.

Instruments for the assessment of sexual function and satisfaction have been developed and validated in samples of women with and without sexual problems. The most widely used measure of women's sexual function is the Female Sexual Function Index, which has been validated in over 30 countries (Sun, Li, Jin, Fan, & Wang, 2011). The Female Sexual Function Index contains six subscales: Desire, Arousal, Lubrication, Orgasm, Satisfaction, and Pain (Rosen et al., 2000). Although this questionnaire has been utilized in studies that include women with a history of CSA, it has never been explicitly documented that the measure accurately assesses sexual function in this population.

Recent studies have suggested an important distinction between sexual function on the one hand and subjective sexual well-being on the other (e.g., Shifren, Monz, Russo, Segreti, & Johannes, 2008; Stephenson, Rellini, & Meston, 2013). One measure of sexual well-being is the Sexual Satisfaction Scale for Women, a self-report questionnaire whose subscales assess Contentment, Communication, Compatibility, Personal Concern, and Relational Concern (Meston & Trapnell, 2005). There is some evidence of differences between women with and without a history of CSA in terms of mean scores on the Female Sexual Function Index and Sexual Satisfaction Scale for Women, suggesting possible discriminant validity (Rellini & Meston, 2007; Witting et al., 2008). Questions, however, remain as to the construct validity of these scales (Lemieux & Byers, 2008). It is essentially unknown whether these scales are assessing the same constructs in sexually abused and nonabused women. Understanding the degree to which sexual function and satisfaction have the same meaning for women with and without a history of CSA who are experiencing sexual difficulties is an essential step in evaluating the impact of CSA on adult sexuality.

Research suggests that CSA may interfere with normal psychosexual development, which could result in sexual function and satisfaction manifesting differently in this population. Sexual abuse can lead to disruptions in sympathetic nervous system function (Hulme, 2011), which can inhibit sexual arousal (Lorenz, Harte, Hamilton, & Meston, 2012). Psychologically, sexual abuse can affect a woman's sense of trust and safety in intimate relationships (Leonard & Follette, 2002). Finally, standard treatments for sexual problems such as sensate focus have not been as efficacious with CSA survivors (Maltz, 2002), suggesting that there may be differences in the presentation of sexual problems with a CSA etiology. In sum, sexual function and satisfaction may manifest differently in a CSA versus a nonabused population, therefore the construct validity of using these scales to assess the impact of CSA on adult sexuality warrants examination.

The goal of the current study was to provide a more accurate estimation of the strength of the association between a history of CSA and adult sexuality by addressing many of the limitations of past research. First, we obtained a relatively large sample of women with a history of CSA who were experiencing sexual problems, as well as a comparison sample of women with sexual problems without an abuse history, eliminating the need to aggregate across data sets with dissimilar definitions and recruitment methods. Second, we used well-validated measures of sexual function and satisfaction. Third, we analyzed the data using structural equation modeling (SEM) to test for differences in factor structures across the CSA and nonabused groups, explicitly testing the construct validity of these scales for a CSA population.

In general, we expected our findings to be in line with past research. In other words, we predicted that CSA would exhibit a small-to-medium effect on sexual well-being, and that the factor structure of measures would generally be similar for women reporting sexual difficulties with and without a history of CSA. Thus, we began with initial statistical models based on the structure of the scales as described in their original validation studies. After these initial studies had been published, additional findings have been published which suggest changes that would likely improve model fit.

Specifically, we posited three hypotheses regarding beneficial model modifications. First, given that Personal and Relational Concern were conceptualized as two components of one construct (sexual distress) in the original validation of the Sexual Satisfaction Scale for Women, we predicted that these two variables would likely be more closely related than other subscales of this measure. Second, a number of studies have suggested an important distinction between sexual function and subjective sexual well-being (e.g., King, Holt, & Nazareth, 2007), and identified cases in which these two factors are not significantly associated (e.g., Stephenson & Meston, 2010). As such, we predicted that the Sexual Satisfaction subscale of the Female Sexual Function Index would not load significantly on the function factor, but rather on the sexual satisfaction factor. Third, initial analyses using the current data set suggested a weaker association between sexual function and Personal Concern (a component of sexual distress) for women with a history of CSA as compared to nonabused women (Stephenson et al., 2012) and we therefore predicted a similar group difference in terms of the relationship between the Personal Concern subscale score and the sexual function factor.

Method

Participants

Study participants were women over the age of 18 years with and without a history of CSA who reported sexual difficulties.

Recruitment was conducted via flyers, online postings, and print advertisements. Recruitment materials described a research study on sexual difficulties in women. For example, recruitment materials for the abused group specified seeking "women with a history of sexual abuse who are experiencing sexual difficulties." Interested participants were invited to complete a phone-screen to determine eligibility. To qualify for the CSA group, women had to report at least one involuntary sexual experience, defined as "unwanted oral, anal, or vaginal intercourse, penetration of the vagina or anus using objects or digits, or genital touching or fondling," before age 16 and more than 2 years prior to enrollment in the study. CSA status was also assessed with a self-report questionnaire. Sexual difficulties were assessed via self-report on the phone screen and with self-report instruments. All participants were required to either be currently sexually active or cohabiting in a romantic relationship to allow us to appropriately measure sexuality variables. Exclusion criteria included experiencing a traumatic event in the previous 3 months, receiving a diagnosis of a psychotic disorder in the previous 6 months, and reporting suicidal or homicidal ideation, use of illicit drugs, or an abusive relationship at intake.

The CSA sample included 134 women. The mean age of the abused sample was 34.16 ($SD = 6.70$) years. The majority of the sample had completed at least some college and were married or in a committed relationship. The CSA reported was predominantly oral, anal, or vaginal penetration, with a minority reporting solely sexual touching. The age of earliest CSA experience ranged from 1 to 15 years old, with a mean of 8.86 years ($SD = 4.60$). The nonsexually abused sample included 104 women. The mean age of the nonabused sample was 32.71 ($SD = 11.38$) years. The majority of the sample had completed at least some college and were married or in a committed relationship. See Table 1 for demographic information. There was a significant difference in marital status between the groups, $F(1, 239) = 11.63$, $p < .011$, with a higher percentage of the women in the CSA group married or in a committed relationship. There were no other significant group differences.

Table 1
Demographics of CSA and Nonabused Groups

	CSA ($n = 134$)		NSA ($n = 104$)	
Variable	*n*	%	*n*	%
Race/ethnicity				
African American/Black	13	9.7	11	10.6
Asian	5	3.7	7	6.7
Hispanic/Latina	25	18.7	11	10.6
Native American	8	6.0	5	4.8
White/Caucasian	73	54.4	63	60.6
Other/multiracial	8	6.0	6	5.8
Unspecified/data missing	2	1.5	1	0.9
Relationship status				
Single	20	14.9	24	23.1
Dating	13	9.7	29	27.9
Married/in a long-term relationship	95	70.9	49	47.1
Unspecified/data missing	6	4.5	2	1.9
Highest education completed				
Some high school	2	1.5	2	1.9
High school diploma	17	12.7	11	9.6
Some college/ undergraduate degree	95	70.9	73	67.3
Advanced degree	16	11.9	18	16.3
Unspecified/data missing	4	3.0	0	0
Severity of CSA				
Oral, anal, or vaginal intercourse	110	82.1	0	0
Sexual touching only	24	17.9	0	0
Perpetrator was family member	72	53.7	0	0
Perpetrator was not family member[a]	74	55.2	0	0
Abuse was repeated	53	49.5	0	0
Adult sexual abuse	37	27.6	21	20.2
Severity of adult sexual abuse				
Oral, anal, or vaginal intercourse	33	24.6	14	13.5
Sexual touching only	4	3.0	7	6.7

Note. CSA = childhood sexual abuse; NSA = nonabused.
[a]Some women in the abused group were abused by both family and nonfamily members.

Measures

History of CSA was assessed with the Trauma History Questionnaire (Green, 1996), a 24-item self-report questionnaire assessing three types of traumatic events: crime, disasters, and physical assault. The measure includes three questions on penetrative sexual abuse and fondling.

Sexual function was assessed with the Female Sexual Function Index (Rosen et al., 2000). The Female Sexual Function Index is a 19-item questionnaire composed of six subscales: Desire, Arousal, Lubrication, Orgasm, Satisfaction, and Pain. The questionnaire assesses sexual function in the previous 4 weeks and has demonstrated good internal reliability ($\alpha = .94$) and test-retest reliabilities over a 4-week period (Pearson's $r = .85$) in a large sample of women (Rosen et al., 2000). In the present sample, the Female Sexual Function Index demonstrated excellent internal reliability ($\alpha = .94$).

Sexual satisfaction was assessed with the Sexual Satisfaction Scale for Women (Meston & Trapnell, 2005). This 30-item scale includes five subscales: comfort discussing sexual and emotional issues (Communication), compatibility between sexual partners (Compatibility), contentment with emotional and sexual aspects of the relationship (Contentment), personal distress

concerning sexual problems (Personal Concern), and distress regarding the impact of their sexual problems on their partner and relationship (Interpersonal Concern), and is based on the participant's current or most recent relationship. The measure exhibited good internal consistency ($\alpha = .74$), and test-retest reliability over a 4-week period ($r = .58$ to $.79$) in a large sample of women (Meston & Trapnell, 2005). In the present sample, the Sexual Satisfaction Scale for Women demonstrated excellent internal reliability ($\alpha = .95$).

Procedure

All study procedures were approved by the Institutional Review Board of the University of Texas at Austin. Informed consent was obtained from all study participants. Immediately after providing informed consent participants completed self-report questionnaires in a private room. After the questionnaires, some of the abused participants engaged in other study procedures as part of a larger study on treatment for sexual dysfunction.

Data Analysis

Structured means modeling, a subtype of confirmatory factor analysis, was used to examine the factor structure of the Female Sexual Function Index and Sexual Satisfaction Scale for Women, and to compare this structure between groups. All analyses were performed using the MPlus software package, version 7.11 (Muthén & Muthén, 2011). We utilized full information maximum likelihood estimation to account for missing data (the default option within MPlus software), which improves estimation efficiency by including all available data from participants missing scores on some subscales (subscale scores were not computed for participants missing individual items).

Structured means modeling was undertaken using multiple steps (Dimitrov, 2010). First, a theory-based factor model (with observed variables regressed on latent, or unobserved, factors) was specified and tested for the CSA subgroup and model fit was assessed. An acceptable model fit was indicated by a number of statistical indices. As in standard practice, acceptable models were those that resulted in a comparative fit index (CFI) and Tucker-Lewis Index (TLI) above .9, a root mean square error of approximation (RMSEA) that has a 90% confidence interval (CI) which overlaps with .05, and a standardized root mean residual (SRMR) lower than .10. Model modification was undertaken based on Lagrange multiplier tests (used for adding paths) and Wald tests (used for dropping paths; Saris, Satorra, & van der Veld, 2009) to reach a model with acceptable fit.

Once an acceptable model was identified, this model was then fitted to the sample as a whole with all path loadings and intercepts constrained to be invariant across groups. In standard practice, if this combined group model results in an acceptable fit to the data, then configural, measurement, and scalar invariance across groups can be inferred, meaning that observed variables load on the same factor for each group, that the loadings of observed variables on factors do not differ between groups, and that the intercepts for observed variables do not differ between groups. If these constraints worsen model fit, however, group differences can be inferred in terms of variable loadings, path strengths, and/or intercepts. In these cases, restraints are released as necessary, based on modification indices and theoretical appropriateness.

As mentioned above, we began with models based on the original scale structures suggested by the validation studies of the Female Sexual Function Index and Sexual Satisfaction Scale for Women. Specifically, this initial model consisted of two latent factors: sexual function and sexual satisfaction. Sexual function was indicated by subscale scores of the Female Sexual Function Index whereas sexual satisfaction was indicated by subscale scores of the Sexual Satisfaction Scale for Women. We used subscale scores as observed variables (rather than individual item scores) out of necessity. Given our sample size, the number of model parameters required when using individual items led to model convergence and identification problems. This initial model was modified in a number of ways to reflect our hypotheses. Namely, we added an additional covariance between error terms of the Personal and Relational concern scores, specified that the Sexual Satisfaction subscale of the Female Sexual Function Index would not load significantly on the function factor, but rather on the sexual satisfaction factor, and added a group-dependent (CSA vs. NSA) covariance between the Personal Sexual Concern subscale score and the sexual function factor.

Analyses regarding effect size of group membership (CSA vs. NSA) on factor scores followed the recommendations of Hancock (2001). This method is similar to the computation of effect sizes in more standard analyses (e.g., ANOVA) in that differences in group mean scores are scaled by the sample size of each group and an estimated pooled variance.

Results

The scores on the Female Sexual Function Index (FSFI) and Sexual Satisfaction Scale for Women (SSS-W) for women with a history of CSA were $M = 22.24$, $SD = 6.70$ and $M = 67.30$, $SD = 18.78$, respectively. Scores on the FSFI and SSS-W for women without a history of CSA were $M = 27.72$, $SD = 5.37$ and $M = 86.46$, $SD = 22.35$, respectively. Scores for the subscales are in Table 2. Correlations for the pooled groups among the scales and subscales are in Table 3.

We began by testing the initial model in our sample of women with a history of CSA. This initial model was a poor fit to the data, RMSEA = .14, 90% CI = [0.11, 0.16]; CFI/TLI = .78/.72; SRMR = .10. Two hypotheses regarding model modifications received support. First, model fit was significantly improved when a covariance was added between the residuals of the Personal and Relational Concern variables ($\beta = .30$, $p < .001$). Second, model fit was significantly improved by changing the loading of the Sexual Satisfaction observed variable to the sexual satisfaction factor, rather than the sexual

Table 2
Scores on the Female Sexual Function Index and Sexual Satisfaction Scale for Women by Group

	CSA ($n = 134$)		NSA ($n = 104$)	
Variable	*M*	*SD*	*M*	*SD*
Female Sexual Function Index				
Desire	3.78	1.59	4.21	1.22
Arousal	3.72	1.46	4.78	1.01
Lubrication	4.38	1.40	5.36	0.82
Orgasm	3.15	1.73	4.43	1.58
Satisfaction	3.30	1.42	4.55	1.26
Pain	4.87	1.28	5.34	1.07
Total	23.07	6.19	29.04	4.28
Sexual Satisfaction Scale for Women				
Contentment	16.33	3.98	18.92	4.38
Communication	17.93	3.52	18.56	3.17
Compatibility	17.30	7.02	12.99	6.78
Interpersonal Concern	20.44	6.98	12.57	6.91
Personal Concern	21.60	6.16	13.74	7.67
Total	72.94	8.59	64.04	10.77

Note. CSA = childhood sexual abuse; NSA = nonabused.

function factor ($\beta = .88$, $p < .001$). One additional modification was indicated ($\beta = -.43$, $p < .001$): a residual covariance was added between the Desire and Orgasm variables. Given that the value of the covariance was negative, it indicated that these variables were less strongly associated than would be indicated by their shared latent factor loadings. This modified model (Model 1) exhibited adequate fit in the abused group, RMSEA = .07, 90% CI = [0.04, 0.10], CFI/TLI = .94/.92, SRMR = .07 (see Figure 1).

We then applied Model 1 to the sample as a whole. This initial multigroup model did not exhibit acceptable fit, RMSEA = .09, 90% CI = [0.07, 0.11]; CFI/TLI = .90/.89; SRMR = .11, suggesting some significant group differences in factor structure. Five modifications to this model were suggested by Lagrange multiplier tests (again, we limited model modification to changes that would significantly improve model fit). Four model modifications involved the two Sexual Concern subscales, suggesting that these variables in particular differed between abused and nonabused women. First, as predicted, model fit was improved ($\beta = -.15$; $p = .043$) by adding a group-dependent covariance between the Personal Concern variable and the sexual function factor. A number of other changes were indicated by statistical tests that had not been predicted. Specifically, three error covariances were added for the CSA group, one between Relational Concern and Sexual Pain ($\beta = .30$; $p < .001$), one between Personal Concern and Compatibility ($\beta = -.25$; $p < .001$), and one between Compatibility and Communication ($\beta = .30$; $p < .001$). These paths suggested that, over and above the association between these variables predicted by their shared factor loadings, Pain and Relational Concern were more closely related for abused women, Personal Concern and Compatibility were less closely related for abused women, and Compatibility and Communication were more strongly related for abused women. Finally, the intercepts of the Personal Concern and Relational Concern subscale differed between groups: the CSA group scored lower on these factors, and this difference was not accounted for by differences in the sexual satisfaction latent factor. The final multigroup model (Model 2) exhibited adequate fit, RMSEA = .07, 90% CI = [0.05, 0.09], CFI/TLI = .95/.94, SRMR = .09 (see Figure 2).

Using Model 2, we computed effect size estimates for the effect of group membership on sexual satisfaction and sexual function. The effect size of abuse status on sexual function was

Table 3
Correlations Among All Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Desire	_											
2. Arousal	.55	_										
3. Lubrication	.34	.66	_									
4. Orgasm	.16	.63	.51	_								
5. Satisfaction	.40	.63	.39	.45	_							
6. Pain	.18	.26	.33	.27	.17	_						
7. FSFI Full	.65	.89	.78	.76	.72	.50	_					
8. Contentment	.23	.39	.28	.33	.52	.26	.51	_				
9. Communication	.18	.16	.04	.24	.41	.13	.33	.26	_			
10. Compatibility	-.32	-.50	-.31	-.29	-.66	-.13	-.54	-.45	-.22	_		
11. Interpersonal Concern	-.30	-.57	-.42	-.52	-.66	-.38	-.68	-.42	-.32	.52	_	
12. Personal Concern	-.19	-.53	-.39	-.56	-.59	-.30	-.64	-.46	-.28	.45	.74	_
13. SSSW Full	-.30	-.55	-.44	-.41	-.56	-.15	-.55	-.12	.00	.78	.72	.67

Note. Correlations between .15 and .22 were significant at $p < .05$. Correlations greater than .22 and .31 were significant at $p < .01$. Correlations greater than .31 were significant at $p < .001$. FSFI = Female Sexual Function Index; SSSW = Sexual Satisfaction Scale for Women.

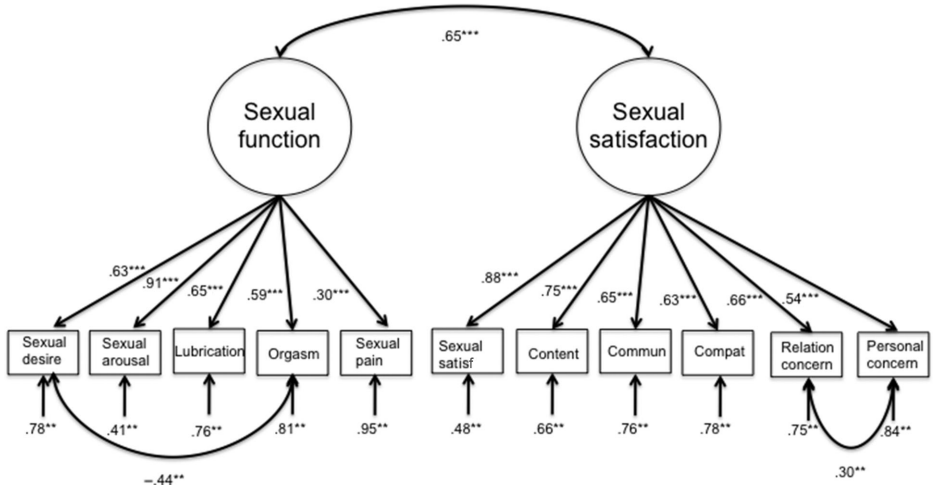

Figure 1. Model 1 demonstrating factor structure of sexual function and sexual satisfaction in the abused sample. Single-headed arrows represent standardized factor loadings and residual error effects; two-headed arrows represent covariances. $N = 134$. $^{***}p < .001$.

0.53, typically considered a medium effect size (Cohen, 1988). The effect size of abuse status on sexual satisfaction was 0.72, typically considered a large effect size.

Discussion

We examined the construct validity of commonly used measures of sexual function and satisfaction for women reporting sexual problems and a history of CSA. Slightly modified statistical models for the Female Sexual Function Index and Sexual Satisfaction Scale for Women fit well in both samples, indicating that sexual function and satisfaction likely manifest similarly in women experiencing sexual difficulties, regardless of CSA history. It appears valid to use the Female Sexual Function Index and Sexual Satisfaction Scale for Women to assess sexuality for women with a history of CSA experiencing sexual difficulties, though some adaptations of scales may be appropriate.

All hypotheses for alterations to our models received some support. Based on previous research (Leonard, Iverson, & Follette, 2008; Rellini & Meston, 2007; Stephenson et al., 2013), we hypothesized that the Sexual Satisfaction subscale of the Female Sexual Function Index would load more strongly on the sexual satisfaction factor than the sexual function factor, and that Personal and Relational Concern would be more strongly related to one another than to other aspects of sexual satisfaction. Both of these modifications significantly improved model fit.

There were also some noteworthy differences in factor structure between groups. Women with a history of CSA and sexual difficulties exhibited a weaker link between sexual function and sexual distress and higher levels of sexual distress than women without an abuse history and sexual difficulties. Similar findings were indicated by an earlier analysis of the current data set (Stephenson et al., 2012). The confirmation of these results

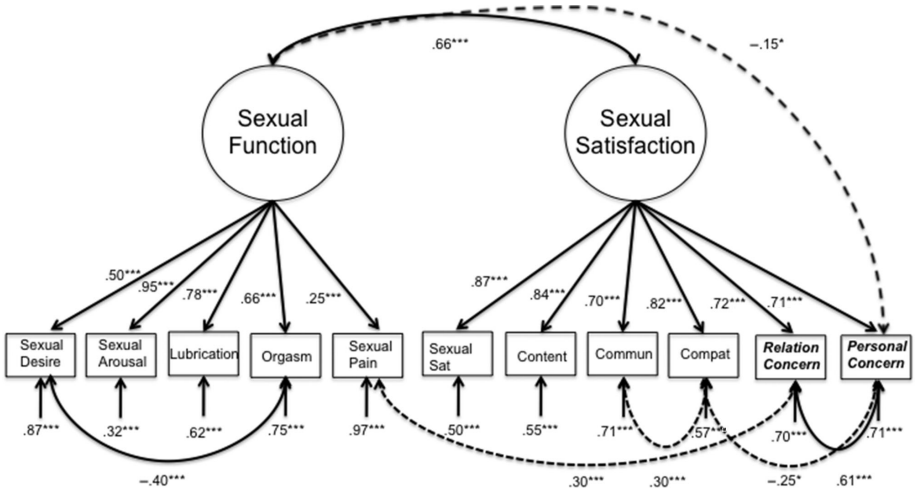

Figure 2. Model 2 demonstrating the combined model for both abused and nonabused women. Single-headed arrows represent standardized factor loadings and residual error effects; two-headed arrows represent covariances. Dashed paths apply to the abused group only. Bold italic labels indicate group noninvariant intercepts. $N = 238$. $^{*}p < .05$. $^{***}p < .001$.

using an alternative method of analysis increases confidence in the reliability of these effects. Indeed, a number of other researchers have proposed that CSA may play a particularly strong role in increasing negative affect during sexual experiences, rather than directly impairing physiological sexual function per se (Berman, Berman, Bruck, Pawar, & Goldstein, 2001; Maltz, 2002; Westerlund, 1992), and that treatment for sexual dysfunction with a CSA-etiology might require specific types of therapy (e.g., mindfulness-based treatments; Brotto, Basson, & Luria, 2008; Brotto et al., 2012).

Some unexpected differences between groups were also found. Women with a history of CSA and sexual difficulties exhibited associations between factors that were sometimes stronger than women without an abuse history and sexual difficulties (e.g., between perceived sexual compatibility with their partners and sexual communication) and sometimes weaker (e.g., between perceived sexual compatibility and personal concern regarding sexual difficulties). These effects certainly warrant consideration in future research on the effects of CSA; however, given that these differences were small in magnitude, did not involve substantive changes in overall factor structure, and have not been replicated in an independent sample, we encourage researchers to use caution in interpreting these findings. Aside from these relatively minor alterations to the models, the structure of the Female Sexual Function Index and Sexual Satisfaction Scale for Women fit acceptably well in both groups, providing the first explicit validation of theses scales in an abused population with sexual difficulties.

After verifying the construct validity of the use of the scales in an abused sample with sexual difficulties, we estimated effect sizes for the impact of CSA on sexual function and satisfaction taking into account differences in measurement models between groups. Previous meta-analyses on this topic have reported small to medium effect sizes for the association between CSA and mental and sexual health (Maniglio, 2009). In the current sample, we found medium and large effect sizes for the effect of CSA on sexual function and satisfaction, respectively. These results suggest that the association between CSA and adult sexuality may be stronger than was previously understood. It is also notable that in our sample, CSA produced a larger effect on sexual satisfaction than sexual function: again supporting the idea that sexual satisfaction may be the aspect of sexuality more strongly affected by early sexual abuse.

The current study had a number of strengths including the use of a large sample, advanced statistical techniques, and validated measures. A number of limitations, however, should be noted. Our sample was entirely composed of women reporting sexual difficulties. Although this aspect of the study increases clinical relevance, it also limits the generalizability of our results. We can only comment on women experiencing sexual difficulties; however, given the high prevalence rates of sexual difficulties in the female population at large, we feel these results are relevant to a significant proportion of women. We assessed sexual function status with a self-report measure that has been shown to identify women with clinically significant sexual dysfunction, but self-report measures are not as accurate as a clinician-administered interview for diagnostic purposes. Other inclusion criteria, such as being sexually active and not using illegal drugs, also limit our findings to a more select and perhaps higher functioning population of women. We did not account for adult sexual assault history in this study because unfortunately adult sexual assault is highly common (Black et al., 2011), and it would have been difficult to find a sample of women completely free of any history of sexual assault. Additionally, research suggests that being a survivor of both CSA and adult sexual assault does not increase the risk of negative sexual outcomes (Lemieux & Byers, 2008), suggesting that CSA may be predominantly responsible for the higher risk of sexual dysfunction in this population. Survivors of interpersonal trauma, such as CSA, often use avoidance as a coping strategy (Leonard & Follette, 2002); therefore, some potential participants may have been unlikely to volunteer for our study, also limiting the generalizability of our findings to women willing to participate in a study on these topics. It is also possible that the relationship between CSA and adult sexual problems is mediated by other variables such as depression or posttraumatic stress disorder symptoms, which we did not assess in this study. Future research should assess these as well as general mental health symptoms in addition to sexuality variables.

Although we had what is considered a large sample of abused women in the CSA literature, our sample size was relatively small for the SEM analysis techniques employed. In standard practice, it is necessary to have at least five participants per parameter estimated in structural equation models. Given the number of parameters in our models (25 in Model 1 and 31 in Model 2), our sample size (134 participants in CSA group and 238 in total sample) was only slightly above this practical minimum (125 in CSA sample and 155 in whole sample). Thus, as is often the case in research using similar statistical methodology, replication of the current models is essential. Ideally, this replication would take place using larger and more diverse samples, extending the degree to which the results can be generalized, and allowing for an examination of qualitative differences in abuse histories such as the type, age, and chronicity of the abuse. Further studies may also improve upon our methods by assessing sexual functioning in a more objective manner, such as with a clinician-administered interview, rather than simply a self-report questionnaire.

Despite these limitations, this was the first study of which we are aware to validate measures of sexual function and satisfaction in a sample of women with sexual problems and a history of CSA. These measures are used ubiquitously in sexuality research, often with CSA samples, and validation in this population is an essential step in increasing confidence in this literature. Additionally, we found that CSA appears to exert a medium-sized statistical effect on sexual function, and a large-sized effect on sexual satisfaction among women with sexual difficulties. These effect sizes are larger than previously reported in the literature (Maniglio, 2009) and confirm that

experiencing sexual abuse in childhood is a potent risk factor for sexual problems in adulthood.

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