

Child Sexual Abuse and Adult Romantic Adjustment

Comparison of Single- and Multiple-Indicator Measures

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This study compared the usefulness of single- and multiple-indicator strategies in a model examining the role of child sexual abuse (CSA) to predict later marital satisfaction through attachment and psychological distress. The sample included 1,092 women and men from a nonclinical population in cohabiting or marital relationships. The single-item measure assessed the presence or absence of CSA. The multiple-indicator measure included items relating to level of force, relationship with perpetrator, number of abusive experiences, and nature of assault. Structural equation modeling indicated that, for research purposes, a dichotomized item provided as much information as a complex measure to predict the relationship between sexual abuse and marital adjustment through attachment representations and psychological distress. However, when analyses were conducted strictly within the CSA victims group, no correlation was found between abuse severity and psychosocial measures. The present results show that in a community sample, CSA may be an important risk factor that develops couple difficulties, regardless of the severity of the trauma.

Keywords: *child sexual abuse; evaluation; attachment; psychological distress; marital distress; structural equation modeling*

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There is a growing consensus, based on theoretical, empirical, and clinical data, that child sexual abuse (CSA) has long-term consequences on future marital functioning (McCarthy & Sypeck, 2003; Whiffen & Oliver, 2004). For example, in a recent reanalysis of the National Comorbidity Study results, Whisman (2006) reported that rape or sexual molestation before the age of 16 years significantly increases the risk of marital dissatisfaction and disruption. Consequently, researchers have now developed models that test the mechanisms by which early sexual trauma may directly or indirectly affect diverse marital outcomes (Whiffen & MacIntosh, 2005). Chronic elevated levels of psychological distress and dysfunctional attachment representations are two key mediators that are increasingly studied (Whiffen & MacIntosh, 2005). The role of these variables in contemporary models of couple distress and stability has also been well delineated (Beach, Kamen, & Fincham, 2006).

The long-term consequences of CSA on couple relationships most likely vary in function of the multiple parameters that characterize the abusive experience. However, this hypothesis has not been tested rigorously. It could well be that the mere occurrence of CSA is sufficient enough to produce negative marital outcomes. It is also possible that the delineation of particular aspects of CSA associated with specific marital attitudes or behaviors will necessitate the use of elaborated clinical protocols not compatible with large-scale social surveys. In past studies, the assessment methods used to describe CSA have varied widely. Some researchers have employed single-item indicators in an effort to balance the need to explore the consequences of CSA with the need to respect and protect participants' privacy and well-being (see Becker-Blease & Freyd, 2006, for a discussion of this ethical dilemma). Others have used multiple-indicator measures to obtain detailed information about the nature and correlates of CSA. Different measurement approaches to CSA can lead to inconsistent findings. Thus, comparative studies of single- and multiple-indicator measures of CSA seem warranted.

Studies conducted using multiple indicators of CSA in nonmarital contexts have partly supported the hypothesis that some specific aspects of CSA are, more than others, significantly associated with long-term outcomes. Common indicators of abuse severity, which include the use of force, a close relationship with the perpetrator, a high number of abusive experiences, and the intrusive nature of assaults, have generated positive results (Feinauer, Mitchell, Harper, & Dane, 1996; Lange et al., 1999; Merrill, Thomsen, Sinclair, Gold, & Milner, 2001; Molnar, Buka, & Kessler, 2001; Ray & Jackson, 1997; Rodriguez, Ryan, Kemp, & Foy, 1997; Sinclair & Gold, 1997). Other studies have not found evidence of this relationship (Gold, Milan, Mayall, & Johnson, 1994; Tremblay, Hébert, & Piché, 1999).

More recently, the structural validity of the CSA concept has been studied in two confirmatory factor-analytic studies. These efforts to develop a latent variable for CSA have produced inconsistent findings. In a large-scale study based on 600 CSA female victims, Merrill et al. (2001) succeeded in demonstrating that different indicators of CSA severity significantly load a single latent variable. In this context, CSA could be assessed along a unidimensional continuum, and all variables positively contributed to this factor. However, Kallstrom-Fuqua, Weston, and Marshall (2004), using a sample of 178 low-income female CSA victims, reported conflicting results in the correlation between indicators of CSA severity. More specifically, some indicators had to be dropped (e.g., number of CSA incidents) because they were unrelated to the latent variable. Likewise, variables expected to be positively related to the severity of CSA (being abused by one's father), or negatively related (age), were found to be inversely related to abuse severity. Thus, at the present stage, it remains difficult to ascertain whether multiple-indicator measures, as compared with single-item instruments, contribute to a better conceptualization of the long-term correlates of CSA. The present study will represent another effort to construct a CSA latent variable, using multiple indicators.

The aim of the present study is to compare the usefulness of single- and multiple-indicator strategies in the assessment of a model in which CSA predicts later marital satisfaction through attachment and psychological distress. More specifically, using both types of measures, we tested an already well-supported mediational model in which CSA was associated with marital satisfaction through attachment representations and psychological distress (Whiffen & MacIntosh, 2005). We hypothesized that compared with a single-item measure, a multiple-indicator assessment strategy would explain more variance in marital satisfaction.

Method

Participants and Procedure

The sample ($N = 1,092$) consisted of 516 French Canadian men and 574 French Canadian women, who were either married ($n = 394$) or cohabiting ($n = 698$). The average number of years of frequentation was 8.1, and participants had been living together for an average of 5.8 years. The mean age was 30.4 years (standard deviation [SD] = 10.1) for women and 31.6 years ($SD = 10.2$) for men. The average education was 14.3 years ($SD = 2.9$) for women and 13.8 years ($SD = 3.5$) for men. The average annual income was

Can\$26,050 ($SD = \text{Can}\$19,357$) for women and Can\$36,483 ($SD = \text{Can}\$22,357$) for men. The mean number of children per couple was 1.1 ($SD = 1.1$).

The participants were recruited on a voluntary basis through two methods. First, a survey firm recruited an initial randomized pool of 1,200 participants (600 couples) by using random-digit dialing, and 551 participants completed and returned their questionnaires. Second, participants were recruited through various media (radio, television, newspapers, e-mail) and were invited to take part in the study (541 accepted and returned their questionnaires). To ensure confidentiality, participants in both methods were mailed two separate envelopes (one for each partner) containing a questionnaire packet and a pre-paid return envelope. All participants were married or cohabiting for at least 6 months. Participants were informed that the study addressed various dimensions associated with close relationships. Participants were instructed to complete the questionnaires individually without discussing their responses with their partner.

Measures

One question was used to evaluate CSA in a simple way, "Have you been sexually abused during your childhood or adolescence?" (yes or no). For the more complex evaluation, questions were included about the type, force, frequency, and nature of the CSA. High scores indicated a greater intensity for all items. Type referred to the relationship with the abuser and varied from 0 (*nonvictim*), 1 (*extrafamilial abuse*), 2 (*intrafamilial abuse*), to 3 (*father figure*). Degree of force represented the perception of violent coercion during the trauma and varied from 0 (*nonvictim*), 1 (*no force*), 2 (*threats*), to 3 (*physical violence*). Frequency represented the number of times the abuse occurred: 0 = *nonvictim*, 1 = *victim one time*, 2 = *victim 2 to 5 times*, 3 = *victim 6 to 10 times*, 4 = *victim 11 to 20 times*, 5 = *victim 21 to 50 times*, and 6 = *victim so many times, I cannot calculate*. The intrusive nature of CSA was related to the abuser action and varied from 0 (*nonvictim*), 1 (*without direct contact like voyeurism or exposure*), 2 (*touching or oral sex*), to 3 (*anal or vaginal penetration*). For participants reporting multiple assaults, the most intrusive incident was used. Sexual abuse was defined as intrusive sexual contact between birth and age 18, and perceived as abusive by the participant. Abuse severity was represented by these four indicators in the structural equation modeling (SEM) analyses.

Attachment representations were measured with a shortened version of the Experiences in Close Relationships Questionnaire (Brennan, Clark, & Shaver, 1998, translated in French by Lafontaine & Lussier, 2003). The

Experiences in Close Relationships Questionnaire measures two main dimensions of attachment insecurity: anxiety about rejection with feelings of personal unworthiness regarding interpersonal relationships and avoidance of intimacy with interpersonal distrust. Higher scores indicate higher anxiety and avoidance. The reliability of the two scales has been demonstrated in many previous studies (e.g., Lafontaine & Lussier, 2003; Shaver & Mikulincer, 2004). In the present study, alpha coefficients for avoidance and anxiety were .85 and .86. We used item-total correlations to develop six empirical indicators (three for anxiety, three for avoidance) that represented all the items for anxiety and for avoidance in SEM. We used this statistical procedure to diminish the number of indicators without loss of information, because neither anxiety nor avoidance is theoretically subdivided into specific conceptual dimensions. For each latent variable, the first indicator (Ax1/Avo1) regroups the three items most strongly related to the score total; the second indicator (Ax2/Avo2) regroups the next three items most strongly related to the score total, and so forth (all the items were well related to the score total).

Psychological distress was measured with the shortened version of the Psychiatric Symptom Index (PSI: Ilfeld, 1976, 1978; PSI-14: Prévile, 1995; Prévile, Boyer, Potvin, Perreault, & Légaré, 1992; Prévile, Potvin, & Boyer, 1995). Items on the PSI-14 assess depression, anxiety, aggressiveness, and cognitive problems. The PSI-14 shows good internal consistency, construct validity, and criteria validity (Prévile, 1995; Prévile et al., 1992, 1995). The alpha coefficient in this study was .87. The latent factor for psychological distress was determined by four indicators corresponding to scores observed on the four theory-driven subscales.

A shortened version of the Dyadic Adjustment Scale (DAS) was used to evaluate dyadic adjustment (Spanier, 1976, translated in French by Baillargeon, Dubois, & Marineau, 1986). The global score ranged from 0 to 46, with higher scores reflecting a higher level of relationship quality. The items of the DAS-9 were derived from the Cohesion (two items) and Satisfaction (six items) subscales of the DAS. Content, criterion-related, and construct validity estimates, as well as internal consistency, were satisfactory for similar brief versions of the DAS (Sabourin, Valois, & Lussier, 2005). In the present study, Cronbach alpha was .87. The latent factor for dyadic adjustment was measured with two indicators derived from scores on the two conceptual subscales of the DAS-9.

We evaluated the two models through SEM analyses (EQS software; Bentler, 1995). This method estimates relationships among latent variables, minimizing the effects of measurement error. Because some variables are nonnormal, we opted for the robust estimation method, with the specification

category for categorical variables. Following recommendations of Raykov, Tomer, and Nesselroade (1991), we determined model fit by computing several indices of adjustment. First, because the chi-square test is less valid in a large sample (Hayduck, 1987), we applied the χ^2/df ratio. Values between 1 and 3 (Kline, 1998) indicate a satisfactory fit. Then, Bentler's (1990) comparative fit index (CFI) and Bentler and Bonett's (1980) normed fit index (NFI) were used. Finally, root mean square error approximation (RMSEA) estimates the difference between model implied and actual variances and covariances; smaller value indicates better fit, and value less than .08 is acceptable.

Results

Descriptive Statistics and Correlational Analyses

Among the 1,092 participants, 13% ($n = 145$) reported sexual abuse before the age of 18 years (6% in men, 19% in women). About half of the survivors reported threat and 13% reported violence during the CSA. Around half of the survivors reported extrafamilial abuse, 38% indicated intrafamilial abuse without a father figure, and 8% stated an abuse by a father figure. Concerning the nature of the abuse, the majority reported unwanted sexual touching (59%), and 15% reported penetration. Finally, CSA chronicity was variable; globally 40% reported one abuse and 60% indicated more than one assault.

A correlation matrix with the psychosocial variables was generated as an initial check on whether the pattern of relationships was as expected. As shown in Table 1, the correlations among CSA indicators were strongly related and the psychosocial variables were all linked. We performed t tests to evaluate differences between CSA survivors and nonvictims into sociodemographic variables. One difference was observed: Sexual abuse survivors were slightly older compared with the comparison group (for CSA, $M = 33.9$, $SD = 12.2$; for non-CSA, $M = 30.5$, $SD = 9.7$), $t(1017) = 3.63$, $p = .001$ (two-tailed), $d = .31$. Nonparametric Mann-Whitney tests confirmed these results.

Structural Equation Modeling

Single-item dichotomized measure of CSA. The structural model of the relationship between CSA and psychosocial outcomes showed satisfactory fit indices (CFI = .956; NFI = .942; RMSEA = .056; $\chi^2/df = 1.51$). Significant structural paths are illustrated in Figure 1 (in brackets). The final model showed an indirect longitudinal relationship between CSA and

Table 1
Spearman Correlations Between Abuse Characteristics and Psychosocial Variables

Variables	1	2	3	4	5	6	7	8	9
1. CSA	—	.997*	.997*	.997*	.997*	.169*	.064*	.061*	-.062*
2. Frequency		—	.995*	.994*	.995*	.169*	.060*	.059*	-.059*
3. Nature			—	.995*	.994*	.167*	.059*	.059*	-.059*
4. Force				—	.994*	.170*	.066*	.062*	-.064*
5. Type					—	.169*	.065*	.059*	-.065*
6. Attachment anxiety						—	.385*	.342*	-.323*
7. Attachment avoidance							—	.310*	-.632*
8. PSI								—	-.372*
9. DAS									—

Note: CSA = child sexual abuse; DAS = Dyadic Adjustment Scale; PSI = Psychiatric Symptom Index. Correlations for all participants are shown above the diagonal ($N = 1,092$). Correlations for CSA survivors only are shown below the diagonal ($N = 145$).

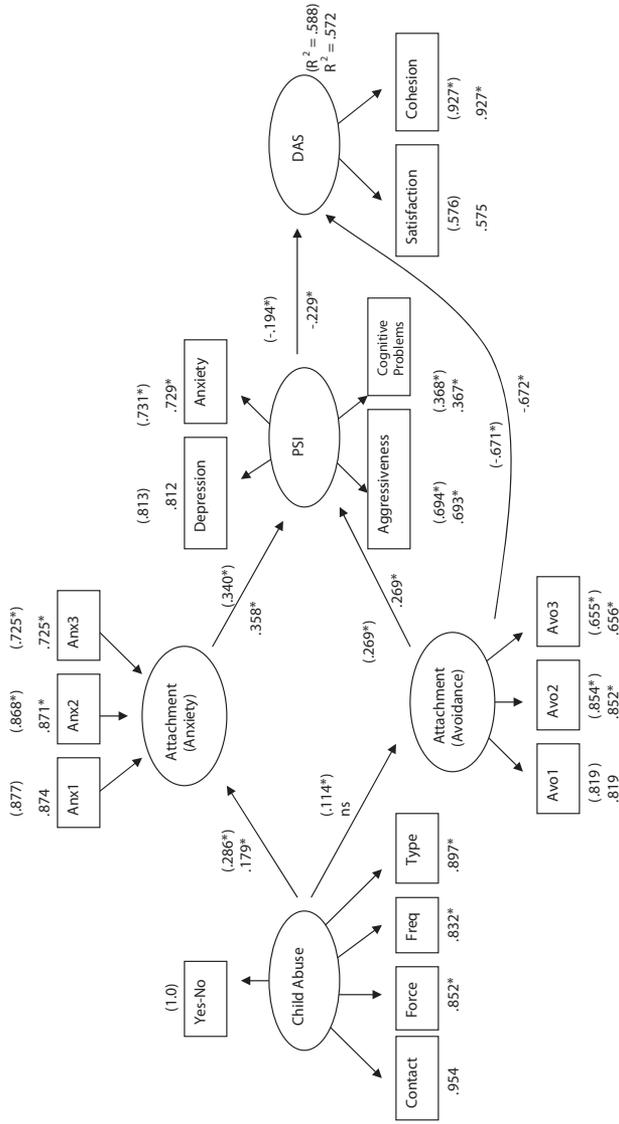
* $p < .05$, two-tailed.

dyadic adjustment through attachment representations and psychological distress. Dyadic adjustment was generally well predicted by other latent variables ($R^2 = .59$).

Multiple-item measure of CSA. The structural model of the relationship between CSA and psychosocial outcomes showed satisfactory fit indices (CFI = .912; NFI = .983; RMSEA = .036; and $\chi^2/df = 1.21$). Significant structural paths are illustrated in Figure 1. The final model showed similar links compared with the model using a single-item dichotomized measure. However, the link between CSA and avoidance was nonsignificant. Dyadic adjustment was generally well predicted by the other latent variables ($R^2 = .57$).

Model with equivalent groups. The preceding analyses were repeated to determine if sample size inequality in the abused and nonabused subgroups affected the results. To create equal subsamples, we randomly selected 145 nonabused participants, by using SPSS. Afterwards, the models with multiple and single indicators were tested with SEM. To ensure the generalizability of the results, this random selection procedure was repeated 10 times for each model (i.e., 10 different samples, 20 SEM). In all cases, results

Figure 1
Structural Equation Modeling for Child Sexual Abuse, Attachment Avoidance and Anxiety, Psychological Distress (PSI), and Dyadic Adjustment (DAS) With Single- (Coefficients in Parentheses) and Multiple-Indicator Measures



have revealed similar structural relations, with two exceptions. First, the link between avoidance and psychological distress was nonsignificant once in both models. Second, the relation between CSA and avoidance was nonsignificant 60% of the time in both models. The fit indices were very satisfactory in all cases (mean of the fit indices for single indicator: NFI = .922, CFI = .972, RMSEA = .041, $\chi^2/df = 1.47$, dyadic adjustment $R^2 = .63$; for multiple-indicators: NFI = .928, CFI = .975, RMSEA = .041, $\chi^2/df = 2.42$, dyadic adjustment $R^2 = .64$).

Model for CSA survivors only. Finally, to directly try to replicate the results of Kallstrom-Fuqua et al. (2004) and Merrill et al. (2001), who both tested the measurement model of CSA strictly using abused participants, the models were tested for CSA survivors only ($N = 145$). Correlations showed that, in this subgroup, CSA characteristics were no longer significantly associated with psychosocial variables (see Table 1, below the diagonal). Correlations between CSA characteristics were smaller in this subsample and only half of the correlations were significant. This was unexpected given the associations reported in the literature. Finally, CSA was not associated with psychosocial variables in the structural model.

Discussion

The main goal of the present study was to examine the usefulness of two measurement strategies to assess the effects of CSA on survivors' long-term couple adjustment in a community sample. Our hypothesis that, as compared with a straightforward index of CSA, a multiple-indicator approach would be more powerful in the prediction of future couple distress was not supported. The results showed that a simple, dichotomized item provided as much information as a complex measure to predict the relationship between CSA and marital adjustment through attachment representations and psychological distress. Thus, in the present community sample, the conceptualization of couple problems associated with CSA is not significantly hampered by the use of an unsophisticated measure of CSA. However, our findings contribute to a growing body of evidence indicating that CSA could well be a significant risk factor in the etiology of marital distress. The theoretical mediational model supported by the present results provides additional evidence that traumatic events might be associated with the development of dysfunctional, anxious, and/or avoidant attachment representations (Whiffen & MacIntosh, 2005). In turn, these insecure attachment

representations would be associated with elevated psychological distress and, ultimately, to couple distress. Even if these conclusions are based on data from a nonclinical population, we believe it is not premature to recommend assessment protocols routinely including measures of CSA for both partners in couple therapy to understand the multiple causes of couple difficulties.

With the total sample, confirmatory analyses supported the validity of a unidimensional latent variable based on the four indicators of CSA (type, force, frequency, and intrusive nature). However, when restricting the analyses to CSA victims only, our efforts to construct such a latent variable were not successful. Several factors might explain this difficulty. First, the sample size was lower than those reported in Kallstrom-Fuqua et al. (2004; $N = 178$) and Merrill et al. (2001; $N = 600$) and could negatively affect the statistical power of our analyses. Second, our sample included CSA victims who reported less severe forms of abuse. For example, 15% of our CSA survivors experienced penetration whereas 64% of the participants recruited by Merrill et al. reported vaginal or anal penetration. In addition, 7% of our CSA survivors reported an act by a father figure, compared with 22% in Merrill et al.'s sample and 25% in Kallstrom-Fuqua et al.'s study of low-income females. Finally, 13% of our CSA survivors indicated that physical force was used against them when they were sexually abused, as compared with 62.5% in Kallstrom-Fuqua et al.'s study. Third, the present sample included both abused women and men, whereas the other two studies were conducted with women only.

The difficulty we had constructing a latent variable from different indicators of CSA is not unique. Kallstrom-Fuqua et al. (2004) also obtained somewhat mixed results. Because of the very small number of studies dealing with this issue, future studies will be necessary to determine the exact nature of the interrelationships between the different facets of the CSA experience. From a theoretical and clinical viewpoint, future studies should further examine the effects of CSA separately, thereby defining each of its characteristics rather than using a unidimensional latent variable approach with multiple indicators. This observation is consistent with the results of Roche, Runtz, and Hunter (1999), who, along with many others, underlined the necessity to distinguish, for example, intra- from extrafamilial CSA to better understand variations in attachment difficulties experienced by victims. Consequently, it is not only a research priority to develop a better understanding of the separate effects of CSA's characteristics on future couple problems, but it is also important to scrutinize the consistency of the relationship between these features of sexual abuse.

It is important to note several limitations of the present study. First, the study was based on retrospective self-reports of abusive experiences. This

could lead to underreporting biases or distortions in the recall of traumatic events. However, in their critical analysis of retrospective reports, Brewin, Andrews, and Gotlib (1993) stated that such selection or distortion biases do not systematically affect the association between childhood maltreatment and current psychopathology. Second, it is conceivable that asking the same questions (the single-item dichotomized measure and the multi-item measure) to all the participants has served to bias how people responded to the single-item measure or the multiple-item measure. However, using the same group assured the presence of the same CSA and sociodemographic characteristics. Third, the results of this study should not be generalized to clinical or particular populations. Clinical samples could include survivors with more severe repercussions, and this level of severity could facilitate the observation of differences between victims of varied forms of abuse. To conclude, the use of a multiple-indicator measurement to construct a unidimensional latent variable that groups the different features of CSA is not conclusive. The clinical assessment of CSA in couple treatment should be based on an in-depth evaluation process, which takes into account the specificity of these traumatic events. Clinical research will have to support the development of such an evidence-based assessment protocol.

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