

## **Predictors of Attrition from an Expressive Writing Intervention for Sexual Abuse Survivors**

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*This study examined predictors of attrition from a clinical trial examining the effects of an expressive writing intervention for sexual problems among female survivors of child sexual abuse. Participants were 124 women all reporting sexual difficulties, who were randomized to a trauma-focused condition (n = 45), an experimental sexual schema-focused condition (n = 37), or a control condition (n = 42). Thirty-five women (28%) dropped out before completing posttreatment assessments. Younger age, less education, and increased use of positive coping strategies were each independently associated with dropout. Results have implications for both researchers and clinicians working with this population, and it is hoped that these data can help bolster retention of those who are more likely to discontinue treatment.*

*KEYWORDS* childhood sexual abuse, child abuse, women, dropout

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Child sexual abuse (CSA) is a complex life event that has the potential to deleteriously affect emotional, behavioral, interpersonal, and psychological functioning. Female CSA survivors represent a unique clinical population that has elevated risk for many mental health conditions such as depression, borderline personality disorder, substance abuse disorders, post-traumatic stress disorder (PTSD), and eating disorders (Putnam, 2003). In addition, CSA increases risk for sexual development problems (Loeb et al., 2002), sexual dysfunctions (Leonard & Follette, 2002; Leonard, Iverson, & Follette, 2008; Noll, Trickett, & Putnam, 2003), subsequent revictimization (Messman-Moore & Long, 2000), and difficulties with emotional attachment (Rumstein-McKean & Hunsley, 2001). CSA is also associated with increased medical problems such as chronic pain, sexually transmitted infections, and general health problems (Irish, Kobayashi, & Delahanty, 2010; Maniglio, 2009). Women are approximately 1.5 to 3 times as likely as men to report CSA, with prevalence rates ranging from 12% to 35% among community samples within the United States (Putnam, 2003). Rates of unwanted sexual activity during childhood in other countries are similar, ranging from 10% to 40% (Pereda, Guilera, Forns, & Gomez-Benito, 2009).

There are a number of psychological treatments for mental health sequelae of CSA (particularly PTSD), and many of these have been shown to be efficacious (Chard, 2005; Martsof & Draucker, 2005; McDonagh et al., 2005; Price, Hilsenroth, Petretic-Jackson, & Bonge, 2001). However, a large proportion of trauma-exposed individuals do not seek help, refuse or prematurely end available treatments, or are not adequately helped by them (Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008). In fact, women participating in intervention studies targeting mental health symptoms secondary to CSA have higher attrition rates ( $M \approx 25\%$ , ranging from 19% [Chard, 2005] to 47% [Paivio & Nieuwenhuis, 2001]) compared to the average rate of attrition for psychological treatment studies in the United States ( $M = 19\%$  [Edlund et al., 2002]). Given the breadth of physical and mental health sequelae associated with CSA, coupled with the fact that CSA survivors have relatively higher dropout rates, understanding factors that predict attrition in this population is important. Enhancing retention has the potential to improve treatment outcomes and, at an applied level, better help individuals who are suffering psychologically from trauma(s).

To date, several variables have been identified as predictors of dropout among CSA survivors enrolled in intervention studies; however, there has not been clear consistency across studies. The lack of uniformity may be a function of population heterogeneity (i.e., breadth of associated and comorbid psychiatric disorders), intervention characteristics (type, length, modality), outcome measures used, and sample sizes employed. Regardless of across-study variation, the more consistent sociodemographic predictors of dropout among CSA survivors have been younger age (Cloitre, Chase Stovall-McClough, Miranda, & Chemtob, 2004) and lower socioeconomic

status (SES)/education (Talbot et al., 1999). Clinical characteristics have also shown to distinguish between CSA completers and dropouts, with dropouts reporting higher prevalence and/or levels of psychopathology (McDonagh et al., 2005; (Saxe, van der Kolk, Berkowitz, & Chinman, 1993; Talbot et al., 1999). Specifically, studies examining women with CSA-related PTSD found that more severe levels of PTSD symptoms were associated with increased likelihood of dropping out of treatment (Chard, 2005; Zlotnick et al., 1997). Similar results have been found for pretreatment depression levels (McDonagh et al., 2005). Abuse characteristics have also been implicated in treatment outcome and retention among CSA survivors. Findings suggest that those who dropout reported a history of more frequent and more severe abuse (McDonagh et al., 2005) as well as higher numbers of perpetrators (Lau & Kristensen, 2007) than study completers.

To date, a paucity of literature exists regarding predictors of attrition among CSA survivors treated via writing interventions. This may be an important distinction, given that both rates and predictors of study dropout may be different for self-guided, intensive writing interventions compared to traditional psychotherapy. Furthermore, writing interventions enjoy growing popularity with respect to their therapeutic benefits, ease of administration, portability, and enhanced client anonymity (Pennebaker & Chung, 2011), and, therefore, better understanding factors associated with treatment adherence may be of use to clinicians and researchers alike.

The aim of the present study was to examine predictors of attrition among adult female CSA survivors enrolled in a randomized controlled trial examining the effects of a novel writing intervention on sexual function and related distress. This study attempted to build on prior literature by examining a breadth of sociodemographic, clinical, trauma, and behavioral characteristics; furthermore, the present investigation examined relatively underexplored predictors of dropout such as sexual function and coping.

## METHOD

### Participants

Participants were recruited via fliers, newspaper advertisements, and posts on community Web sites. Women entering the trial had to be at least 18 years of age and 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. To be able to appropriately measure sexual functioning and distress, participants were required to be currently sexually active. In addition, they had to report sexual dysfunction, sexual distress, or low sexual satisfaction. Women were excluded if they had experienced a traumatic event in the previous 3 months, had been a victim of sexual abuse in the past 2 years,

or had been diagnosed with a psychotic disorder in the previous 6 months. Other mental disorders were permissible so long as the participant did not report significant suicidal or homicidal intent at intake. Participants could not be currently receiving psychotherapy for sexual or abuse-related concerns; however, participants could be receiving psychoactive medications if they had been stabilized on those medications for at least 3 months. Participants were excluded if they reported current use of illicit drugs but were not excluded for alcohol use. Women in currently abusive relationships were also excluded.

A detailed description of the participant flow can be found in Meston, Lorenz, and Stephenson (in press). In brief, out of the 215 women who were assessed for inclusion/exclusion criteria, 50 were excluded (absence of sexual problems,  $n = 17$ ; abuse within the past 2 years,  $n = 10$ ; concomitant psychotherapy,  $n = 8$ ; suicidality,  $n = 6$ ; and other [travel difficulty,  $n = 6$ ; lack of participant availability during laboratory testing hours,  $n = 3$ ]). An additional 38 women were evaluated as eligible for study participation but dropped out prior to their first appointment, leaving a sample of 127 women that were included in the parent study (Meston et al., in press). At the time that the current analyses were conducted, data collection was incomplete for three of these participants, resulting in a sample size of 124 participants for this report.

Participants ranged in age from 19 to 63 years with a mean age of 35.01 years ( $SD = 10.59$ ). Participants reported an average of 14.33 ( $SD = 34.11$ ) years of education. Approximately half of the participants were White (58.1%). Breakdowns of other races/ethnicities are as follows: 19.4% Latina/o, 13.7% Black/African-American, 5.6% mixed ethnicity, 0.8% Asian, and 0.8% Native American/American Indian. With respect to relationship status, 84.7% reported being in a current relationship ( $M$  duration = 5.94 years;  $SD = 5.92$ ) and 31.5% were married.

## Predictor Measures

### SOCIODEMOGRAPHICS

Participants completed a demographic survey that assessed a wide range of sociodemographic characteristics. Variables reported in the present study included age, race/ethnicity, education history, and relationship characteristics (status and duration).

### STRUCTURED CLINICAL INTERVIEW FOR DSM-IV-TR AXIS I DISORDERS, RESEARCH VERSION, NONPATIENT EDITION (SCID-I/NP)

Participants were assessed for current major depressive disorder (MDD) with the SCID-I/NP (First, Spitzer, Gibbon, & Williams, 2002). The SCID-I/NP is a

semistructured interview tool used to determine axis I diagnoses based on the diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000). Because participants were a community sample and not a treatment-seeking clinical sample, the nonpatient version was used. This instrument has been shown to have good interrater reliability (Zanarini et al., 2000), acceptable test-retest reliability (Zanarini et al., 2000), and good to excellent validity (Basco et al., 2000).

#### CLINICIAN ADMINISTERED PTSD SCALE (CAPS)

Trauma-related stress symptoms were assessed with the CAPS (Blake et al., 1995). The CAPS is a widely published, standardized interview tool based on the DSM-IV-TR that has established excellent reliability and validity (Blake et al., 1995; Weathers, Keane, King, & King, 1997). The CAPS measures the 17 symptoms of PTSD (5 reexperiencing symptoms, 7 avoidance symptoms, and 5 hyperarousal symptoms) both in terms of symptom frequency (0 = *none of the time* to 4 = *most or all of the time*) and intensity (0 = *none* to 4 = *extreme*). As recommended by Blake and colleagues (1995), symptoms were considered present on the basis of intensity ( $\geq 1$ ) and frequency ( $\geq 2$ ) scores. In accord with the DSM-IV-TR, if a participant endorsed at least one reexperiencing symptom, three avoidance symptoms, and two hyperarousal symptoms, a diagnosis of PTSD was given.

#### CHILDHOOD TRAUMA QUESTIONNAIRE (CTQ)

The CTQ (Bernstein & Fink, 1998) is a 28-item self-report measure that assesses emotional, physical, and sexual abuse as well as emotional and physical neglect occurring during childhood. Each item is rated on a 5-point Likert scale, ranging from 1 (*never true*) to 5 (*very often true*) and the total score ranges from 28 to 140, with higher scores representing more severe trauma exposure. The CTQ demonstrates high internal consistency (Cronbach's  $\alpha = .79-.94$ ) and good test-retest reliability (intraclass correlation = 0.88; Bernstein, Fink, Handelsman, & Foote, 1994).

#### TRAUMA HISTORY QUESTIONNAIRE (THQ)

The THQ (Green, 1996) assesses lifetime exposure to 24 potentially traumatic events. The instrument consists of binary (*yes* = 1; *no* = 0) response items addressing a range of potentially traumatic events across three general areas: crime-related events (e.g., robbery, mugging), general disaster and trauma (e.g., natural disaster, injury, witnessing death), and unwanted physical and/or sexual experiences (e.g., assault, rape). The total number of

traumatic event exposures was summed, resulting in a score ranging from 0 to 24. Reliability of this measure has shown to be acceptable (Green et al., 2000).

#### CHILDHOOD SEXUAL ABUSE MEASURE (CSAM)

The CSAM (adapted from Finklehor, 1979) is a 13-item instrument that assesses specific sexual abuse behaviors to measure type of abuse, duration and severity of abuse, and the victim's relationship to the abuser. For the purposes of this study, the following variables were investigated descriptively: whether the perpetrator was a family member, whether the abuse involved rape (i.e., penetration of the vagina or anus) or nonpenetrative sexual assault, and whether the participant had also been sexually assaulted in adulthood.

#### FEMALE SEXUAL FUNCTION INDEX (FSFI)

The FSFI (Rosen et al., 2000) is a 19-item self-report questionnaire that assesses 6-factor analytically derived domains: desire, arousal, lubrication, orgasm, satisfaction, and pain. Each item is measured using a 5-point Likert scale with most items also having a response for "no sexual activity." The FSFI has been shown to have high test-retest reliability ( $r = .79-.86$ ), high internal consistency with Cronbach's  $\alpha > .82$ , and excellent reliability (Meston, 2003; Rosen et al., 2000). For the purposes of this study, the total score was used, which is the sum of all items (score range: 6-36); higher scores represented increased levels of sexual function. Because many of the items on the FSFI are related to sexual intercourse within the past 4 weeks, only sexually active individuals completed this questionnaire.

#### DAILY INVENTORY OF STRESSFUL EVENTS (DISE)

A modified self-report-based version of the DISE (Almeida, Wethington, & Kessler, 2002) interview was used, which assessed the occurrence and severity of seven common life stressors occurring during the past 24 hours (e.g., experiencing an argument or disagreement with someone, experiencing a stressful event, experiencing discrimination). Participants rated the severity of each item using a 4-point Likert scale ranging from 1 (*not at all stressful*) to 4 (*very stressful*). Severity scores for all seven items were summed, and this score served as the primary index of daily stress. The DISE has demonstrated good reliability and validity (Almeida, 1998; Almeida et al., 2002).

## BRIEF COPE

The Brief COPE (Carver, 1997) is a 28-item measure that assesses 14 different methods of coping both positive (active coping, planning, positive reframing, acceptance, humor, religion, emotional support, instrumental support) and negative (self-distraction, denial, venting, substance use, behavioral disengagement, self-blame) in nature. Each item is scored on a 4-point Likert scale ranging from 1 (*I have not done this at all*) to 4 (*I have been doing this a lot*) and possible ranges for the positive and negative coping total scores were 18 to 72 and 12 to 48, respectively. The Brief COPE has demonstrated adequate validity and reliability (Carver, 1997).

## Intervention

These data presented herein were taken from a clinical trial examining the effects of a novel writing intervention on sexual function and related distress (Meston et al., in press). After the initial assessment, participants were randomly assigned to one of three experimental conditions. Each condition involved five intervention sessions where participants were required to write for 20 minutes on an assigned topic. In the trauma-focused condition, participants wrote about their deepest thoughts and feelings regarding their traumatic experience(s). This is the standard protocol used in previous studies of trauma victims (Pennebaker, 2004). The sexual schema condition involved participants writing about their thoughts and feelings about sex and sexuality, and how these thoughts influenced their sexual experiences and romantic relationships. The third assignment was a control condition, where participants wrote about their needs during the past 24 hours as objectively and in as much detail as possible. This technique has been used in previous studies to control for repeated writing (Sloan & Marx, 2004).

## Procedures

For a detailed description of procedures, we refer the reader to Meston and associates (in press). In brief, all participants attended an initial assessment session of 2.5 to 3 hours in duration. At the baseline session, participants were oriented to study procedures and given information sufficient to provide informed consent. They then completed a battery of tests, including clinical interviews for sexual dysfunction, standardized interviews for history of depression and PTSD, and self-report questionnaires described previously.

After the baseline assessment, participants were randomized to one of the three treatment conditions. All conditions consisted of five sessions, each lasting 45 to 60 minutes in duration. Treatment was paced such that participants were scheduled for no more than two sessions per week and

never on consecutive days. Participants typed their essays on a computer into a Microsoft Word document identified by their unique code and session number. To ensure privacy, participants were left alone to write for the 30 minutes, and they were instructed to save and close their writing before the therapist returned to the room. After completion of the five session intervention, participants completed a posttreatment assessment that was identical to the baseline assessment. The protocol was approved by the university institutional review board.

### Statistical Analysis

Regarding binary variables, dropping out of the study was dummy coded as no = 0 and yes = 1, race was coded as White = 0 and non-White = 1, current romantic partner was coded as yes = 0 and no = 1, current MDD and PTSD diagnosis were both coded as no = 0 and yes = 1, childhood abuse type was coded as nonpenetrative sexual assault = 0 and rape = 1, relationship of perpetrator of childhood abuse was coded as family member = 0 and nonfamily member = 1, and rape during adulthood was dummy coded as no = 0 and yes = 1. The primary outcome variable for this study was participant attrition, which was defined as a participant dropping out at any time point subsequent to the baseline assessment. Associations between participant dropout and predictor variables were initially examined using zero-order correlations. Variables that significantly covaried with dropout were included in a multivariate logistic regression model by performing both forward and backward stepwise selection and calculating the  $\chi^2$  from the difference in  $-2 \log$  likelihood estimates for each subsequent model. Adjusted odds ratios with their 95% confidence intervals (CIs) were calculated accordingly. All variables that significantly improved the model fit were retained. All statistical tests were two-sided and an alpha  $< .05$  was considered statistically significant. All analyses were performed using SPSS statistical software version 19.0.

## RESULTS

Of the participants who completed baseline assessment, 35/124 (28%) dropped out before completing the posttreatment assessment (trauma-focused condition,  $n = 13/45$ , 29%; sexual schema condition,  $n = 9/37$ , 24%; control condition,  $n = 13/42$ , 31%). Rates of attrition were equivalent across treatment groups,  $\chi^2 (2) = .93$ ,  $p = .63$ ,  $\phi = .09$ ; that is, treatment condition was not associated with dropping out of the study. Furthermore, groups did not differ with respect to any sociodemographic, clinical, trauma, behavioral, or coping variable.



Zero-order correlations of study variables are shown in Table 1. Within this table, all intervariable associations are provided for informational purposes, although the only relationships of interest were those in column 1 (association between all predictor variables and dropout status). Of the 15 variables examined, 5 showed significant relations with study dropout. Specifically, younger age ( $r = -.34$ ,  $p < .01$ ) and less education ( $r = -.16$ ,  $p < .05$ ) were associated with increased rates of dropout. In addition, rape during adulthood was negative associated with dropout, indicating that absence of adulthood rape was correlated with attrition ( $r = -.25$ ,  $p < .01$ ). Finally, both sexual functioning and use of positive coping strategies were positively correlated with dropout. That is, higher levels of sexual functioning ( $r = .19$ ,  $p < .05$ ) and higher levels of positive coping ( $r = .27$ ,  $p < .05$ ) were correlated with attrition.

Predictors independently associated with attrition are shown in Table 2. After controlling for significant predictors identified in the correlation analyses, the stepwise multiple logistic regression model revealed that younger age (adjusted odds ratio [AOR] = .88; 95% CI = .80–.97), less education (AOR = .65; 95% CI = .42–1.00), and higher levels of positive coping (AOR = 1.13; 95% CI = 1.03–1.25) were each associated with increased likelihoods of dropping out of the study.

## DISCUSSION

The current study examined unique predictors of attrition among adult female CSA survivors enrolled in a randomized controlled trial examining the effects of a novel writing intervention on sexual function and related distress. Of the 124 participants who completed the baseline assessment, 35 (28%) dropped out before completing the posttreatment assessment. Of particular interest was whether increased rates of dropout were associated with treatment group; that is, whether those randomized to an active intervention (trauma-focused and sexual schema focused conditions) showed increased rates of dropout compared to the control condition. Results indicated that experimental condition was not associated with dropout. The fact that participants did not show differential rates of attrition as a function of treatment group may suggest that characteristics unique to CSA survivors themselves were primarily responsible for the observed effects rather than attrition being an epiphenomenon of intervention type and/or treatment intensity.

Regarding unique predictors of attrition, of the 15 sociodemographic, psychiatric, sexual abuse, and stress and coping variables examined, three showed independent relations with study participation status: age, education, and coping style. Specifically, CSA survivors who were younger in age and who reported less education were more likely to prematurely terminate from the study intervention. These results are in line with Cloitre and associates (2004) and Talbot and colleagues (1999), who respectively showed that

**TABLE 1** Correlation Matrix of Predictor Variables and Attrition among Women Survivors of Childhood Sexual Abuse

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	M	SD
1 Dropped out of study	—																.28	.45
2 Age (years) <sup>a</sup>	-.34**	—															34.98	10.59
3 Education (years) <sup>a</sup>	-.16*	.01	—														15.73	2.01
4 Race <sup>b</sup>	.06	-.10	-.09	—													.41	.49
5 Current romantic partner <sup>c</sup>	-.03	-.06	.02	.07	—												.85	.36
6 Current MDD diagnosis <sup>d</sup>	.07	.03	-.21	.01	-.15	—											.27	.45
7 Current PTSD diagnosis <sup>e</sup>	-.09	.04	.06	-.14	-.06	.27**	—										.43	.50
8 Childhood abuse and neglect severity <sup>f</sup>	-.08	.06	-.18*	.11	-.08	.06	.09	—									71.64	17.08
9 Number of traumatic event exposure types (lifetime) <sup>g</sup>	-.10	.41**	-.01	-.03	-.06	.07	.11	.29**	—								8.06	3.82
10 Childhood abuse type <sup>h,i</sup>	.16	.03	.06	-.08	-.09	.02	.11	.17	.17*	—							.64	.48
11 Relationship of perpetrator of childhood abuse <sup>j</sup>	.04	-.20*	-.16	-.03	.02	-.01	.01	-.17	.11	-.14	—						.25	.43
12 Rape during adulthood <sup>k</sup>	-.25**	.43*	.04	.10	-.15	.05	.05	.13	.26**	-.02	-.17	—					.26	.44
13 Sexual functioning <sup>l</sup>	.19*	-.01	.13	.05	-.11	-.21*	-.05	-.06	.18	.04	-.07	.06	—				21.79	6.29
14 Daily stress exposure <sup>m</sup>	.05	.06	.05	-.11	.01	.04	.25**	.08	.32**	.26**	.04	.11	.29*	—			5.20	4.66
15 Positive coping <sup>n</sup>	.27*	.13	.13	.12	.16	-.02	-.07	.03	.14	.11	-.20	-.01	.50**	.22	—		46.02	8.32
16 Negative coping <sup>n</sup>	.12	-.17	.20	-.12	.01	.09	.36*	.10	.12	.06	-.08	-.04	.18	.39*	.14	—	26.36	5.74

Note:  $N = 124$ . MDD = major depressive disorder; PTSD = post-traumatic stress disorder. Dropped out of study dummy coded as no = 0 and yes = 1. Race dummy coded as White = 0 and non-White = 1. Current romantic partner dummy coded as yes = 0 and no = 1. Current MDD and PTSD diagnosis both dummy coded as no = 0 and yes = 1. Childhood abuse type dummy coded as nonpenetrative sexual assault = 0 and rape = 1. Relationship of perpetrator of childhood abuse dummy coded as family member = 0 and nonfamily member = 1. Rape during adulthood dummy coded as no = 0 and yes = 1.

<sup>a</sup>Data missing for three participants. <sup>b</sup>Data missing for two participants. <sup>c</sup>Assessed with the Structured Clinical Interview for DSM-IV (First et al., 2002). Data were missing for 10 participants. <sup>d</sup>Assessed with the Clinician Administered PTSD Scale (Blake et al., 1995). Data were missing for 13 participants. <sup>e</sup>As per the Childhood Trauma Questionnaire (Bernstein & Fink, 1998; Bernstein et al., 1994). Data were missing for 15 participants. <sup>f</sup>Per the Trauma History Questionnaire (Green, 1996). Data were missing for four women. <sup>g</sup>Data missing for 11 participants. <sup>h</sup>Per the Childhood Sexual Abuse Measure (Finklehor, 1979). <sup>i</sup>Data missing for 10 participants. <sup>j</sup>Data missing for one participant. <sup>k</sup>Calculated for the subset of individuals who reported being sexually active ( $n = 98$ ). Sexual dysfunction denotes a total score < 26.5 on the Female Sexual Function Index (Rosen, et al., 2000). <sup>l</sup>Per the Daily Inventory of Stressful Events (Almeida, Wethington, & Kessler, 2002). <sup>m</sup>Assessed with the Brief COPE (Carver, 1997). For 74 women, data pertaining to coping strategy were not collected. <sup>n</sup> $p < .05$ . <sup>o</sup> $p < .01$ .

**TABLE 2** Multivariate Predictors of Participant Dropout

Predictor variable	<i>B</i>	Wald	Adjusted <i>OR</i> <sup>a</sup>	95% CI	<i>p</i> -value
Age	-.13	7.25	.88	.80 – .97	.01
Education	-.44	3.93	.65	.42 – 1.00	.04
Positive coping	.13	6.17	1.13	1.03 – 1.25	.01

Note: *B* = unstandardized beta; CI = confidence interval; *OR* = odds ratio.

<sup>a</sup>Multivariate model adjusted for age, education, rape during adulthood, sexual functioning, and positive coping.

age and SES were inversely related to dropout. These variables are also among the most robust and consistent predictors of attrition across psychological and pharmacological treatment studies at large, irrespective of CSA status or targeted health/behavior condition (Arnow et al., 2007; Edlund et al., 2002; Follette, Alexander, & Follette, 1991). There are several explanations that may account for the association between both young age and lower education and attrition in the current study. Younger individuals may have less socialization to mental health care and the potential benefits of these services and/or may have expectations that treatment will be ineffective (Edlund et al., 2002). Furthermore, less education may contribute to less mobilization, utilization, and/or integration of community resources that otherwise could facilitate better long-term adjustment among these individuals (Follette et al., 1991). These explanations are purely speculative, and further research is necessary in order to elucidate the nature of these relationships.

In addition to age and education, coping style showed independent relations with study completion. Specifically, participants with higher levels of positive coping (e.g., proactive planning, seeking emotional and instrumental support, finding healthy ways to accept challenges) were significantly more likely to dropout. One potential explanation for this seemingly counterintuitive finding is that participants who already demonstrate effective strategies for coping with their stress may have relatively less perceived need for treatment, whereas those with lower engagement in these types of coping skills may experience greater benefit from the intervention and therefore show decreased rates of attrition (Fisher, Winne, & Ley, 1993).

Some study limitations warrant mention. First, given the cross-sectional nature of this study, it is inappropriate to make direct causal inferences of any kind. Second, considering that the interventions involved primarily self-managed writing tasks, results may not directly translate to research studies or general practice involving traditional psychotherapy interventions. Finally, the sample may not generalize to the population of female CSA survivors in the United States for several reasons. First, our data indicated that Asian Americans were undersampled while Latino individuals were overrepresented (U.S. Census Bureau, 2000). Second, considering that

the parent study enrolled only women survivors of CSA, results may not generalize similarly to men with histories of CSA.

Female CSA survivors represent a unique population that have an elevated risk for several psychiatric conditions (Putnam, 2003) as well as sexual, emotional, and attachment difficulties, among others (Noll et al., 2003; Rumstein-McKean & Hunsley, 2001). The issue of treatment dropout among this population is especially apropos given that a CSA survivor's treatment seeking is often hindered by economic, environmental, social, and relationship characteristics (Fisher et al., 1993). Thus, individuals who prematurely terminate from treatment may be waiving care that could otherwise be therapeutically beneficial in reducing their symptoms and/or related distress. Therefore, an enhanced effort to delineate characteristics that improve retention through the duration of treatment is of critical importance for this population.

## REFERENCES

- Almeida, D. M. (1998). *Daily inventory of stressful events (DISE) expert coding manual*. Tucson, AZ: Division of Family Studies and Human Development, University of Arizona.
- Almeida, D. M., Wethington, E., & Kessler, R. C. (2002). The daily inventory of stressful experiences (DISE): An interview-based approach for measuring daily stressors. *Assessment*, 9(1), 41–55. doi:10.1177/1073191102091006
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Arnow, B. A., Blasey, C., Manber, R., Constantino, M. J., Markowitz, J. C., Klein, D. N., . . . Rush, A. J. (2007). Dropouts versus completers among chronically depressed outpatients. *Journal of Affective Disorders*, 97, 197–202. doi:10.1016/j.jad.2006.06.017
- Basco, M. R., Bostic, J. Q., Davies, D., Rush, A. J., Witte, B., Hendrickse, W., & Barnett, V. (2000). Methods to improve diagnostic accuracy in a community mental health setting. *American Journal of Psychiatry*, 157, 1599–1605. doi:10.1176/appi.ajp.157.10.1599
- Bernstein, D. P., & Fink, L. (1998). *Childhood trauma questionnaire: A retrospective self-report questionnaire and manual*. San Antonio, TX: Psychological Corporation.
- Bernstein, D. P., Fink, L., Handelsman, L., & Foote, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *American Journal of Psychiatry*, 151, 1132–1136. Retrieved from <http://ajp.psychiatryonline.org/data/Journals/AJP/3626/1132.pdf>
- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Gusman, F. D., Charney, D. S., & Keane, T. M. (1995). The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress*, 8, 75–90. doi:10.1002/jts.2490080106

- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine, 4*(1), 92–100. doi:10.1207/s15327558ijbm0401\_6
- Chard, K. M. (2005). An evaluation of cognitive processing therapy for the treatment of posttraumatic stress disorder related to childhood sexual abuse. *Journal of Consulting and Clinical Psychology, 73*, 965–971. doi:10.1037/0022-006X.73.5.965
- Cloitre, M., Chase Stovall-McClough, K., Miranda, R., & Chemtob, C. M. (2004). Therapeutic alliance, negative mood regulation, and treatment outcome in child abuse-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 72*, 411–416. doi:10.1037/0022-006X.72.3.411
- Edlund, M. J., Wang, P. S., Berglund, P. A., Katz, S. J., Lin, E., & Kessler, R. C. (2002). Dropping out of mental health treatment: Patterns and predictors among epidemiological survey respondents in the United States and Ontario. *The American Journal of Psychiatry, 159*, 845–851. doi:10.1176/appi.ajp.159.5.845
- Finklehor, D. (1979). *Sexually victimized children*. New York, NY: Free Press.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured clinical interview for DSM-IV-TR axis I disorders, research version, non-patient edition (SCID-I/NP)*. New York, NY: Biometrics Research, New York State Psychiatric Institute.
- Fisher, P. M., Winne, P. H., & Ley, R. G. (1993). Group therapy for adult women survivors of child sexual abuse: Differentiation of completers versus dropouts. *Psychotherapy: Theory, Research, Practice, Training, 30*, 616–624. doi:10.1037/0033-3204.30.4.616
- Follette, V. M., Alexander, P. C., & Follette, W. C. (1991). Individual predictors of outcome in group treatment for incest survivors. *Journal of Consulting and Clinical Psychology, 59*, 150–155. doi:10.1037/0022-006X.59.1.150
- Green, B. L. (1996). Psychometric review of trauma history questionnaire (self-report). In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation*. Lutherville, MD: Sidran Press.
- Green, B. L., Krupnick, J. L., Rowland, J. H., Epstein, S. A., Stockton, P., Spertus, I., & Stern, N. (2000). Trauma history as a predictor of psychologic symptoms in women with breast cancer. *Journal of Clinical Oncology, 18*, 1084–1084. Retrieved from <http://jco.ascopubs.org/content/18/5/1084.full>
- Irish, L., Kobayashi, I., & Delahanty, D. L. (2010). Long-term physical health consequences of childhood sexual abuse: A meta-analytic review. *Journal of Pediatric Psychology, 35*, 450–461. doi:10.1093/jpepsy/jsp118
- Lau, M., & Kristensen, E. (2007). Outcome of systemic and analytic group psychotherapy for adult women with history of intrafamilial childhood sexual abuse: A randomized controlled study. *Acta Psychiatrica Scandinavica, 116*(2), 96–104. doi:10.1111/j.1600-0447.2006.00977.x
- Leonard, L. M., & Follette, V. M. (2002). Sexual functioning in women reporting a history of a history of child sexual abuse: Review of the empirical literature and clinical implications. *Annual Review of Sex Research, 13*, 346–388. doi:10.1080/10532528.2002.10559809
- Leonard, L. M., Iverson, K. M., & Follette, V. M. (2008). Sexual functioning and sexual satisfaction among women who report a history of childhood and/or

- adolescent sexual abuse. *Journal of Sex & Marital Therapy*, *34*, 375–384. doi:10.1080/00926230802156202
- Loeb, T. B., Williams, J. K., Carmona, J. V., Rivkin, I., Wyatt, G. E., Chin, D., & Asuan-O'Brien, A. (2002). Child sexual abuse: Associations with the sexual functioning of adolescents and adults. *Annual Review of Sex Research*, *13*, 307–345. doi:10.1080/10532528.2002.10559808
- Maniglio, R. (2009). The impact of child sexual abuse on health: A systematic review of reviews. *Clinical Psychology Review*, *29*, 647–657. doi:10.1016/j.cpr.2009.08.003
- Martsof, D. S., & Draucker, C. B. (2005). Psychotherapy approaches for adult survivors of childhood sexual abuse: An integrative review of outcomes research. *Issues in Mental Health Nursing*, *26*, 801–825. doi:10.1080/01612840500184012
- McDonagh, A., Friedman, M., McHugo, G., Ford, J., Sengupta, A., Mueser, K., . . . Descamps, M. (2005). Randomized trial of cognitive-behavioral therapy for chronic posttraumatic stress disorder in adult female survivors of childhood sexual abuse. *Journal of Consulting and Clinical Psychology*, *73*, 515–524. doi:10.1037/0022-006X.73.3.515
- Messman-Moore, T. L., & Long, P. J. (2000). Child sexual abuse and revictimization in the form of adult sexual abuse, adult physical abuse, and adult psychological maltreatment. *Journal of Interpersonal Violence*, *15*, 489–502. doi:10.1177/088626000015005003
- Meston, C. M. (2003). Validation of the female sexual function index (FSFI) in women with female orgasmic disorder and in women with hypoactive sexual desire disorder. *Journal of Sex & Marital Therapy*, *29*, 39–46. doi:10.1080/713847100
- Meston, C. M., Lorenz, T. A., & Stephenson, K. R. (in press). Effects of expressive writing on sexual dysfunction, depression, and PTSD in women with a history of childhood sexual abuse: Results from a randomized clinical trial. *Journal of Sexual Medicine*.
- Noll, J. G., Trickett, P. K., & Putnam, F. W. (2003). A prospective investigation of the impact of childhood sexual abuse on the development of sexuality. *Journal of Consulting and Clinical Psychology*, *71*, 575–586. doi:10.1037/0022-006X.71.3.575
- Paivio, S. C., & Nieuwenhuis, J. A. (2001). Efficacy of emotion focused therapy for adult survivors of child abuse: A preliminary study. *Journal of Traumatic Stress*, *14*, 115–133. doi:10.1023/A:1007891716593
- Pennebaker, J. W. (2004). Theories, therapies, and taxpayers: On the complexities of the expressive writing paradigm. *Clinical Psychology: Science and Practice*, *11*(2), 138–142. doi:10.1093/clipsy.bph063
- Pennebaker, J. W., & Chung, C. K. (2011). Expressive writing and its links to mental and physical health. In H. S. Friedman (Ed.), *Oxford handbook of health psychology* (pp. 417–437). New York, NY: Oxford University Press.
- Pereda, N., Guilera, G., Forns, M., & Gomez-Benito, J. (2009). The international epidemiology of child sexual abuse: A continuation of Finkelhor (1994). *Child Abuse & Neglect*, *33*, 331–342. doi:10.1016/j.chiabu.2008.07.007
- Price, J. L., Hilsenroth, M. J., Petretic-Jackson, P. A., & Bonge, D. (2001). A review of individual psychotherapy outcomes for adult survivors of childhood

- sexual abuse. *Clinical Psychology Review*, *21*, 1095–1121. doi:10.1016/S0272-7358(00)00086-6
- Putnam, F. W. (2003). Ten-year research update review: Child sexual abuse. *Journal of the American Academy of Child & Adolescent Psychiatry*, *42*, 269–278. doi:10.1097/00004583-200303000-00006
- Rosen, R. C., Brown, C., Heiman, J., Leiblum, S., Meston, C. M., Shabsigh, R., . . . D'Agostino, R., Jr. (2000). The female sexual function index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*, *26*, 191–208. doi:10.1080/009262300278597
- Rumstein-McKean, O., & Hunsley, J. (2001). Interpersonal and family functioning of female survivors of childhood sexual abuse. *Clinical Psychology Review*, *21*, 471–490. doi:10.1016/S0272-7358(99)00069-0
- Saxe, G. N., van der Kolk, B. A., Berkowitz, R., & Chinman, G. (1993). Dissociative disorders in psychiatric inpatients. *American Journal of Psychiatry*, *150*, 1037–1042. Retrieved from <http://ajp.psychiatryonline.org/data/Journals/AJP/3602/1037.pdf>
- Schottenbauer, M. A., Glass, C. R., Arnkoff, D. B., Tendick, V., & Gray, S. H. (2008). Nonresponse and dropout rates in outcome studies on PTSD: Review and methodological considerations. *Psychiatry: Interpersonal and Biological Processes*, *71*(2), 134–168. doi:10.1521/psyc.2008.71.2.134
- Sloan, D. M., & Marx, B. P. (2004). A closer examination of the structured written disclosure paradigm. *Journal of Consulting and Clinical Psychology*, *72*, 165–175. doi:10.1037/0022-006X.72.2.165
- Talbot, N. L., Houghtalen, R. P., Duberstein, P. R., Cox, C., Giles, D. E., & Wynne, L. C. (1999). Effects of group treatment for women with a history of childhood sexual abuse. *Psychiatric Services*, *50*, 686–692. Retrieved from <http://ps.psychiatryonline.org/article.aspx?articleID=82872>
- U.S. Census Bureau. (2000). *Native resident population estimates of the United States by sex, race, and Hispanic origin: April 1, 1990 to July 1, 1999* [data file]. Retrieved from <http://www.census.gov/population/estimates/nation/nativity/nbt003.txt>
- Weathers, F. W., Keane, T. M., King, L. A., & King, D. W. (1997). Psychometric theory in the development of posttraumatic stress disorder assessment tools. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 98–135). New York, NY: Guilford Press.
- Zanarini, M. C., Skodol, A. E., Bender, D., Dolan, R., Sanislow, C., Schaefer, E., . . . Gunderson, J. G. (2000). The collaborative longitudinal personality disorders study: Reliability of axis I and II diagnoses. *Journal of Personality Disorders*, *14*, 291–299. doi:10.1521/pedi.2000.14.4.291
- Zlotnick, C., Shea, T. M., Rosen, K., Simpson, E., Mulrenin, K., Begin, A., & Pearlstein T. (1997). An affect-management group for women with posttraumatic stress disorder and histories of childhood sexual abuse. *Journal of Traumatic Stress*, *10*, 425–436. doi:10.1002/jts.2490100308

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