The Use of Symptom Severity Measured Just Before Termination to Predict Child Treatment Dropout

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The current study examined indices of trauma-related symptom severity as predictors of dropout from exposure-based cognitive behavioral therapy in a sample of 99 child and adolescent trauma victims. The investigation incorporated measures of symptom severity at two time points: pretreatment and just before termination. The results indicated that a model with symptom severity measured just before termination was significantly associated with the number of attended sessions; however, a model with the symptom-severity indices measured at pretreatment was nonsignificant. In addition, a significant main effect indicated that increased avoidance behavior measured just before termination was related to fewer treatment sessions. Further analyses also suggested that higher severity of intrusion and depression measured just before termination was correlated with fewer treatment sessions. The results support the idea that more immediate distress may be related to treatment dropout. Implications for the research and practice of exposure therapy for child trauma are discussed. © 2008 Wiley Periodicals, Inc. J Clin Psychol 64: 891–904, 2008.

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Client dropout is a pervasive problem in mental health treatment. Regardless of type of treatment or theoretical orientation, premature termination from psychotherapy presents a host of problems, none more troublesome than the client’s failure to...
receive services that may be necessary for recovery. The literature on client attrition has suggested that approximately 47% of all clients engaged in psychotherapy terminate prematurely (Wierzbicki & Pekarik, 1993). In addition, myriad variables have been implicated in predicting dropout with adult clients, including specific demographics and therapist and client expectations (for an excellent review, see Garfield, 1994). Similar dropout rates (i.e., approximately 47%) also have been observed with child treatment samples (Wierzbicki & Pekarik, 1993), with reports as high as 60 to 70% (Pekarik & Stephenson, 1988; Singh, Janes, & Schechtman, 1982). Compared to the adult literature, however, there is a relative paucity of studies on predictors of child attrition. Indeed, only 1 to 2% of attrition studies have focused on child dropout (Kendall & Sugarman, 1997).

Most of the research on child attrition has yielded mixed findings, possibly because of at least three significant problems. First, there has been inconsistency in the operational definition of dropout (Garfield, 1994; Kendall & Sugarman, 1997). Some investigations included in the definition those children who set an initial appointment but refused to come (e.g., Weisz, Weiss, & Langmeyer, 1987). Others only considered those children who attended at least one session (e.g., Pina, Silverman, Weems, Kurtines, & Goldman, 2003). Evidence from Kendall and Sugarman (1997), however, has suggested that children who refuse to initiate treatment differ from children who drop out once treatment has started. Second, many studies fail to specify the clinical populations under investigation or they include a general clinical sample of children. Kendall and Sugarman (1997) suggested that different clinical populations of children might differ in their reasons for dropout, implying that different types of clinical populations of children should be studied independently.

While Problems 1 and 2 have been noted in the child dropout literature, a third problem remains that has not been addressed: Most dropout studies have focused on pretreatment variables as predictors of premature termination rather than on variables measured just before termination. For example, Pina et al. (2003) studied dropout in an exposure-based cognitive behavioral treatment for children with phobia and other anxiety disorders. Anxiety was assessed at the beginning of treatment with two measures. Data from 137 children suggested no significant differences between completers and dropouts on either measure of anxiety. Similarly, in a dissertation conducted at the University of California, Santa Barbara, McNamara (2000) carried out a study with 105 child victims of emotional abuse, sexual abuse, physical abuse, neglect, or witnessing domestic violence. While the crux of the dissertation was to investigate the relationship between parental stress, parental report of child symptoms, and child dropout, one of the hypotheses involved the relationship between treatment dropout and the severity of child symptoms. The results of the study failed to show a significant relationship between treatment dropout and the level of child anxiety or depression. The Pina et al. (2003) and McNamara (2000) studies both incorporated a common method of using pretreatment symptom severity as predictors of treatment dropout; however, to date, there appear to be no studies assessing dropout and symptom severity measured just before termination.

Symptom severity measured just before treatment termination might provide better predictors of premature termination compared to the same severity indices measured at pretreatment. Intuitively, it makes sense that more immediate levels of distress would be related to the decision to quit treatment compared to levels of distress measured weeks, months, or even years prior to treatment termination. This
might be especially relevant in the context of treatments that incorporate elements of exposure (i.e., prolonged and systematic contact with anxiety-inducing stimuli). In the case of exposure-based therapy, dropout may provide a means of escape, where terminating treatment in response to elevated distress (either parent or child) serves to reduce that distress. In other words, by dropping out of treatment, the patient effectively avoids an anxiety-provoking situation—facing one’s fear in therapy.

Trauma-focused cognitive behavioral therapy (TF-CBT) is a term used to describe a variety of cognitive behavioral therapy techniques that address trauma-related distress and impairment in children and adults. As a package, TF-CBT has demonstrated efficacy for ameliorating trauma-related distress and symptoms of posttraumatic stress disorder (Deblinger, Lippmann, & Steer, 1996; Deblinger, Mannarino, Cohen, & Steer, 2006; Deblinger, Steer, & Lippmann, 1999; March, Amaya-Jackson, Murray, & Schulte, 1998; Smith et al., 2007). Exposure exercises often make up a significant part of TF-CBT, and while the evidence is mixed regarding the necessity of systematic exposure exercises in TF-CBT (for a review, see Cohen, Mannarino, Berliner, & Deblinger, 2000), a limited set of studies has supported the specific efficacy of prolonged exposure for decreasing trauma-related symptoms (Saigh, Yule, & Inamdar, 1996).

Hembree et al. (2003) evaluated exposure and dropout by conducting a meta-analysis of treatment attrition rates in adult patients with posttraumatic stress disorder. The goal of the study was to test the hypothesis that exposure therapy would be associated with higher dropout rates because exposure techniques might decrease the tolerability of treatment. To test this hypothesis, Hembree et al. (2003) evaluated the dropout rates across four different cognitive behavioral treatment (CBT) categories and a control condition category: (a) exposure therapy; (b) eye movement desensitization and reprocessing; (c) cognitive therapy or stress inoculation training; (d) exposure plus cognitive therapy, stress inoculation training, or coping skills; and (e) control conditions, which included waitlist controls, biofeedback, hypnotherapy, psychodynamic intervention, relaxation training, or supportive psychotherapy. According to the authors, evidence from the meta-analysis did not support the hypothesis because the exposure-therapy-alone category did not demonstrate significantly higher dropout rates compared to the other CBT categories; however, Hembree et al. (2003) also found that dropout rates were significantly higher in all of the CBT conditions (except for the eye movement desensitization and reprocessing condition, which had a limited sample size) compared to the control category.

Upon closer inspection of the CBT categories in the Hembree et al. (2003) study, it appears that all of the CBT treatments may have included some degree of formal (i.e., systematic, prolonged exposure exercises) or informal exposure (i.e., discussing the trauma less systematically). In contrast, many of the control treatments (e.g., waitlist, relaxation training) typically do not include exposure elements. Thus, the finding that dropout rates were significantly higher in the CBT treatments compared to the control conditions conflicts with the authors’ interpretation and lends some support for the hypothesis that exposure increases the likelihood of treatment dropout. Hembree et al. (2003) argued that previous studies have failed to show a link between treatment dropout and the initiation of exposure exercises (e.g., K. T. Brady, Dansky, Back, Foa, & Carroll, 2001; Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002); however, formal initiation of exposure need not be the mechanism of dropout. It may be the case that anticipation of formal or informal exposure results in dropout tendencies more so than do the actual exposure exercises.
Indeed, evidence from the anxiety literature has suggested that some people experience considerable distress when anticipating future stressful events (Boven & Ashworth, 2007; Hinrichsen & Clark, 2003; Vassilopoulos, 2004).

Difference of interpretation notwithstanding, Hembree et al. (2003) astutely called for the “[systematic examination of] symptom severity at the time of premature termination” (p. 560). Session-by-session administrations of symptom-severity scales might be valuable for capturing more immediate levels of distress and symptom severity just before treatment termination. A preliminary step in supporting the claim that treatment dropout is a function of avoidance behavior is to evaluate whether there is a difference between symptom severity measured just before termination compared to symptom severity measured at pretreatment in the prediction of child dropout from exposure-based therapy. It might be that symptom severity measured just before termination is no better at predicting dropout compared to the severity measured at pretreatment, in which case there would be little support for the idea that more immediate levels of distress beget treatment dropout as an avoidance strategy. If, however, symptom severity measured just before termination demonstrates better prediction of dropout compared to the severity at pretreatment, future investigations could focus further on the reasons for this effect.

The current study intended to extend the literature on factors contributing to treatment attrition while addressing some of the methodological concerns associated with this type of research. An important priority of the study was to clarify the operational definition of dropout by excluding in the sample any children who were considered refusers (i.e., those who failed to attend any sessions despite calling in for services and completing a telephone intake). In contrast to studying a general clinical sample, this investigation only included children who were victims of trauma, a population rarely examined with regard to attrition. Furthermore, no studies to date have focused on symptoms measured just before termination. In an effort to address this void, the current study analyzed two models: one with assessments completed just before treatment termination and one with assessments completed at pretreatment. Another aim of the current study was to investigate indirectly whether results from a traumatized pediatric sample were consistent with the Hembree et al. (2003) conclusions (i.e., exposure therapy appears unrelated to higher dropout rates). We predicted that the association between symptom severity and dropout would be less robust for the symptoms measured at pretreatment compared to those just before termination. Consistent with the notion that treatment dropout might be an avoidance strategy, we also predicted that more severe symptoms measured just before treatment termination would predict treatment dropout compared to less severe symptoms. Evidence concerning the discrepant predictive utility of symptom severity measured at pretreatment versus just before termination could have important implications for future methods of researching treatment attrition as well as clinical implications for preventing dropout.

Method

Participants

The original sample consisted of 105 child victims of trauma who were part of a larger research study that evaluated the effectiveness of trauma-focused CBT. Four cases were deleted due to missing data, and two additional treatment dropout cases were deleted because they attended considerably more sessions before terminating.
treatment compared to the other child treatment dropouts (i.e., based on the number of attended sessions, these two outliers were more than 3 SDs above the dropout group’s mean). Thus, the final sample consisted of 99 child victims of trauma.

At the time of treatment, each child lived in a Southwestern U.S. metropolitan area. The sample consisted of 67 females and 32 males. The average age of the children in the sample was 10.88 years ($SD = 3.48$, range = 5–19). The sample was ethnically diverse: Caucasian ($n = 29$), African American ($n = 30$), Hispanic ($n = 31$), or Other ($n = 9$). In addition, the data revealed a bimodal distribution of family income, with most families falling between $10,000 and $20,000 per year, followed by $30,000 to $40,000 per year.

To be considered a child victim of a violent crime, children were categorized into different victim types: (a) the co-victim of a crime, such as the brother or sister of a child who was sexually abused, but the brother or sister did not witness the crime (15%); (b) the indirect victim of a crime, such as a young girl who witnessed her father sexually abusing her sibling (9%); or (c) a direct victim of a crime, such as a child who was sexually abused by his father (76%). Children from all victim types were incorporated into a single sample of child victims.

The co-victims were combined with the indirect and direct victims for three reasons. First, Criterion A of the diagnostic criteria for posttraumatic stress disorder indicates the following: “The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (American Psychiatric Association, 2000, p. 467). Thus, psychological sequelae that develop in children as a result of learning of threats to others may be categorized as posttraumatic stress disorder. Second, group comparisons with the current sample suggested that children did not differ across victim types on trauma-related symptom severity (i.e., intrusion, avoidance, and depression) measured at pretreatment or just before termination. Lastly, growing evidence from the research literature has supported a type of distress called secondary traumatic stress, also known as compassion fatigue or co-victimization (Baird & Kracen, 2006; J. L. Brady, Guy, Poelstra, & Brokaw, 1999; Figley, 1995; Nelson-Gardell & Harris, 2003). Secondary traumatic stress refers to “symptoms of exhaustion, hypervigilance, avoidance and numbing often experienced by professionals working with, and family members of, people with [Posttraumatic Stress Disorder]” (Baird & Kracen, 2006, p. 182). Indeed, Stamm (1999) even proposed a new diagnostic label, Secondary-Traumatic Stress Disorder, to define the psychological distress that often results from contact with direct victims. While understudied to date, some initial research has suggested that children may experience psychological impairment as a result of co-victimization (Gwandure, 2007).

With respect to the types of victimization, 45% of the sample was a direct, indirect, or co-victim of sexual assault with penetration, 21% was a direct, indirect, or co-victim of sexual assault with genital touching only, 17% was a direct, indirect, or co-victim of witnessing murder, 14% was a direct, indirect, or co-victim of physical assault, and 3% was a direct, indirect, or co-victim of sexual assault with attempted penetration. Child victims were deemed eligible for participation only if they spoke English fluently and no longer resided with the alleged perpetrator. Of the families who reported living conditions, 78% of the child victims lived with the nonperpetrating biological parent. The remainder resided with an older adult relative (e.g., grandparent).
Measures

The Demographic Information Questionnaire. The Demographic Information Questionnaire was designed to obtain sociodemographic information about participants and their families. Among other variables, we collected information about family income and child ethnicity, age, and gender.

The Impact of Events Scale (IES). The IES is a 15-item self-report scale designed to measure psychological and emotional symptoms commonly associated with trauma (Horowitz, Wilner, & Alvarez, 1979). The children indicated their frequency of experiencing intrusive thoughts or avoidant behaviors within the previous week. Endorsed items are summed using a 5-point scale (0 = Not at all, 1 = Rarely, 3 = Sometimes, and 5 = Often) to create a total score ranging from 0 to 75. Items are designed to assess two major dimensions of subjective distress: intrusive thoughts and avoidance behaviors (e.g., “I thought about it when I didn’t mean to.” “I felt as if it hadn’t happened or wasn’t real.”).

The IES was originally developed for adults, but it has been successfully used with children (Malmquist, 1986; Yule, 1992; Yule & Udwin, 1991; Yule & Williams, 1990). An analysis of the internal consistency suggested acceptable Cronbach’s $\alpha$ scores (Total: $\alpha = .86$, Intrusive Thoughts: $\alpha = .85$, Avoidance Behaviors: $\alpha = .76$). For interpretive purposes, IES scores less than 8.5 are considered low, scores between 8.6 and 19.0 are considered medium, and scores greater than 19.0 are considered high (Horowitz, 1982). While these interpretive guidelines were intended for adults, evidence has suggested that adult victims and child victims (aged 5–18 years) demonstrate similar IES scores (Malmquist, 1986; Yule, 1992; Yule & Udwin, 1991; Yule & Williams, 1990).

The Children’s Depression Inventory (CDI). The CDI (Kovacs, 1992) is a 27-item measure derived from the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Items are scored 0 to 2 and measure depressive symptomatology such as suicidal ideation, sadness, and sleep disturbance. The CDI is a widely used measure and has adequate test-retest reliability ($r = .84$) (Saylor, Finch, Spirito, & Bennett, 1984), internal consistency ($\alpha = .86$) (Kovacs, 1992), and concurrent validity (Kazdin, French, & Unis, 1983; Romano & Nelson, 1988). The internal reliability for the CDI was acceptable for the current sample (Total $\alpha = .85$). Higher CDI scores are indicative of greater depressive symptomatology.

Procedures

Child victims of crime were self-referred for treatment services by their parents or by various agencies in the metropolitan area (e.g., police departments, child witness advocacy programs). No clients were mandated for treatment, all children were treated for free, and there was no remuneration provided to the families for their participation. Informed consent was obtained from the child’s legal guardian, and child assent was obtained. The study was conducted in accordance with the guidelines set forth by the designated Institutional Review Board.

A comprehensive, exposure-based cognitive behavioral and supportive therapy was provided by supervised graduate students in a clinical psychology doctoral program. The treatment model was implemented in four phases. In Phase 1, (approximately Sessions 1–3), child assent and parent consent were obtained, information about the traumatic event that necessitated treatment was collected via parent interview, pretreatment assessments were completed, and treatment was...
initiated. Phase 2 (approximately Sessions 3–10) consisted of facilitating coping skill mastery and alleviating trauma-related symptomatology using exposure-based interventions. The goal in Phase 3 (approximately Sessions 10–15) was to address social skill deficits and improve interpersonal functioning. In the last phase, Phase 4 (approximately Sessions 15–20), the therapist prepared the client for future obstacles to the maintenance of treatment gains and for treatment termination. The treatment approach typically involved a 1-hr weekly session. The number of sessions and order of treatment elements were individualized since each child’s rate of recovery and needs varied. Preliminary research on the treatment model has yielded evidence for its effectiveness (e.g., Vincent, Harris, Vincent, Cross, & Pallapattu, 2000).

Children were assessed at pretreatment, posttreatment, and 6-month follow-up. In addition, the children were administered the IES and the CDI on a biweekly and alternating basis. As a result of the biweekly administration, not all children completed both measures immediately preceding treatment termination. Thus, anxiety and depression just before termination were operationally defined as scores on the measures within two sessions of treatment termination. An undergraduate research assistant or the child’s therapist administered all measures. For young children, the therapist or undergraduate research assistant read the assessment items aloud and answered any questions about item content. A child was excluded from the assessment battery if the therapist noted concerns about the child’s ability to understand item content or answer the questions validly.

Analyses

Multiple regression analyses were conducted with Statistical Analysis Software, Version 8.2 (SAS Institute Inc., 2003). The number of accumulated sessions was the modeled outcome. We analyzed two models of dropout: One model included pretreatment severity of depression, intrusion, and avoidance behavior; and the second model included those same symptoms, but they were measured just before dropout. For both models, all three of the symptom predictors were simultaneously entered into the model.

A power analysis for a multiple regression was computed prior to the main analyses. The estimated effect size was based on the results of a dissertation carried out by McNamara (2000), which evaluated treatment dropout with child victims of trauma and estimated a medium effect size for child symptoms measured at pretreatment. With a medium effect size estimate (Cohen, 1988), an $\alpha$ of .05, and a desired power of .80, the current study needed a minimum of 85 participants to ensure sufficient power for the analysis.

Results

For the purpose of evaluating attrition rates and assessing for statistical outliers, dropout was operationally defined as terminating treatment before completing a posttreatment assessment packet, which marks the end of treatment for all patients. Thus, for the current sample, 41% prematurely terminated treatment. This percentage was slightly less than the 47% that was reported in a meta-analysis as the mean percentage of dropout across the prior child-attrition studies (Wierzbicki & Pekarik, 1993), but well below 60 to 70%, which also has been reported in the literature (Pekarik & Stephenson, 1988; Singh et al., 1982).

Note, however, that we opted not to use this definition of dropout for the main analysis since completion of a posttreatment assessment packet might not be the
most appropriate indicator of treatment completion. Some children may have completed the packet despite prematurely terminating treatment. Additionally, some children may have completed the treatment, but did not return for the final session to complete the posttreatment assessment packet. Therefore, for the main analyses, dropout instead was operationalized using the number of accumulated sessions. Based on the former definition of dropout, children who prematurely terminated treatment attended nearly 15 sessions fewer on average than children who did not terminate prematurely. This discrepancy was significant, \( F(1, 97) = 89.71, p < .0001 \). The mean number of attended sessions for the total sample was 13.61 (SD = 10.43), the average number of sessions for the treatment dropouts was 5.05 (SD = 6.02), and the mean number of sessions for the treatment completers was 19.66 (SD = 8.47). For both the completer and dropout groups, Figure 1 provides a frequency distribution of the number of participants who remained in treatment for each therapy session.

This first model regressed the number of accumulated sessions on pretreatment symptom severity only (i.e., intrusion, avoidance behavior, and depression). The full model was statistically nonsignificant, \( F(3, 95) = .92, p = .44, R^2 = .03 \). In addition, the main effects in the model were nonsignificant. The second model, however, which regressed the number of accumulated sessions on the same symptom-severity indices measured just before termination, was statistically significant, \( F(3, 95) = 5.84, p < .01, R^2 = .16 \). A review of Type III Sums of Squares indicated that among the three symptom-severity indices measured just before termination, only avoidance behavior demonstrated a statistically significant main effect, \( F(1, 97) = 7.83, p < .01 \). In addition, the correlations between the number of accumulated sessions and the symptom severities measured just before termination were all significant whereas the correlations between the number of accumulated sessions and the symptom severities measured at pretreatment were all nonsignificant. The correlations indicate that fewer accumulated treatment sessions were significantly associated with higher severity of avoidance behavior, intrusion, and depression measured just before treatment termination. Table 1 provides the means and SDs for each of the trauma-related symptoms at both assessment points. Table 2 provides the correlations among the symptom-severity indices at both time points and the total number of accumulated sessions.

![Figure 1](image_url)  
Figure 1. Number of completers versus dropouts remaining in treatment at each treatment session.
**Exploratory Analyses**

Only a small number of children in the current study were younger than anticipated (n = 13) and may have required extra help to answer the items in the battery. To address the concern that these children were not representative of the other children in the sample, we conducted the same main analysis, but omitted children less than 7 years old. The results remained relatively consistent. The model with symptom severity measured just before termination remained statistically significant, $F(3, 82) = 3.59, p < .05, R^2 = .12$, and the model with symptom severity measured at pretreatment remained nonsignificant, $F(3, 82) = .63, p = .60, R^2 = .02$. The correlation analysis revealed a similar pattern when the youngest children were removed from the sample: The correlations between the number of accumulated sessions and the symptom severities measured just before termination were all significant and negative whereas the correlations between the number of accumulated sessions and the symptom severities measured at pretreatment were all nonsignificant. The only notable difference in the exploratory analysis was that the main effect for avoidance behavior measured just before termination was no longer significant when the youngest children were omitted. This difference may be the result of the youngest children’s responses on the avoidance behavior subscale of the IES, a possible moderating variable, a loss of some power in the analysis, or other explanations. Future research may further highlight possible explanations.

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**Table 2**

Correlations Among Accumulated Sessions and Each of the Symptom-Severity Indices at Pretreatment and Just Before Termination

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<thead>
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<th>4.</th>
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<th>6.</th>
<th>7.</th>
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<td>1. Pretreatment Avoidance</td>
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<td>2. Pretreatment Intrusion</td>
<td>.67****</td>
<td>1</td>
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<tr>
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<td>4. Avoidance Just Before Termination</td>
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<td>.29**</td>
<td>.34****</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Intrusion Just Before Termination</td>
<td>.31**</td>
<td>.50****</td>
<td>.29**</td>
<td>.49****</td>
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<td></td>
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<tr>
<td>6. Depression Just Before Termination</td>
<td>.25*</td>
<td>.35***</td>
<td>.68****</td>
<td>.28**</td>
<td>.46****</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7. Total Accumulated Sessions</td>
<td>.06</td>
<td>.09</td>
<td>-.09</td>
<td>-.37***</td>
<td>-.28**</td>
<td>-.21*</td>
<td>1</td>
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*Note. N = 99. Avoidance = Avoidance Behavior subscale of the Impact of Events Scale, Intrusion = Intrusion subscale of the Impact of Events Scale, Depression = total depressive severity on the Children’s Depression Inventory.*

$p < .05; **p < .01; ***p < .001; ****p < .0001.$

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**Table 1**

Means and SDs of Trauma-Related Symptom Severity at Pretreatment and Just Before Termination

<table>
<thead>
<tr>
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<th>Pretreatment</th>
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<th>Just Before Termination</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
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<tr>
<td>Avoidance</td>
<td>18.33</td>
<td>10.06</td>
<td>14.56</td>
<td>11.87</td>
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<tr>
<td>Intrusion</td>
<td>14.73</td>
<td>9.98</td>
<td>7.61</td>
<td>8.38</td>
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<tr>
<td>Depression</td>
<td>10.25</td>
<td>7.70</td>
<td>6.49</td>
<td>6.89</td>
</tr>
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</table>

*Note. N = 99. Avoidance = Avoidance Behavior subscale of the Impact of Events Scale, Intrusion = Intrusion subscale of the Impact of Events Scale, Depression = total depressive severity on the Children’s Depression Inventory.*
While there was concern about the operational definition of dropout (i.e., terminating treatment before completing a posttreatment assessment packet) for the current investigation, we explored the relationship between completers and dropouts with respect to avoidance behavior, intrusion, and depression at both time points. We conducted two MANOVAs: one that included the pretreatment symptom-severity indices as dependent variables and a second model that included symptoms measured just before termination. The model that included pretreatment symptom severity was nonsignificant, $F(3, 95) = .50, p = .69$. The model that included symptom severity immediately preceding termination also was nonsignificant, $F(3, 95) = 2.09, p = .11$. Both models were statistically nonsignificant, suggesting that treatment dropouts and completers (as defined in the current study) did not differ on symptom severity, regardless of the time point that the assessments were conducted.

Discussion

The current study hypothesized that symptom severity measured just before termination would be associated with dropout to a greater extent than the same symptom-severity indices measured at pretreatment. Supporting this hypothesis, the results from the current study demonstrated that a model that included symptom severity measured just before termination significantly predicted dropout, but a model that included those same severity indices at pretreatment was not significantly related to dropout. After the common variance between depression, intrusion, and avoidance measured just before termination had been controlled in the model, only the remaining unique variance of avoidance behavior was inversely predictive of the number of attended sessions. The correlations also suggested that only the symptom-severity indices measured just before termination were inversely associated with premature termination whereas those same symptom indices measured at pretreatment were unrelated to the number of attended sessions. Based on the evident overlap between depression, intrusion, and avoidance behavior in the current study, future investigations should explore whether a general distress factor, possibly representing the common variance between the three trauma-severity indices in the current study, predicts premature termination.

The correlational analysis supported the hypothesis that more severe symptoms measured just before termination would be significantly associated with fewer accumulated treatment sessions compared to less severe symptoms. This hypothesis was based on the idea that more immediate distress encourages the child or parent to use avoidance strategies in an effort to escape that distress. Treatment dropout might be one such avoidance strategy. Consistent with this idea, the current study demonstrated that avoidance behavior measured just before termination was the only statistically significant main effect after controlling for the common variance among depression, intrusion, and avoidance measured just before termination. Future investigations might benefit from further evaluating the influence of exposure therapy on dropout (e.g., Hembree et al., 2003) using indices of distress that are measured just before termination. In addition, avoidance behavior measured just before treatment termination might be an especially important variable to study as a predictor of dropout.

Note that children may influence the decision to drop out (e.g., whining or crying by younger children or physical refusal by older children), but the parents of the child often make the final decision about treatment attendance. The same reasoning about escape and avoidance strategies, however, applies to parents. In the case of
exposure-based therapy, parents might promote premature termination if they (a) see their children experiencing anticipatory anxiety about having to participate in exposure and (b) are not fully convinced of the rationale for the exposure-based intervention. In effect, terminating treatment may help parents avoid the emotional pain of seeing their children in distress. Additionally, parents may even cease treatment simply to avoid their children’s complaining or refusal. Subsequent research should evaluate treatment dropout and the role of the caregiver’s perceptions of treatment and child distress in exposure-based treatment.

As evidence from the current investigation might imply, it may be the case that pretreatment symptom severity and symptom severity measured just before termination affect treatment dropout via different mechanisms. Pretreatment symptom severity might represent a more global and stable indicator of distress and overall functioning compared to symptom severity measured after treatment has initiated. Since the children and parents in the current study typically completed pretreatment questionnaires before being introduced to the idea of exposure therapy, pretreatment symptom severity might have been influenced very little by the anticipation of exposure exercises. In contrast, symptom severity in subsequent sessions might have reflected levels of anticipatory distress because patients and their parents were aware of upcoming exposure exercises. Future research should evaluate the relationship between anticipatory distress, avoidance behavior, and dropout in child attrition.

This study has several limitations that should be considered when interpreting the findings. The main hypothesis of the current study was based on the idea that more immediate distress, possibly as a result of anticipating exposure exercises, encourages child trauma victims or their parents to use avoidance strategies such as treatment dropout in an effort to escape that distress. Note that the current investigation did not directly test whether anticipation of exposure exercises resulted in premature treatment termination. In addition, exploratory analyses that compared treatment dropouts and completers with respect to symptoms measured at pretreatment or just before termination were nonsignificant, suggesting that distress just before treatment termination might not differentiate treatment dropouts and completers. As argued previously, however, we opted not to separate children into dropout and completer groups for the main analyses because of concerns about the operational definition of dropout. As a result of the decision, the results of the current investigation alone do not indicate that child treatment dropout occurs as a result of higher levels of symptom severity immediately preceding treatment termination. Instead, the findings of the current study suggest that this may be an important question for future research.

It could be argued that since so many relationships were tested, some of the significant results could have occurred by chance. To make confident statements regarding the nonsignificance of pretreatment symptoms, the investigators opted to maintain sufficient power at the expense of increasing the likelihood of Type I errors. While obtaining spurious results was certainly possible, a clear pattern of results emerged. It is unlikely that while none of the pretreatment symptoms were significantly correlated with the number of accumulated sessions, all three of the symptoms measured just before termination were significant and in the expected direction.

Many variables that often have been studied with child dropout were not included in the current analysis. For example, the statistical models did not account for treatment-related variables that are often associated with dropout, such as the patient’s geographical accessibility to treatment or the patient’s treatment satisfaction. In addition, no parent or family variables were included in the analysis, such as parent psychopathology or caregiver perception of treatment. It is possible that
many of these variables are associated with treatment dropout for child victims of trauma; however, even with these important variables omitted from the analysis, the model with symptom severity measured just before termination significantly predicted treatment termination. Future child-attrition literature should evaluate dropout models that incorporate not only symptoms measured just before termination but also other relevant predictors.

Trauma-related symptoms are not static. Indeed, fluctuations in symptoms often help clinicians gauge treatment progress. The same fluctuations might help explain different dropout rates. Future research could evaluate these attrition questions with methods (e.g., survival analysis) that could incorporate the nonstatic nature of trauma symptoms over time. For this study, growth curve techniques were not feasible because the current sample's data included unequal time intervals between sessions and because a dropout research question conflicts with a core assumption of growth curve analysis (i.e., participants drop out at random).

The current investigation had many noteworthy strengths. The study addressed common pitfalls in previous studies of child attrition from treatment by excluding treatment refusers and incorporating a specific clinical population. To our knowledge, the current study was the first to incorporate symptom severity measured just before termination as a predictor of treatment retention. This approach could have important implications for how researchers contemplate and study treatment attrition. In addition, this approach could inform how clinicians derive strategies for monitoring and preventing client dropout.

The findings from the current investigation suggest that treatment providers and investigators of treatment attrition should conceptualize dropout more temporally by considering variables that are assessed at multiple time points. Treatment is not static, and neither is symptom severity. Thus, there is little reason to suspect that a patient’s (or caregiver’s) beliefs about participating in treatment remain unchanged over the course of treatment. As the results from the current study suggest, researchers and clinicians might benefit from evaluating a multitude of variables on a session-by-session basis to prevent or study premature termination. This suggestion might be particularly relevant for exposure-based psychological interventions.

References


