Abstract

This study examines the impact of early abuse on the functioning and the 12-month treatment outcomes of 146 homeless addicted women who entered residential substance abuse treatment. Sixty-nine percent of the women reported exposure to childhood physical, sexual, or emotional abuse; the majority reported multiple forms of abuse. Comparisons of abused and nonabused women revealed significant differences in childhood, adolescent, and adult functioning, indicative of the pervasive detrimental effects of early abuse. Female survivors of childhood abuse did not improve in treatment as much as their nonabused peers in psychological functioning ($p < .001$), substance abuse ($p < .01$), or continuing trauma exposure ($p < .01$). The findings suggest the importance of adapting models of residential substance abuse treatment to address concurrent issues related to trauma history. Additional research is needed to identify effective integrated treatment approaches for this population and to explore the independent and interconnected pathways linking trauma history and outcome. © 2008 Published by Elsevier Inc.

Keywords: Childhood trauma; Abuse; Substance abuse treatment; Outcomes; Women

1. Introduction

Exposure to traumatic events and physical, sexual, and emotional abuse are recognized as common components of the life history of individuals who enter substance abuse treatment (Easton, Swan, & Sinha, 2000; McHugo et al., 2005). The prevalence rates of exposure to trauma and abuse among participants in substance abuse treatment programs highlight the importance of considering the impact of trauma and abuse on women’s social and emotional functioning and the relationship of trauma experiences to treatment outcomes. Several investigators have noted that trauma and abuse rarely occur as isolated instances, but rather are components of a pattern of recurrent traumatic life experiences often beginning in childhood (Goodman, Dutton, & Harris, 1995; Mueser et al., 1998). Childhood abuse has been acknowledged to be an important predictor of adult dysfunctional behavior, including substance abuse, mental health symptoms, and adult trauma exposure. It is difficult to disentangle the role of childhood abuse from other influences on adult behaviors. This study attempts to clarify the unique role of childhood abuse in the development of a pattern of adult dysfunctional behavior among homeless addicted women. Beyond that, the study seeks to assess the significance of childhood abuse for treatment outcomes among homeless addicted women in residential substance abuse treatment settings.

1.1. Rationale

Among women who abuse drugs/alcohol (Center for Substance Abuse Treatment, 2005; Newmann & Sallmann, 2004; Owens & Chard, 2003; Wallen, 1992) and among
homeless women (Browne & Bassuk, 1997), the incidences of exposure to sexual, physical, or emotional abuse, emotional distress, and co-occurring mental disorders are higher than in the general population (Briere & Elliott, 2003; Scher, Forde, McQuaid, & Stein, 2004). Estimates of victimization rates among women who abuse substances, ranging from 55% to 99%, have been attributed, in part, to a lifestyle that creates greater vulnerability to violence; corresponding victimization rates among women in the general population range from 36% to 51% (Najavits, Weiss, & Shaw, 1997). Although more than half (59%) of the participants in substance abuse treatment programs report lifetime exposure to trauma and abuse, the prevalence rate is higher for women (range = 77–81%) than for men (range = 54–69%) in those settings (Liebschutz et al., 2002; Rice et al., 2001).

The lifestyle of women with substance use disorders often increases their vulnerability to trauma and abuse, but for many, their exposure to trauma and abuse predates their substance use (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997), frequently originating in childhood and recurring during her adult years (Banyard, Williams, & Siegel, 2003; Goodman et al., 1995; Mueser et al., 1998). Exposure to childhood abuse is strongly predictive of later victimization (Follette, Polusny, Bechtle, & Naugle, 1996) and of adverse emotional and behavioral consequences that increase vulnerability to adult victimization (Goodman, Rosenberg, Mueser, & Drake, 1997). More recent research related to mental health correlates of childhood abuse indicates that the cumulative effect of all forms of childhood abuse, rather than only childhood physical and sexual abuse, may be responsible for the great impact on adult emotional functioning. Messina and Grela (2006) reported that exposure to multiple childhood stressors increased the odds of receiving mental health treatment by 980%.

Early abuse experiences have been shown to be strongly predictive of adverse psychosocial and behavioral consequences, including increased victimization, psychological dysfunction, substance abuse, and homelessness (Amaro, Nieves, Johannes, & Cabeza, 1999; Dube et al., 2001; Kendall-Tackett, 2002; Stein, Leslie, & Nyamathi, 2002; Wechsberg et al., 2003). Many studies have examined the effects of individual childhood sexual and physical abuse on adverse psychosocial outcomes for women. Childhood sexual abuse in particular, is associated with emotional symptoms (Lang, Stein, Kennedy, & Foy, 2004), revictimization in adult relationships (Briere & Runtz, 1993; Nyamathi, Wenzel, Lesser, Flaskerud, & Leake, 2001), and substance abuse (Dube et al., 2003). Childhood physical abuse has been associated with adult substance abuse (Liebschutz et al., 2002; Windle, Windle, Scheidt, & Miller, 1995) and depression (Chu, Frey, Ganzel, & Matthews, 1999); childhood emotional abuse has been linked with adult psychological consequences (Felitti et al., 1998; Johnson et al., 2001).

Recent studies have demonstrated that the traumatic events women experienced during childhood rarely occur in isolation. The Adverse Childhood Experience studies, which measured self-report of stressful childhood experiences, conducted with cohorts of health maintenance organization members, found that the total number of adverse childhood experiences, rather than any single experience or type of adverse experience, had a strong relationship with age of initiation of drug use, drug addiction, and drug use problems (Dube et al., 2003).

The majority of studies of childhood abuse have focused either on clinical populations in mental health settings or on homeless women without severe substance abuse problems. The treatment needs of women who have been exposed to childhood trauma have been recognized in mental health treatment settings, but have not been addressed as fully in residential substance abuse treatment, where women with the most severe substance abuse problems are typically treated. The study reported here provides an opportunity to increase our knowledge and understanding of the correlates of early abuse on the functioning of homeless addicted women who enter substance abuse treatment settings.

Furthermore, although research has demonstrated that women in substance abuse treatment settings, as compared to men, have a higher rate of posttraumatic stress disorder (PTSD) and report a higher need for trauma-related services (Grela, 2003), recent research has indicated that only a small proportion of clients with more complex needs are receiving adequate assessments in traditional substance abuse treatment settings (Hu, Kline, Huang, & Ziedonis, 2006), and that interventions for women with multiple problems often are fragmented and lack coordination (Cocozza et al., 2005). Although treatments with some promise for women with substance use disorders, co-occurring mental disorders, and trauma exposure have been developed (Harris & Fallot, 2001; Hien, Cohen, Miele, Caren Litt, & Capstick, 2004; Najavits et al., 1997), few studies have examined the responsiveness of women with substance use disorders and co-occurring early trauma exposure to more traditional residential substance abuse treatment models. The current study fills this gap in our understanding of the manner in which homeless addicted women who have reported exposure to childhood abuse, as compared with their peers without such exposure, respond to a more traditional residential substance abuse treatment. Ultimately, such studies are needed to improve treatment outcomes for this underserved population, and to inform future policy, planning, and funding for development and implementation of more effective and gender-sensitive services for women.

The purpose of this article is threefold: (a) to identify the early correlates of childhood abuse in a cohort of homeless addicted women who reported childhood trauma and abuse; (b) to assess the unique impact of childhood abuse on the adult behaviors of the women; and (c) to describe the relationship between early abuse and treatment outcomes. Based on the cited recent research into the consequences of...
childhood abuse and on clinical impressions of treatment staff, the study hypothesized that (a) childhood abuse would have a negative impact on the psychological and social functioning of the women, and (b) women who reported childhood abuse would respond less well to traditional residential substance abuse treatment.

2. Method

2.1. Study design

The study reported here is a secondary analysis of data gathered as part of the Substance Abuse & Mental Health Services Administration (SAMHSA) Homelessness Prevention Project\(^1\) research collaborative (Rickards et al., 1999; Sacks, Sacks, Harle, & De Leon, 1999). The parent study employed a prospective, repeated measures design to evaluate client change on behavioral and emotional variables from baseline (entry into the program) to 12 months postbaseline. Within 1 week of her admission to treatment, the subject was met by a trained and experienced interviewer who explained the study and who obtained informed consent from those subjects who volunteered to participate in the study; the refusal rate was 4%. The National Development and Research Institutes, Inc. (NDRI) Institutional Review Board reviewed and monitored compliance with all regulations governing the protection of human rights for research participants; all research staff was trained in the protection of human research subjects. Clients received financial compensation for completing interviews at each period.

All participants had been admitted to residential substance abuse treatment programs operated by the same treatment agency. None of the programs offered specific interventions for recovery from trauma exposure, nor had any program staff members received training in the issues trauma survivors face; thus, none of the programs could be considered to be “trauma specific” or “trauma informed.” In this secondary analysis of data from the larger evaluation, propensity scores were used to control for differences between women who had experienced childhood trauma and abuse and those who had no such experiences, to isolate the effects of early abuse, and to understand the impact of early abuse on the psychosocial functioning and residential substance abuse treatment outcomes of the women.

The secondary analysis compared women who reported that they had been exposed to physical, sexual, or emotional abuse during childhood with women who reported not having such exposure. The analyses mimic the analytic plan for the larger study, with modifications to the outcome domains to reduce the number of variables and, consequently, the number of analyses being conducted, so as to minimize Type I error.

2.2. Eligibility and participants

Inclusion criteria for the study were that the subject was female, with a substance use disorder, and homeless (or at risk for homelessness by virtue of living “doubled up” in others’ housing); geographic proximity determined admission to one of the four residential substance abuse treatment programs. All study subjects were admitted to residential treatment between June 24, 1997, and March 25, 1999, and remained in the program an average of 4.5 months (range = 0.2–11.7; SD = 3.2).

The evaluation included a baseline sample of 196 women, with 148 (76%) participants retrieved at 12-month follow-up; 2 clients were excluded from the childhood abuse component of the analysis because they were not comfortable answering questions about trauma and abuse, which reduced the retrieved sample to 146 cases. Retrieved and nonretrieved samples were similar on most demographic measures, including ethnicity, employment, education, marital status, and parenting. The groups were also similar on measures of abuse history, substance use, and criminality. Three key differences emerged: (a) age—the retrieved sample was older than the sample that was not retrieved (average age = 33.4 vs. 31.2 years); (b) pregnancy—fewer women in the retrieved group were pregnant at baseline compared with women not retrieved (13% vs. 36%); and (c) contact with family—women in the retrieved group reported more frequent contact with their mothers, siblings, and children. Overall, the subjects were predominantly minority (80%), had an average age of 33, and had never been married (66%). Most of the women came from broken homes (71%) and had less than a high school education (53%). They reported having an average of three children, although only one child, on average, was in the mother’s care at baseline. The majority of women reported a history of drug and/or alcohol use (97%), arrest (76%), or exposure to trauma/abuse (89%).

2.3. Instrumentation

The measures were not developed specifically for this secondary analysis, but were drawn from the larger study. The instruments were administered to each participant by trained interviewers, who read each question aloud and recorded the participant’s responses to ensure that literacy was not a factor in response patterns. The baseline instrument was completed in approximately 2 hr; the follow-up instrument was completed in 60–90 min.

2.3.1. Adult and childhood exposure to abuse

Adult and childhood exposure to abuse was assessed with the Center for Therapeutic Community Research (CTCR, 1992) Baseline Protocol, which contains self-report...
questions regarding exposure to physical, sexual, and emotional abuse experienced as an adult and during childhood. Separate dichotomous questions elicit information about physical, sexual, and emotional abuse within each time frame (e.g., “Were you ever physically abused as an adult?” “Were you ever physically abused during childhood?”). For both adult and childhood time frames, a positive response to the question about each form of abuse was considered to be indicative of abuse. The 12-month follow-up interviews inquired about exposure to each form of abuse since the time of the last interview. Because the baseline protocol had been designed for use in the larger study, rather than specifically for this secondary analysis, the abuse inquiries were not optimal; age of onset of abuse was not determined, nor was the specific nature of the sexual, physical, or emotional abuse ascertained. The general character of the question in each abuse category and the lack of specificity of the behaviors encompassed leaves the determination of whether or not an experience constituted “abuse” to an individual, rather than a standardized interpretation. This is more likely to have tended toward underreporting abuse, because prior analyses found that women in this setting considered interpersonal violence to be “part of life” rather than behavior that deserved to be labeled as “abuse” (Sacks, 2006). In addition, the secondary nature of the analyses precluded independent verification of the self-report data.

2.3.2. Substance use and severity of related problems

Substance use and the severity of problems related to substance use were assessed using selected sections of the Homelessness Prevention (HP) Cross-Site Instrument (Rickards et al., 1999) and the CTCR Baseline Protocol (CTCR, 1992). The HP Cross-site Instrument is a structured interview developed with contributions from scientists at each site participating in the parent SAMHSA Homelessness Prevention Project research collaborative. The instrument contains elements from other standardized instruments used in prior community treatment research studies to measure self-reported alcohol and drug use during the past 6 months using a timeline follow-back procedure; 2-week test–retest reliabilities were good (.82) (Rickards et al., 1999; Sacks, Drake, Williams, Banks, & Herrell, 2003). The CTCR Baseline Protocol is also a structured interview that was adapted from the Addiction Severity Index (McLellan et al., 1992) and the Drug Abuse Treatment Assessment Resources to measure self-reported lifetime and current (past 12 months) substance use, perceived problems related to substance use, and substance abuse treatment history. Same day, alternate forms reliability for alcohol and nine drug categories, measured in terms of percent exact agreement, averaged 94% (range = 82–100%) in a similar sample of women (Sacks, 1999; Sacks et al., 1999).

2.3.3. Psychological functioning

Information on psychological functioning was gathered from three sources:

1. The Beck Depression Inventory-II (BDI-II) (Beck, Steer, & Brown, 1996) contains 21 items that measure three domains of depression consistent with the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria for depressive disorders. The BDI-II is administered by a research interviewer in about 10 min; high scores indicate more severe symptoms. Satisfactory coefficient alpha indices have been established for the instrument (Osman et al., 1997).

2. The Symptom Check-List 90-Revised (SCL90-R) (Derogatis, 1993) measures nine symptom domains and provides a global index of distress, the Global Severity Index. The SCL90-R is completed in approximately 15 min; high scores correspond to greater severity of symptoms. Internal consistency estimates range from .71 to .84 averaged across all nine scales, and test–retest reliabilities range from .67 to .91 (Rounsaville, Weismann, Rosenberger, Wilber, & Kleber, 1979).

3. The CTCR Baseline Protocol (cited above) was used to gather self-report information regarding perceived symptom impacts on functioning, prevalence of suicidal thoughts and actions, incidence of psychiatric hospitalizations, prescribed medication for psychological problems, and incidence of mental health treatment.

2.3.4. Additional assessments

HIV/AIDS risk was assessed using selected items from the CTCR Baseline Protocol to gather information about the frequency of needle-use behaviors and high-risk sexual practices, including engaging in unprotected sex during the past 12 months.

Criminal activity was assessed using selected variables from the HP Cross-Site Instrument and the CTCR Baseline Protocol to gather information about historic and current (past 6 months) criminal justice involvement (including arrests, convictions, time spent in jail and prison) and frequency of illegal activities during the past 12 months.

Treatment retention and treatment completion information was gathered from the treatment agency administrative database. Treatment retention (number of days in treatment) was determined from the admission and discharge dates for each study participant. Treatment completion was based on the program determination of reason for discharge, which is maintained in the same database.

2 This instrument was developed for the SAMHSA CMHS/CSAT Cooperative Agreements, the Collaborative Program to Prevent Homelessness.
2.4. Analyses

2.4.1. Descriptive

Overall, the analytic plan mimics the procedures used in the original study to assess treatment effects (Sacks, Sacks, McKendrick, Pearson, & Banks, 2004). Descriptive analyses were conducted to determine baseline differences between the women who reported childhood abuse and those who reported no abuse. The descriptive analyses were separated into three tiers of measures (Table 1). The first tier assessed profile measures describing childhood environments (e.g., “number of places lived growing up,” “parents separated/divorced”) that were considered to predate or be concurrent with childhood abuse, and thus less likely to be consequences of abuse. The second tier of measures explored child and adolescent behaviors that were considered to be possible correlates of childhood abuse. A third tier of selected adult behaviors, determined at baseline for the women who reported childhood abuse, and those who reported no abuse, are also presented in Table 1. Profile comparisons were based on the empirical data available and not on a priori beliefs. Nonequivalence between the two groups was determined by chi-square and t-test analyses.

2.4.2. Propensity analysis

Propensity analysis is a statistical technique used to equate or rebalance groups of interest when random assignment is not possible (Rubin, 1997). Because the standard inclusion of statistical control variables may not deal adequately with the substantial number of significant baseline differences between two groups (childhood abuse vs. no childhood abuse), an aggregate covariate—the propensity score—can be used to adjust for nonequivalencies. Subjects with the same propensity score share the same multivariate distribution of covariates; therefore, propensity scores can be used to match subjects and exclude those for whom few or no equivalent subjects exist, greatly improving the similarity between the two groups.

Measures from the first tier of the descriptive analysis were used to develop a predictive model of childhood abuse using stepwise logistic regression. The propensity score was calculated using logistic regression to predict childhood abuse (dependent variable) statistically, controlling for related covariates (Tier I measures) that most likely occurred prior to, or concurrent with, abuse during childhood (independent variables). The propensity score was then used to divide the total sample into groups of equal size or propensity strata. Equivalency was explored, comparing

Table 1

<table>
<thead>
<tr>
<th>Measures</th>
<th>No childhood abuse (n = 43)</th>
<th>Childhood abuse (n = 103)</th>
<th>χ²/t score</th>
<th>Significance*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier I: Measures that predate or are concurrent with childhood abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of brothers</td>
<td>2.72</td>
<td>1.66</td>
<td>−2.88</td>
<td>**</td>
</tr>
<tr>
<td>Lived with mother (not main guardian)</td>
<td>5</td>
<td>21</td>
<td>6.17</td>
<td>*</td>
</tr>
<tr>
<td>Father’s education, HS/GED</td>
<td>47</td>
<td>23</td>
<td>7.76</td>
<td>**</td>
</tr>
<tr>
<td>Parents separated/divorced</td>
<td>54</td>
<td>76</td>
<td>7.04</td>
<td>**</td>
</tr>
<tr>
<td>Parent had/has a psychiatric problem</td>
<td>14</td>
<td>31</td>
<td>4.62</td>
<td>*</td>
</tr>
<tr>
<td>Father worked half-time or more</td>
<td>88</td>
<td>62</td>
<td>9.92</td>
<td>**</td>
</tr>
<tr>
<td>No. different places lived growing up</td>
<td>2.48</td>
<td>4.18</td>
<td>−3.00</td>
<td>**</td>
</tr>
<tr>
<td>Oldest/only child</td>
<td>14</td>
<td>33</td>
<td>5.54</td>
<td>*</td>
</tr>
<tr>
<td>Tier II: Childhood outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. times ran away</td>
<td>0.63</td>
<td>3.11</td>
<td>−3.29</td>
<td>***</td>
</tr>
<tr>
<td>Father there when needed</td>
<td>67</td>
<td>37</td>
<td>11.40</td>
<td>***</td>
</tr>
<tr>
<td>Mother there when needed</td>
<td>77</td>
<td>57</td>
<td>4.93</td>
<td>*</td>
</tr>
<tr>
<td>Age first alcohol/drug use</td>
<td>15.26</td>
<td>13.41</td>
<td>2.13</td>
<td>*</td>
</tr>
<tr>
<td>Ever suspended/expelled</td>
<td>51</td>
<td>75</td>
<td>8.05</td>
<td>**</td>
</tr>
<tr>
<td>Tier III: Adult outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever treated for psychiatric problem</td>
<td>21</td>
<td>46</td>
<td>7.83</td>
<td>**</td>
</tr>
<tr>
<td>SCL global severity</td>
<td>60.84</td>
<td>66.88</td>
<td>−3.27</td>
<td>**</td>
</tr>
<tr>
<td>Adult physical abuse</td>
<td>54</td>
<td>85</td>
<td>16.99</td>
<td>***</td>
</tr>
<tr>
<td>Adult sexual abuse</td>
<td>19</td>
<td>52</td>
<td>14.20</td>
<td>***</td>
</tr>
<tr>
<td>Total time homeless (months)</td>
<td>6.77</td>
<td>15.81</td>
<td>−2.39</td>
<td>*</td>
</tr>
</tbody>
</table>

Note. Two-digit entries are percentages; three- or four-digit entries having two decimal points are means. HS = high school; GED = general equivalency diploma.

* Chi-square test on dichotomous/categorical data, t test on continuous data.

** p < .01.

*** p < .001.
subjects who reported abuse versus those who did not report abuse by reassessing profile characteristics for the two groups within each propensity strata.

2.4.3. Impact of childhood abuse on adult behavior and treatment outcomes

Effect sizes were calculated to evaluate group differences in adult behaviors reported at baseline and to determine treatment effects occurring between baseline and 12-month follow-up. Cohen’s effect sizes (Cohen, 1997) were scaled so that negative effects indicate greater dysfunction for the group of subjects reporting abuse. Effect sizes were computed using standard score units, or Z scores, which were calculated for each outcome measure at baseline to assess the association of childhood abuse with adult behavior. Z scores were also computed for change scores (from baseline to 12-month follow-up) to investigate the impact of childhood abuse on treatment outcomes. To control for the large number of outcome measures, a “top-down” analytical approach (Quezado et al., 1998) was used, testing all 56 variables together to see if the average effect size was significantly different from zero before investigating the individual domains. A one-sample t test was used to determine if the average effect was significantly greater than zero. Using the average effect size reduces the number of statistical tests while maximizing the inclusion of data and reducing Type I error. Effect sizes were first averaged across the 56 measures and, upon significance, the five outcome domains (psychological dysfunction, exposure to trauma/abuse, substance use, criminality, and HIV risk behavior) were assessed separately. The number of outcome measures within each domain ranged from 4 to 27.

3. Results

3.1. The prevalence and correlates of childhood abuse

Over two thirds (69%) of the women reported some form of childhood abuse. Thirty-nine percent (39%) reported sexual abuse, 44% reported physical abuse, and 51% reported emotional abuse. Most of the women reported a high incidence of exposure to multiple forms of childhood abuse; only 21% reported a single type of childhood abuse. For example, women who reported sexual abuse also reported physical abuse (64%) or emotional abuse (74%), and women who reported physical abuse also reported emotional abuse (90%) and sexual abuse (57%).

Table 1 provides a descriptive summary of the significant differences in family background, childhood functioning, and adult behavior that were detected between women who reported childhood abuse and those who did not. The number of measures tested included 61 Tier I variables, 37 Tier II variables, and 42 Tier III variables. Of the measures tested, 8 of the Tier I variables showed significant differences between the two abuse groups, as did 18 Tier II variables and 37 Tier III variables.

As compared to their peers who were not abused, women who reported childhood abuse also described a more disrupted family background. They were more likely to report parental separation or divorce and to have lived with their mother, even though she was not the main guardian. They were more likely to be only or oldest children and to report fewer siblings, especially brothers. Women who reported early abuse moved more frequently as children, which may signify residential instability. They were more likely to have fathers who were unemployed or who had a lower level of education, and they were more likely to have a parent with a psychiatric problem. As children and adolescents, the women who reported childhood abuse were more likely than their nonabused peers to have run away, to have had problems in school, and to have begun to use/abuse alcohol and drugs. As adults, the survivors of childhood abuse were more likely to have problems related to mental health, victimization, and residential stability.

3.2. Propensity analysis

As seen in Table 1, many differences emerged between women reporting childhood abuse and those who did not report abuse. To rebalance the two abuse groups so that comparisons would be “matched” on the set of covariates, a propensity score was computed. Stepwise regression techniques were used to test all Tier I measures, many of which were strongly correlated. The three measures that produced the strongest model for predicting a report of childhood abuse while minimizing multicolinearity were “number of brothers” (odds = 0.66), “lived with mother” (not main guardian; odds = 6.60), and “father’s education—general equivalency diploma/high school” (odds = 0.23). Table 2 shows the distribution of the two groups of women, those who reported childhood abuse and those who reported no abuse, for the three propensity strata.

The propensity score greatly improved the similarity between the abused and nonabused groups. Profile differences between survivors of childhood abuse and those who reported no abusive experiences were not apparent in the low-propensity group, and in the medium-propensity group, only 1 of 14 measures (i.e., “likelihood of being raised by both parents”) reached statistical significance in differentiating the two groups. The high-propensity stratum included too few women who did not report childhood abuse.
Table 3
Average of low- and medium-propensity strata Cohen’s $d$ effect sizes for adult behaviors at baseline for women who reported childhood abuse versus women who did not report abuse

<table>
<thead>
<tr>
<th>Domain</th>
<th>No. of measures</th>
<th>Low- and medium-propensity ($N = 87$) Cohen’s $d$ effect size$^a$</th>
<th>Significance$^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>−0.30</td>
<td>0.31</td>
</tr>
<tr>
<td>Psychological functioning</td>
<td>27</td>
<td>−0.46</td>
<td>0.28</td>
</tr>
<tr>
<td>Trauma/abuse exposure</td>
<td>4</td>
<td>−0.30</td>
<td>0.16</td>
</tr>
<tr>
<td>Substance use</td>
<td>14</td>
<td>−0.17</td>
<td>0.25</td>
</tr>
<tr>
<td>Criminality</td>
<td>7</td>
<td>−0.08</td>
<td>0.22</td>
</tr>
<tr>
<td>HIV risk behavior</td>
<td>4</td>
<td>−0.06</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Note. ns = not significant.

$^a$ Cohen’s $d$ effect size = ($Z_{baseline_{Abuse}} - Z_{baseline_{No\ Abuse}}$)/pooled standard variation: Negative effect size indicates greater dysfunction for the abused group.

$^b$ Significance using the one-sample $t$ test.

*p < .05.

**p < .01.

***p < .001.

Table 4
Average of low- and medium-propensity strata Cohen’s $d$ effect sizes for change from baseline to follow-up for women who reported childhood abuse versus women who did not report abuse

<table>
<thead>
<tr>
<th>Domain</th>
<th>No. of measures</th>
<th>Low- and medium-propensity ($N = 87$) Cohen’s $d$ effect size$^a$</th>
<th>Significance$^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>−0.18</td>
<td>0.26</td>
</tr>
<tr>
<td>Psychological functioning</td>
<td>27</td>
<td>−0.19</td>
<td>0.23</td>
</tr>
<tr>
<td>Trauma/abuse exposure</td>
<td>4</td>
<td>−0.28</td>
<td>0.11</td>
</tr>
<tr>
<td>Substance use</td>
<td>14</td>
<td>−0.19</td>
<td>0.32</td>
</tr>
<tr>
<td>Criminality</td>
<td>7</td>
<td>−0.11</td>
<td>0.24</td>
</tr>
<tr>
<td>HIV risk behavior</td>
<td>4</td>
<td>−0.02</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Note. ns = not significant.

$^a$ Cohen’s $d$ effect size = ($Z_{change_{Abuse}} - Z_{change_{No\ Abuse}}$)/pooled standard variation: negative effect size indicates less improvement for the abused group.

$^b$ Significance using the one-sample $t$ test.

*p < .05.

**p < .01.

***p < .001.

abuse ($n = 6$) to permit comparative analyses and was removed from the analytic pool. The “abused versus not abused” comparison then examined only cases in the low- and medium-propensity groups (Strata 1 and 2), which had satisfactory numbers of matched cases and which contained 60% of the study sample.

3.3. The association of childhood abuse and adult behavior

Similar effect sizes emerged in the low- and medium-propensity strata overall for baseline measures exploring adult behavior in five domains: psychological dysfunction, trauma/abuse exposure, substance use, criminality, and HIV risk behavior. To simplify the data presented, Table 3 reports the average effect sizes for subjects in both the low- and medium-propensity strata, and provides a comparison of the baseline differences in functioning for women survivors of childhood abuse and nonabused women. Cohen’s $d$ effect sizes for baseline data in the five study domains indicate that, on the whole, abused women in both the low and medium strata reported significantly greater dysfunction, compared with their nonabused peers, for overall functioning (average effect size = $−0.30, SD = 0.31$). Given that the total effect size indicated a significant difference, the individual domains were explored. Baseline differences by childhood abuse emerged for three of the five domains, specifically, psychological dysfunction (average effect size = $−0.46, SD = 0.28$), trauma/abuse exposures (average effect size = $−0.30, SD = 0.16$), and substance use (average effect size = $−0.17, SD = 0.25$). Although the direction of the effect sizes was consistent with the domains listed above, significant baseline differences were not apparent for criminality and HIV risk behavior.

3.4. Impact of childhood abuse on treatment outcomes

Table 4 provides a summary of the Cohen’s $d$ effect sizes for changes in functioning from baseline to 12-month follow-up. Negative effects indicate that women who
reported exposure to childhood abuse showed less improvement on treatment outcomes than did their peers who reported no childhood exposure to abuse. The average total effect size was significantly different from zero, as were three of the five outcome domains. The average effect size for the 56 outcome measures was \(-0.18 (SD = 0.26)\). Given that the overall test was significant, findings on the disaggregated five domains can be reasonably considered. Women survivors of abuse reported significantly less improvement (negative effect size) than their nonabused peers in the domains of: psychological dysfunction (average effect size = \(-0.19, SD = 0.23\)), trauma/abuse exposure (average effect size = \(-0.28, SD = 0.11\)), and substance use (average effect size = \(-0.19, SD = 0.32\)).

In addition to treatment outcomes, two measures of program participation were investigated in relation to childhood abuse (not shown), the time in treatment and a dichotomous measure of treatment completion, which were derived from agency administrative data. Again, because similar findings emerged for women in the low- and medium-propensity strata, the average of the two strata is reported. Significant differences due to exposure to childhood abuse were not found. A total of 71% of women who reported childhood abuse completed treatment, compared to 69.5% of women who did not report such abuse. The average number of days in treatment was 127 (SD = 90) for the abused group and 156 (SD = 97) for the nonabused group.

Overall, the dominant pattern of findings supported the hypothesis that the women survivors of childhood abuse did not improve in treatment as much as their peers who were not abused.

4. Discussion

4.1. Summary of findings

This article examined the impact of childhood abuse on the psychological and social functioning, and the response to residential substance abuse treatment among homeless addicted women. The goals of the article were to identify early correlates of childhood abuse within the cohort of women, assess the unique impact of childhood abuse on adult behaviors, and describe the relationship between early abuse and treatment outcomes.

Over two thirds of the women reported exposure to physical, sexual, and/or emotional abuse as children, whereas fully 89% reported being abused at some time in their life, indicating a lifelong pattern of abuse, trauma, and retraumatization. To the extent that the prevalence rates in this study generalize to other homeless addicted women who enter residential substance abuse treatment programs, a history of early exposure to abuse and reexposure as an adult appears to be an expectation among female admissions to these settings and a factor for consideration in treatment planning.

Compared with their peers who were not abused, women who reported childhood abuse also described a more disrupted family background, including parental mental health problems, paternal undereducation and unemployment, frequent changes of housing, and parental separation or divorce. The disparities in adult psychosocial functioning with and without childhood abuse were profound and pervasive in relation to severity of psychological symptoms and psychological functioning, severity of substance abuse problems, and exposure to trauma and abuse. These findings mirror national studies documenting the extent of childhood trauma exposure among homeless and substance-abusing women, and the role that childhood exposure plays in subsequent adolescent and adult functioning.

The study outcomes indicated that women with a history of early trauma and abuse had poorer treatment outcomes than their nonabused peers in the critical domains of psychological functioning, substance use, and recent trauma reexposure. The effect sizes in this secondary analysis were small to moderate and were similar to the effect sizes reported elsewhere with this research cohort (Sacks et al., 2004). That no significant differences were found between the groups, either in the proportion who completed treatment or in the number of days spent in residential treatment, points to treatment response, rather than length of treatment exposure, as contributing to outcomes. These results add to our understanding of the impact of early abuse history by providing evidence that homeless addicted women with reported histories of childhood trauma and abuse are significantly less likely than their peers without such histories to respond to residential substance abuse treatment. The findings suggest that residential treatment programs may have to be modified to address the needs of women with such early trauma histories. Indeed, recent research provides promising evidence that women, including those in substance abuse treatment programs, who report experiences of trauma and abuse have better short-term drug abuse and mental health outcomes when counseling integrates a concurrent focus on substance abuse, mental health, and trauma issues (Cocozza et al., 2005; Morrissey et al., 2005).

4.2. Limitations

This study was formulated as a secondary analysis of data gathered during a SAMHSA Homelessness Prevention Project parent study. To understand the impact of childhood trauma and abuse on the women’s response to treatment, an effort was made to isolate the contributions of childhood abuse as separate from and irrespective of other risk. Because women with and without early abusive experiences differed so profoundly on baseline measures of functioning, a newer statistical technique, propensity analysis, was used to adjust for nonequivalencies and to improve the similarity between the two groups. Outcome analyses were limited to those women in either group who were most similar;
elimination of part of the research cohort limits the generalizability of the study outcomes.

Although accommodating the isolation of the effects of childhood abuse on functioning and on response to treatment, the secondary nature of the analyses inevitably encountered a gap in measurement. Data from the parent study were available on exposure to childhood (and adult) physical, sexual, and emotional trauma (each type of abuse posed as a dichotomous question). It is not clear from current research whether a particular form of abuse or the aggregate of all abusive experiences had the greatest impact on the functioning of women. These measures portray the breadth of childhood traumatic events to which the women reported exposure, but do not permit exploration of the individual effects of each form of abuse nor the impact of number of childhood stressors, which has been shown to have a grave effect on women’s functioning and recovery (Messina & Grella, 2006). Furthermore, the measures are limited to trauma exposure and do not permit an assessment of posttraumatic symptoms or identification of those women who have PTSD, which would have been relevant to this study because the combination of PTSD and childhood abuse can have a particular impact on outcomes, including drug use (Salomon, Bassuk, & Huntington, 2002). In future research, measures with greater specificity and detail, including diagnostic differentiation of women with PTSD, would be preferable and more informative.

In addition, the parent study determined childhood abuse from retrospective, self-reported information, which could not be verified either through medical or legal records. The extent of reported physical and sexual abuse apparent in this analysis gains credibility through its similarity to that found in other studies of homeless and substance-abusing women (Browne & Bassuk, 1997; Wallen, 1992; Finkelhor, Holaling, Lewis, & Smith, 1990).

Finally, the study population was limited to homeless women in selected residential substance abuse treatment programs that included programming for children who either lived with the mother in treatment or visited on a weekend day. The outcomes, therefore, may not generalize to other female populations or other substance abuse treatment programs.

Despite these limitations, the findings confirm the profound effects that a history of early abuse has on the functioning of homeless addicted women who enter residential substance abuse treatment programs, and add critical new information regarding the negative impact such abusive experiences have on a woman’s response to treatment.

4.3. Implications for future research

Residential substance abuse treatment is typically reserved for those women with the most severe substance abuse problems; often these women have co-occurring psychological and trauma-related problems. The current outcomes highlight the need for new approaches and practices, and their evaluation, to inform and improve residential treatment effectiveness for homeless addicted women with a co-occurring early trauma history. Future prospective research is warranted to examine treatment effectiveness within residential substance abuse treatment settings, conditional on age of exposure, the incidence and cumulative nature of multiple types of exposure, and PTSD symptom severity. The current study also highlights the need for sophisticated measurement tools and research approaches to explore and inform the interconnected pathways linking early trauma history and treatment outcome.

4.4. Conclusions

The differential responsiveness of homeless addicted women to residential substance abuse treatment suggests that substance abuse treatment programs must tailor interventions to increase their effectiveness for women survivors of early trauma and abuse. The findings suggest that substance abuse treatment settings may need to play an increasing role in identifying complex clinical needs among women and in providing comprehensive treatment to address not only substance use disorders, but also co-occurring issues of historic and recent exposure to trauma and abuse and the emotional sequelae of those experiences. It is possible that approaching substance use and trauma in a more comprehensive and integrated manner would also result in more successful outcomes for these women. Evidence of the need to improve the detection of co-occurring disorders, especially in substance abuse treatment settings (Hu et al., 2006), is mounting, and the current study supports that perspective. The findings imply that changes are needed on an individual agency level, but also include policy implications for improving residential substance abuse treatment within larger treatment systems, specifically toward enhancing the systemic capacity for screening and assessment, and improving the integrated treatment skills of counselors.

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