Homelessness-Related Traumatic Events and PTSD Among Women Experiencing Episodes of Homelessness in Three U.S. Cities

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In this article, we report the prevalence of traumatic events (TEs), lifetime and 12-month posttraumatic stress disorder (PTSD) among 148 women experiencing homelessness in 3 midsized cities in the United States (Omaha, NE, Pittsburgh, PA, and Portland, OR). The women ranged in age from 19 to 54 years with an average age of 38.89 years (SD = 10.18). The sample was 42.6% White/European American. We investigated the mediation of distal TEs (i.e., childhood maltreatment) by more proximal TEs associated with being homeless (i.e., homelessness-related stressors) for meeting diagnostic criteria for 12-month PTSD. Results indicated that 42.6% of the women met criteria for lifetime PTSD and 39.7% met criteria for past-year PTSD. The number of TEs reported ranged from 0 to 16 in order of prevalence with a median of 6 TEs. The correlations between childhood maltreatment and 12-month PTSD ranged from .16 to .20 and the correlations between homelessness-related stressors and 12-month PTSD ranged from .21 to .30. The mediation analysis was consistent with the association between childhood maltreatment and past-year PTSD being fully mediated by homelessness-related trauma.

In this article, we address the influence of homelessness as a context for traumatic events (TEs; Ozer, Best, Lipsey, & Weiss, 2003), and the cumulative associations of distal and contemporary TEs (Briere, Kaltman, & Green, 2008; Breslau, Chilcoat, Kessler, Peterson, & Lucia, 1999; Neumann, Houskamp, Pollock, & Briere, 1996) on vulnerability for past-year posttraumatic stress disorder (PTSD) among adult women experiencing an episode of homelessness in three large U.S. cities. We begin by reporting the prevalence of 26 TEs to gain better insight into the specific types of TEs that homeless women experience. We then report the prevalence of lifetime and past-year PTSD among the women. Finally, we test a theoretically derived model that investigates the cumulative consequences of distal and contemporary TEs. Childhood maltreatment (a distal stressor and risk factor for PTSD) was hypothesized to be positively associated with adult PTSD (past year) via its influences on proximal homeless-related stressors.

The diagnosis of PTSD according to the fifth edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5) is predicated on “Exposure to actual or threatened death, serious injury, or sexual violence . . .” (American Psychiatric Association [APA], 2013, p. 271). This exposure may be direct or indirect such as witnessing a TE, learning of trauma to a close family member or friend, or cumulative or extreme exposure to TEs. According to the DSM-5, the lifetime estimate for PTSD is 8.7% by age 75 years with a 12-month prevalence of 3.5. The small body of literature examining the prevalence of PTSD among women experiencing homelessness indicates that rates of PTSD among homeless women are much higher compared to women in the general population. North and Smith (1992) reported lifetime prevalence of 34%. Similarly, Whitbeck (2009) reported a lifetime prevalence of 37.7% among young adult homeless women with a 12-month prevalence of 13.2%. Many of these young adult women had experienced traumatic sexual assault.

This study was based on the risk amplification model (Whitbeck, 2009; Whitbeck & Hoyt, 1999; Whitbeck, Hoyt, & Yoder, 1999) of the onset of PTSD among homeless women. This model posits that among those already experiencing stressors leading to an episode of homelessness, the stresses of finding oneself without a safe and private place to live magnify existing symptoms of distress and generate new symptoms. In explaining the relationship between the onset of PTSD and stress related to homelessness, the risk amplification model takes into account the relationship between vulnerability from past TEs and the influence of current TEs. Becoming homeless may result in meeting criteria for PTSD in some subsyndromal individuals just as combat stress may trigger PTSD among...
military personnel who have histories of childhood adversity (Blosnich, Dichter, Cerulli, Batten, & Bossarte, 2014; Zarembo, 2014).

Second, the model introduces homelessness as a PTSD risk factor. Although there is plentiful evidence that homelessness increases stress (Goodman, Saxe, & Harvey, 1991), the psychiatric consequences of this stress have been understudied. To test the hypothesis that the association between childhood maltreatment (a distal risk factor) and past-year PTSD was mediated by homelessness-related stressors (proximal risk factors), we estimated structural equation models for our test of mediation. To our knowledge, this was the first analysis to consider homelessness-related stressors as potential correlates of meeting criteria for current PTSD.

Method

Participants and Procedure

In an effort to obtain a representative sample of homeless women in the three cities, we employed a multiple frame sampling approach (Hartley, 1962; Sudman, Sirken, & Cowan, 1988), which has been widely used with homeless populations (Burt, Aron, Douglas, Valente, Lee, & Irwin, 1999; Burt & Cohen, 1989; Iachan & Dennis, 1993; Rossi, Fisher, & Willis, 1986; Smith, North, & Spitznagel, 1993). In the study sites, shelters, meal locations, and high-concentration outdoor areas within the city limits were enumerated and an estimated measure of size was obtained. A systematic random sample was taken from lists of residents or overnight guests in shelters, women at meal locations were selected via predetermined random start and a skip interval, and because they were few in number, all of the women observed at outdoor locations were approached for the study. The data were collected between August 2010 and May 2011 to account for the effects of season on sampling and psychosocial outcomes.

Women who were between the ages of 19 (the age of majority in Nebraska) and 54 years were eligible for the study. We selected an upper age limit of 54 because there are additional services offered to women who are 55 and older, which may have skewed our results. All of the women at the shelters were eligible to complete the study; women at meal locations were eligible if they had not stayed at a shelter during the past week; and women in outdoor locations were eligible if they had not stayed at a shelter or utilized meal services during the past week.

We attempted to contact 561 women during the summer of 2010 and winter of 2010–2011 who were experiencing an episode of homelessness or reported that they were living with someone else or “doubling up” in Omaha. Contact was made via letters in shelter locations and approaching women at meal/outdoor locations. Of the potential subjects, 146 (26.0%) were not eligible because they did not self-identify as being homeless/doubling up (n = 64), were male (n = 33), did not meet the age criteria (n = 38), or had been selected at a meal or outdoor location when they had utilized a shelter within the past week (n = 11). Of the 451 eligible contacts, 207 (45.9%) were missed because they did not respond to the letter or had otherwise been missed by staff at meal or outdoor locations. Of the eligible women contacted (n = 208), 45 (21.6%) refused to be interviewed. Data were ultimately collected from 163 women (78.4% of the contacted and eligible women). Five of the women, however, were interviewed twice, and an additional nine women did not complete one of the interview sessions (see below). Our final analytic sample thus included 148 women (142 from shelters, 16 from meal locations), Nebraska (n = 78), Pittsburgh, Pennsylvania (n = 36), and Portland, Oregon (n = 34). Information regarding the number of women who reported being homeless versus doubling up was not collected.

The data were collected via in-person interviews and self-administered questionnaires for sensitive questions (Whitbeck, 2009). Trained project staff interviewed subjects in two sessions to reduce participant fatigue. In each city, interviewers were hired to work full-time for the study. The interviewers underwent training with university staff, which included a workshop covering survey methodology, the administration of the study materials, the ethical treatment of human subjects, and ways to address issues that may arise during and after the interviews. The interviewers also conducted practice interviews with each other during the workshop. Finally, the interviewers were required to complete an interview with the project coordinator to verify that they met the project standards for interviewing competence.

The women completed a diagnostic interview during the first session and a number of self-report measures (via personal interviews) and the self-administered questionnaire during the second session. The interviewers remained blind to the diagnostic status of the participants throughout the study. Each session lasted 2 hours or less and respondents were reimbursed with a $20 gift card to a local store per session completed. This study was conducted in compliance with the ethical standards outlined by the American Psychological Association (2010) and was approved by the institutional review board at the University of Nebraska-Lincoln. Participants were required to provide their signed consent before participating in the study.

The average age of the sample was 38.89 years (SD = 10.18; 27.0% Black/African Americans, 10.8% Hispanic/Latino, 6.1% Native American/American Indian, 42.6% White/European American, 12.8% multi-racial, and 0.7% non-response). Many of the women had not graduated from high school or completed a General Educational Development test (GED; 44.6%); 11.5% completed high school or a GED, 39.9% completed some college, and 4.1% completed a college degree. A minority of the women (16.6%) had worked in the past 30 days; 10.8% held a part-time job, 6.8% held temporary or one-time positions (e.g., day labor), and 1.4% held a full-time job. Including all sources of income during the past 30 days, 25.0% received less than $100, 28.4% received $100–$299, 15.5% received $300–$499, 16.2% received $500–$699, 9.5% received $700–$999, 4.1% received at least $1000, and one woman refused to report her income.
Measures

Past-year and lifetime PTSD were assessed using the World Health Organization Composite International Diagnostic Interview (WHO-CIDI; Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005; Kessler, Chiu, Demler, & Walters, 2005). The standardized WHO-CIDI algorithm was used to compute diagnoses based on the criteria outlined in the *DSM-IV-TR* (APA, 2000). The diagnoses were coded as (0) no diagnosis and (1) diagnosis.

We used the 26-item check-list from the PTSD module of the WHO-CIDI as indicators of TEs. The specific items for this checklist, which inquire about lifetime experiences with TEs, are provided in Table 1. Responses were coded as (0) no and (1) yes. Childhood maltreatment was measured in terms of experiences with physical (i.e., hit, beat, kicked, or physically hurt), emotional (i.e., called names, told mean things, or was told that she was unwanted), and sexual (i.e., sexual touching and forced sex) abuse by an adult caretaker. Responses for the three types of childhood maltreatment were coded as (0) no and (1) yes. One participant did not answer the questions regarding physical and sexual abuse.

Homelessness-related stressors were assessed in three ways. Victimization on the street (α = .74) was measured by asking the respondents to indicate the number of times they had been beaten up, robbed, asked to do something sexual that they did not want to do, sexually assaulted or raped, threatened with a weapon, and assaulted or wounded with a weapon while they were homeless. Responses were recoded to be 0 = has not happened and 1 = has happened. These items were similar to those used in other studies conducted with homeless populations (e.g., Whitbeck, 2009).

Food insecurity (α = .88) was assessed using the U.S. Food Security Survey Module (U.S. Department of Agriculture, 2012), which includes five questions about the difficulty meeting food needs (e.g., In the past 12 months, did you ever cut the size of your meals or skip meals because there wasn’t enough money for food?). Responses were coded as 0 = no and 1 = yes.

Housing-related problems (α = .84) were measured with six items. Respondents indicated whether they had, for example, problems finding shelter and problems finding showers. Responses to these items were coded as 0 = no and 1 = yes. The items for this measure were developed based on prior work conducted with homeless populations (e.g., Whitbeck, 2009).

Data Analysis

Mean composite scale scores were computed for all multi-item measures. Preliminary examination of the data showed that there were no out-of-range responses, and that the skewness and kurtosis for the continuous variables were well within acceptable levels.

We report our results in three steps. First, we report the frequencies for PTSD diagnoses and TEs in our sample. Second, we report the zero-order associations of PTSD and TEs to the remaining study variables. For PTSD, we report both the correlations and odds ratios (ORs), as they provide different information about the associations (i.e., the magnitude of the associations vs. change in odds of a PTSD diagnosis), although we focus on the former. To be comprehensive, we included both past-year and lifetime diagnoses of PTSD in the first two steps; only lifetime experiences with the TEs were available given the diagnostic instrument we used. Finally, we estimated a series of structural equation models to examine the indirect

## Table 1

<table>
<thead>
<tr>
<th>Event</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badly beaten by spouse or romantic partner</td>
<td>98</td>
<td>66.7</td>
</tr>
<tr>
<td>Someone close died unexpectedly</td>
<td>94</td>
<td>63.5</td>
</tr>
<tr>
<td>Raped</td>
<td>91</td>
<td>62.8</td>
</tr>
<tr>
<td>Sexual assault or molestation other than rape</td>
<td>73</td>
<td>50.3</td>
</tr>
<tr>
<td>Stalked</td>
<td>66</td>
<td>44.6</td>
</tr>
<tr>
<td>Mugged, held up, threatened with weapon</td>
<td>56</td>
<td>37.8</td>
</tr>
<tr>
<td>Saw someone badly injured, killed, or saw dead body</td>
<td>56</td>
<td>37.8</td>
</tr>
<tr>
<td>Badly beaten as a child by parents/caretakers</td>
<td>51</td>
<td>34.7</td>
</tr>
<tr>
<td>Someone close exposed to kidnap, torture, rape</td>
<td>43</td>
<td>29.5</td>
</tr>
<tr>
<td>Life threatening MVA</td>
<td>42</td>
<td>28.4</td>
</tr>
<tr>
<td>Life threatening illness</td>
<td>37</td>
<td>25.0</td>
</tr>
<tr>
<td>Badly beaten; not by parent/caretaker or spouse/partner</td>
<td>31</td>
<td>20.9</td>
</tr>
<tr>
<td>Kidnapped or held captive</td>
<td>30</td>
<td>20.3</td>
</tr>
<tr>
<td>Other extremely traumatic event</td>
<td>28</td>
<td>18.9</td>
</tr>
<tr>
<td>Traumatic event never reported</td>
<td>24</td>
<td>16.2</td>
</tr>
<tr>
<td>Child with life threatening injury or illness</td>
<td>22</td>
<td>14.9</td>
</tr>
<tr>
<td>Major natural disaster</td>
<td>17</td>
<td>11.5</td>
</tr>
<tr>
<td>Man-made disaster</td>
<td>16</td>
<td>10.8</td>
</tr>
<tr>
<td>Life threatening accident (non-MVA)</td>
<td>11</td>
<td>7.5</td>
</tr>
<tr>
<td>Exposed to dangerous toxic chemical/substance</td>
<td>8</td>
<td>5.4</td>
</tr>
<tr>
<td>Saw atrocities or carnage</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td>Was civilian in war, revolution, military coup, invasion</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>Lived as civilian in place with ongoing terror</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Participated in combat</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Served as peacekeeper/relief worker in war zone</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Refugee</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note. N = 148, unless otherwise noted; MVA = motor vehicle accident.

$a_n = 147; ^b_n = 145; ^c_n = 146.$
(i.e., mediated) associations between experiences with childhood maltreatment and past-year PTSD via homeless-related stressors. Preliminary analyses showed that age, race/ethnicity, education, job status, income, and study location were not significantly associated with any of the variables in the model. We thus excluded these potential covariates from our primary model to conserve statistical power.

Due to our small sample size, we estimated separate structural equation models for our tests of mediation. We focused exclusively on past-year PTSD as it provides the most accurate representation of causal ordering possible with our data. Because of issues with collinearity, and because the correlations among sets of items were very similar, we used the three childhood maltreatment items as observed indicators of a latent childhood maltreatment variable (three observed indicators) and the three homeless-related stressor latent variables (with the individual measure items, ranging from 5 to 6 items, as indicators of the first-order latent variables) as indicators of a second-order latent homeless-related stressor variable. For illustrative purposes, our homeless-related stressors mediation model is depicted in Figure 1.

The models were estimated within Mplus 7 (Muthén & Muthén, 1998–2011) using a means and variances adjusted weighted least squares estimator (WLSMV in Mplus). Weighted least squares estimation provides results in terms of probit coefficients, rather than logit coefficients, which requires maximum likelihood estimation. As such, we estimated the logit coefficients by multiplying the probit coefficients by \(1.7^{\text{ORs}}\). There were very little missing data (0.36% of all responses). Details regarding the handling of missing data using WLSMV in Mplus are provided by Asparouhov and Muthén (2010).

For dichotomous dependent variables (i.e., PTSD), we report the unstandardized coefficient and, for additional information, ORs. The models were deemed as providing a good fit to the data if they resulted in a nonsignificant \(\chi^2\) test, had a comparative fit index (CFI) value close to or above .95, and had a root mean square error of approximation (RMSEA) value close to or below .06 (Hu & Bentler, 1999). Because of the sensitivity of the \(\chi^2\) test (Bollen, 1989) we relied more heavily on CFI and RMSEA values for model fit evaluation. We tested the significance of the indirect (i.e., mediated) associations using MacKinnon, Lockwood, Hoffman, West, and Sheets’ (2002) sums of cross-products approach.

Results

Of our sample, 42.6% met criteria for lifetime PTSD and 29.7% met criteria for past-year PTSD. The number of TEs reported ranged from 0 to 16 with a median of 6 and a mean of 6.22 (SD = 3.97). As shown in Table 1, the most commonly reported TEs pertained to physical, sexual, and psychological violence. Approximately two thirds of the women reported having been badly beaten by a spouse or romantic partner or having been raped, and over one half reported sexual assault other than rape. Nearly half of the women reported that they had been stalked, and approximately one third had been mugged, a witness to a dead body or someone badly injured or killed, or badly beaten as a child by parents or caretakers.

The correlations of PTSD (lifetime and past-year) to the remaining study variables (phi coefficients for correlations between dichotomous variables and point-biserial coefficients for correlations between a dichotomous and continuous variable), as well as the ORs for PTSD to the remaining study variables (obtained via separate logistic regression analyses), are provided in Table 2.

Street victimization, food insecurity, and housing problems all were positively and significantly associated with meeting criteria for past-year PTSD. All of the study variables were positively and significantly associated with meeting criteria for
lifetime PTSD. Similarly, all of the study variables were positively and significantly associated with lifetime TEs.

We first estimated a model to verify that the latent childhood maltreatment variable was significantly associated with past-year PTSD. This model provided a good fit to the data, $\chi^2 (3) = 3.27, p = .352, CFI = .99, \text{RMSEA} = .02$. As expected, childhood maltreatment was positively and significantly associated with past-year PTSD, $B = 0.35, SE = 0.12, p = .004, OR = 1.81$.

The homeless-related stressors mediation model provided a good fit to the data based on the CFI (.97) and RMSEA (.04) values, but not the $\chi^2$ test, $\chi^2 (184) = 233.89, p = .008$. For this model, childhood maltreatment was positively and significantly associated with homeless-related stressors, $B = 1.17, SE = 0.33, p = .001$; homeless-related stressors were positively and significantly associated with past-year PTSD, $B = 0.60, SE = 0.17, p = .001, OR = 2.76$; and childhood maltreatment was not significantly associated with past-year PTSD, $B = -0.35, SE = 0.34, p = .302, OR = 0.55$. The indirect association between childhood maltreatment and past-year PTSD was positive and statistically significant, $B = 0.70, SE = 0.30, p = .020$.

Discussion

Three of our findings were particularly notable. The first was the remarkable number of TEs these women reported. Fully two thirds had experienced intimate partner violence, and nearly two thirds had been raped. Half had experienced six or more lifetime TEs. The most prevalent TEs reported were especially violent: beatings by spouse or romantic partner, rape, sexual assault or molestation other than rape, stalking, threatened with a weapon, witnessing violence, and being beaten as a child by caretakers. The second noteworthy finding was the prevalence of PTSD among the women. Nearly half (42.6%) met lifetime PTSD criteria for PTSD. Algorithms for DSM-IV criteria for PTSD. Algorithms for DSM-5 criteria were not yet available when this study was conducted. Finally, these findings should be replicated with other and larger samples of individuals experiencing homelessness to be certain they generalize to other such populations.

In conclusion, these findings provided empirical evidence that episodes of homelessness are traumatic (Goodman et al., 1991). It is highly likely that multiple or prolonged episodes of homelessness are even more stressful, and that the effects will be carried into new situations much like combat- or disaster-related PTSD.

References


