Lifetime trauma exposure and posttraumatic stress disorder in women sentenced to drug court

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1. Introduction

Increasing rates of arrests of nonviolent female drug offenders in recent decades has given rise to the use of drug courts, which offer a treatment option in lieu of incarceration. Criminal offenders who participate in these programs have histories of heavy substance use and continue to live in the communities where they have experienced significant hardship, yet little is known about the nature and degree of exposure to trauma and the prevalence of posttraumatic stress disorder (PTSD) in this growing population. The extent to which PTSD may be a marker of familial and socioeconomic instability in this high-risk group has also not been explored.

1.1. Trauma exposure and PTSD in female substance abusers and criminal offenders

The elevated rate of PTSD in women with substance use disorders is well documented (Chilcoat and Breslau, 1998; Perkonigg et al., 2000; Breslau et al., 2003; Reed et al., 2007) and likely reflects multiple pathways between the disorders (Stewart et al., 1998), including ‘self-medication,’ i.e., the use of substances to attempt to reduce trauma-related negative affect (first proposed as the ‘tension-reduction hypothesis’ by Cappell and Greeley, 1987). Women with histories of problem substance use are also at high risk for trauma exposure (possibly through exposure to environments where risk for violence is high (Cottler et al., 1992; Afful et al., 2010)); thus, the reverse sequence is possible as well, with substance-related problems leading to trauma and PTSD. Although the direction(s) of effect cannot easily be determined, studies of heavy drug users have produced clear evidence that rates of adult trauma exposure and PTSD in this population are high (Helzer et al., 1987; Frye et al., 2001; Darke et al., 2010). For example, in a sample of illicit drug users recruited from neighborhoods with high rates of drug arrests and prostitution, 42% of women reported experiencing a traumatic event (the most common being rape and witnessing someone being seriously injured or killed) and 28% of those exposed met criteria for PTSD (Cottler et al., 2001). Similar statistics were reported in a study of heavy substance-using African–Americans: 42% reported exposure to a traumatic event and, of these, 44% met criteria for PTSD (Johnson et al., 2006).
PTSD is highly prevalent in female criminal offenders as well. Estimates from studies of adult prisoners, juvenile offenders, and pretrial jail detainees range from 20% to 45% (Teplin et al., 1996; Butler et al., 2005; Goff et al., 2007; Ariga et al., 2008), nearly three times the prevalence reported in the general population (12%) (Resnick et al., 1993; Kessler et al., 1995; Breslau et al., 1998). Drug court participants have rarely been the focus of such studies, but given the similarity between female community-dwelling heavy drug users and incarcerated offenders with respect to trauma and PTSD history, women with both substance-related problems and histories of arrest would be expected to resemble closely these other high-risk populations.

1.2. Psychosocial adjustment, PTSD, and substance-related problems

PTSD is frequently characterized by detachment from others, loss of interest in pleasurable activities, as well as irritability and angry outbursts. These behaviors can significantly impact interpersonal relationships and interfere with occupational functioning, yet the association of PTSD with familial status (e.g., married or living as if married, raising children) and socioeconomic status has rarely been addressed. Among the few investigations to do so are two studies of Vietnam-era veterans, which report lower income, education, and occupational achievement, and higher rates of divorce and unemployment in veterans with PTSD compared to those without the disorder (Jordan et al., 1992; McCarron et al., 1995). Additionally, in a population-based study by Amaya-Jackson et al. (1999), posttraumatic stress symptoms were associated with higher rates of divorce and higher likelihood of using food stamps and receiving disability. However, in the absence of a comparison group of trauma-exposed individuals without PTSD, it could not be determined if these associations were attributable to PTSD specifically rather than trauma in general. Laffaye and colleagues’ study of interpersonal violence (IPV) in women (2003) is among the few studies to include both a PTSD group and a trauma without PTSD group. They found that women who had experienced IPV reported fewer years of education and lower Hollingshead scores (indicating lower socioeconomic status) than women who had not experienced IPV, but there were no distinctions by PTSD status on these measures.

Whether this pattern of greater hardship in individuals who suffer from PTSD compared with their counterparts without the disorder holds for women who participate in drug court has yet to be investigated. Many of the same problems, such as socioeconomic difficulties, prostitution, and homelessness, that are associated with a history of heavy drug use (Fischer and Breakey, 1991; Booth et al., 1993; Hodgins et al., 1995; Kemp et al., 2006) are also associated with PTSD (McCarren et al., 1995; Farley and Barkan, 1998; Amaya-Jackson et al., 1999; Farley et al., 2005; Gwadz et al., 2007). It may be the case then that there is a ceiling effect, such that PTSD, in the context of illicit substance abuse and the wide range of related difficulties, is not associated with added risk for lower socioeconomic status or lower likelihood of having a spouse or children. Similar to Laffaye et al.’s (2003) findings with regard to education and socioeconomic status, PTSD may not confer risk above and beyond that conferred by trauma exposure alone.

1.3. Assaultive vs. non-assaultive events as precipitators of PTSD

Assaultive traumatic events, such as sexual assault or mugging, are significantly more likely than non-assaultive events, such as natural disasters or serious car accidents, to lead to the development of PTSD (Breslau et al., 1991, 1997, 1998; Resnick et al., 1993; Kessler et al., 1995; Hapke et al., 2006). In earlier work by our group, for example, risk for developing PTSD following an assaultive event was 19 times higher than risk following a non-assaultive event (Sartor et al., 2011). In the general population, identification of a non-assaultive event as the most distressing may be reflective of a less severe trauma history, the implication being that if an assaultive event had occurred, that event would have been identified as the worst. In heavily traumatized populations, where exposure to a range of traumatic events is the norm, when a non-assaultive event is identified as the worst, the level of distress associated with the event is likely to be higher than the same event identified in a lower risk population. Thus, in high-risk populations, the difference in risk for PTSD attributed to assaultive vs. non-assaultive events may be attenuated.

1.4. Goals of the current study

In the current study, we examine a wide range of socio-demographic factors in relation to trauma exposure and PTSD in a sample of women recruited through drug courts. The two primary aims of our investigation are: (i) to characterize female offenders participating in drug court programs with respect to trauma exposure and PTSD and (ii) to test for differences in indicators of socioeconomic status and familial status between female offenders with no history of trauma exposure, trauma exposure without PTSD, and trauma exposure that resulted in PTSD, using a 3-group design. We also test whether PTSD risk associated with assaultive vs. non-assaultive traumatic events reported in prior studies generalizes to this high-risk population. In addition to furthering our understanding of the prevalence and correlates of trauma exposure and PTSD among female drug court participants, findings from the current investigation will provide insight into the resources members of this population need most.

2. Methods

2.1. Sample and procedure

Between 2005 and 2008, the Sisters Teaching Options for Prevention (STOP) project enrolled 319 female offenders from local drug courts into a community-based HIV intervention aimed at reducing drug use and sexual risk. In addition to charges for possession of and/or intent to distribute illicit substances, drug court sentences can be imposed for violations of city ordinances such as prostitution; thus, not all individuals in the study were arrested for drug charges. Participants ranged in age from 18 to 67 years (mean = 36.2, S.D. = 9.5). Over two-thirds (69%) of the sample self-identified as Caribbean or African-American; 26% self-identified as Caucasian, and 5% as another ethnicity. Sixty percent of the sample met 12-month DSM-IV criteria for cocaine dependence, 49% for alcohol dependence, 22% for cannabis dependence, and 19% for opioid dependence. Forty two percent reported using cocaine in the 30 days prior to the interview. Median duration of lifetime arrests was six.

Participants were interviewed by trained interviewers who met a minimum educational requirement of a bachelor's degree in social work, psychology, criminal justice, or public health. (Several had completed masters or doctoral educational requirements). Baseline interviews took approximately 2 h to complete and were conducted in private at a community location after informed consent was obtained, as approved by the Washington University Human Research Protection Office. A certificate of confidentiality was obtained to protect against forced disclosure of identifiable information collected in the course of the study. Per request of the drug court, we did not financially renumerate participants for completing the baseline interview. Audiocassettes of interviews were reviewed throughout the study to ensure accuracy and fidelity of protocols. After completing the baseline interview, participants were randomly assigned to standard care or Peer Partnered Case Management Intervention. (Acartainment of the sample and study procedures are described in more detail in a prior publication (Johnson et al., 2011)). The goal of the original study was to evaluate the efficacy of the peer-partnered intervention. The current study is a secondary data analysis project utilizing data collected in baseline interviews.
2.2. Assessment

Exposure to traumatic events and DSM-IV PTSD were assessed via the Computerized Diagnostic Interview Schedule, Version IV (C-DIS IV (Robins et al., 2000)), which has demonstrated fair to good reliability (K = 0.61; 95% CI: 0.33–0.89) for the assessment of trauma exposure among substance abusers (Horton et al., 1998). Participants were asked whether they had experienced any of the events listed on a standard traumatic event checklist (see Table 1). Those who endorsed one or more of the events were screened for PTSD using the following script:

‘After a very frightening or horrible experience, some people can’t get it out of their minds. They may lose interest in other people or activities; they may not sleep well; and they may become very jumpy and easily startled or frightened. Did (any of these) (this) experience(s) have that effect on you?’ (If yes): ‘Which one caused the most problems?’

If a respondent identified an event, this event (hereafter referred to as the ‘worst event’) served as the reference event in the subsequent PTSD assessment. PTSD was diagnosed according to DSM-IV criteria: one or more re-experiencing symptoms, three or more avoidance/numbing symptoms, and two or more arousal symptoms lasting for more than a month and causing clinically significant distress or impairment in functioning.

Sociodemographic data, information on participation in illegal activities to earn income, and past 30 day cocaine use were ascertained through the Washington University Risk Behavior Assessment for Women (WU RBA-W (Shacham and Cottler, 2010)), a revision to the RBA developed for the NIDA HIV Cooperative Agreement studies (Needle et al., 1995). Substance use disorder diagnoses were made using the Substance Abuse Module (Cottler, 2000; Horton et al., 2000).

2.3. Trauma status and assaultive vs. non-assaultive traumatic events

The following traumatic events were included in the assaultive category: (1) shot or stabbed, (2) mugged, threatened with a weapon, or experienced a break-in or robbery, (3) raped or sexually assaulted by a relative, (4) raped or sexually assaulted by someone other than a relative, and (5) held captive, tortured, or kidnapped. The remaining events were considered to be non-assaultive. Participants were categorized, based on their responses to the C-DIS IV traumatic event checklist and PTSD assessment, into one of three groups: no traumatic events endorsed (No-TE; n = 29), trauma exposure without PTSD (TE-Only; n = 223), or trauma exposure that resulted in PTSD (TE-PTSD; n = 64). Three cases who received PTSD diagnoses based on the checklist item ‘any other experience that was terrible, frightening, or horrible’ were dropped from analyses, as we did not have sufficient information to confirm that these other experiences were true qualifying events.

2.4. Data analysis

Trauma exposure and likelihood of a given event leading to PTSD were analyzed by calculating: (a) rates of exposure to each of the traumatic events; (b) proportion of those exposed who identified the event as the worst; and (c) prevalence of PTSD by worst event. Potential differences in sociodemographic characteristics between the three trauma groups were analyzed with a χ² test of association and (where the expected count in any cells in the contingency table was lower than five) Fisher’s exact test. Significant results were followed up with χ² tests of association using a dichotomous variable to represent trauma exposure (i.e., the No-TE group vs. the combined TE-PTSD and TE-Only group) to determine whether the observed effect was attributable simply to distinctions between trauma-exposed and non trauma-exposed women. A logistic regression analysis was conducted to test for differences in likelihood of meeting PTSD criteria for assaultive vs. non-assaultive worst events. Among the TE groups, a power analysis was conducted to determine the power to detect differences by trauma type using expected odds ratios derived from the literature (Resnick et al., 1993; Breslau et al., 1998; Creamer et al., 2001). Power was estimated to be 80% for an odds ratio of 2.5, 90% for an odds ratio of 3.0.

3. Results

3.1. Rates of trauma exposure and PTSD

Rates of exposure to traumatic events queried in the C-DIS IV are reported in column 1 of Table 1. (Note: Military combat-related events were queried on the trauma checklist, but are not shown because none of the respondents reported any military combat experience.) Ninety-one percent of participants endorsed one or more of the traumatic events on the checklist; 81% reported experiencing at least one assaultive event. The most commonly reported events were: experiencing the unexpected sudden death of a close friend or relative (66.8%), sexual assault by someone other than a relative (65.2%), being mugged, threatened with a weapon or experiencing a break-in (53.0%), and seeing someone being seriously injured or killed (47.7%). In column 2 of Table 1, we report the percentage of respondents who experienced the event that identified it as the worst. Just over half of the women who endorsed one or more events on the trauma checklist (160 out of 290) endorsed the trauma symptoms screening question and were assessed for PTSD on the event.

Table 1

<table>
<thead>
<tr>
<th>Sample/ subsample</th>
<th>Experienceda</th>
<th>Identified as worstb</th>
<th>Qualified for PTSDc</th>
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<tbody>
<tr>
<td></td>
<td>Full sample</td>
<td>Experienced event</td>
<td>Identified event as worst</td>
</tr>
<tr>
<td><strong>Assaultive events</strong></td>
<td></td>
<td></td>
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<tr>
<td>Shot or stabbed</td>
<td>26.0% (n = 81)</td>
<td>9.6% (n = 8)</td>
<td>12.5% (n = 1)</td>
</tr>
<tr>
<td>Mugged, threatened with weapon, or experienced break-in or robbery</td>
<td>53.0% (n = 169)</td>
<td>4.7% (n = 8)</td>
<td>50.0% (n = 4)</td>
</tr>
<tr>
<td>Raped or sexually assaulted by relative</td>
<td>34.8% (n = 111)</td>
<td>22.5% (n = 25)</td>
<td>48.0% (n = 12)</td>
</tr>
<tr>
<td>Raped or sexually assaulted by someone other than relative</td>
<td>65.2% (n = 208)</td>
<td>17.8% (n = 37)</td>
<td>37.8% (n = 14)</td>
</tr>
<tr>
<td>Held captive, tortured, or kidnapped</td>
<td>22.6% (n = 72)</td>
<td>9.7% (n = 7)</td>
<td>57.1% (n = 4)</td>
</tr>
<tr>
<td><strong>Any assaultive event</strong></td>
<td>80.6% (n = 257)</td>
<td>33.1% (n = 85)</td>
<td>41.2% (n = 35)</td>
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<tr>
<td><strong>Non-assaultive events</strong></td>
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<tr>
<td>Been in disaster (e.g., fire, flood, earthquake, tornado, hurricane, bombing, plane crash)</td>
<td>29.8% (n = 95)</td>
<td>2.1% (n = 2)</td>
<td>50.0% (n = 1)</td>
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<tr>
<td>Learned that exposed to radiation, dioxin, or other dangerous materials</td>
<td>1.3% (n = 4)</td>
<td>0% (n = 0)</td>
<td>–</td>
</tr>
<tr>
<td>Experienced unexpected sudden death of close friend or relative</td>
<td>66.8% (n = 213)</td>
<td>16.0% (n = 34)</td>
<td>47.1% (n = 16)</td>
</tr>
<tr>
<td>Diagnosed with life-threatening illness</td>
<td>16.6% (n = 53)</td>
<td>5.7% (n = 3)</td>
<td>33.3% (n = 1)</td>
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<tr>
<td>Been in serious accident</td>
<td>33.5% (n = 107)</td>
<td>6.7% (n = 5)</td>
<td>40.0% (n = 2)</td>
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<tr>
<td>Seen someone being seriously injured or killed</td>
<td>47.7% (n = 152)</td>
<td>11.2% (n = 17)</td>
<td>35.3% (n = 6)</td>
</tr>
<tr>
<td>Unexpectedly discovered dead body</td>
<td>17.9% (n = 57)</td>
<td>5.3% (n = 3)</td>
<td>33.3% (n = 1)</td>
</tr>
<tr>
<td>Learned that one of these events happened to close friend or relative (not present)</td>
<td>39.5% (n = 126)</td>
<td>2.4% (n = 3)</td>
<td>66.7% (n = 2)</td>
</tr>
<tr>
<td><strong>Any non-assaultive event</strong></td>
<td>90.3% (n = 288)</td>
<td>23.3% (n = 67)</td>
<td>43.3% (n = 29)</td>
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a Percentages calculated using full sample (n = 319) as denominator; 290 reported one or more events.
b Percentages calculated by dividing the number of participants who identified the event as the worst by the number of participants who experienced the event; 160 identified a ‘worst’ event.
c Percentages calculated by dividing the number of participants who met PTSD criteria based on exposure to that event by the number of participants who identified that event as the worst; 64 met PTSD criteria.
identified as the worst. The event most likely to be identified as the worst was sexual assault (22.5% of women assaulted by a relative, 17.8% by someone other than a relative), followed by experiencing the unexpected sudden death of a close friend or relative (16.0%), and seeing someone being seriously injured or killed (11.2%). (It should be kept in mind that failing to identify a given event as the worst does not necessarily mean that it was not distressing; rather, it either did not cause as many problems as another event or, as in nearly half of cases, none of the events experienced led to symptoms described in the screen for the PTSD assessment.) Twenty percent of participants met full DSM-IV diagnostic criteria for PTSD. As seen in column 3 of Table 1, learning that a traumatic event happened to a loved one was the ‘worst event’ most likely to lead to PTSD; 66% of women who identified this event as the worst met PTSD criteria. With the exception of the event ‘being shot or stabbed,’ for the remaining events, between one-third and half of participants assessed for PTSD met diagnostic criteria. Ninety-one percent of women who identified a non-assaultive event as the worst also reported experiencing at least one assaultive event.

3.2. Characteristics of trauma groups

Demographics, indicators of past year socioeconomic status, and participation in illegal activities to earn income are reported by trauma group in Table 2. The TE-PTSD, TE-Only, and No-TE groups did not differ significantly with respect to age, ethnicity, education, marital status, likelihood of having children, or raising their own children. Past year employment, income, receipt of public assistance, and participation in illegal activities other than prostitution to earn income also did not vary by trauma status. However, group differences were found for engaging in prostitution in the past year (χ²(2) = 6.8, p = 0.03) and being homeless (at the time of interview; χ²(2) = 6.7, p = 0.04). Rates of prostitution and homelessness were significantly higher in the two trauma groups compared to the No-TE group. Follow-up χ² tests of association comparing trauma-exposed (collapsing across TE-Only and TE-PTSD groups) vs. non-trauma-exposed participants were statistically significant for prostitution (χ²(1) = 5.8, p = 0.01) and homelessness (χ²(1) = 6.56, p = 0.01).

3.3. Risk for PTSD by assaultive vs. non-assaultive event type

As seen in Table 1, the proportion of women meeting diagnostic criteria for PTSD based on the assessment of a non-assaultive ‘worst event’ (43.3%) is nearly identical to the proportion meeting criteria based on the assessment of an assaultive ‘worst event’ (41.2%). A logistic regression analysis testing for distinctions by assaultive vs. non-assaultive events in likelihood of meeting PTSD criteria revealed no significant differences by event type (OR = 0.91; 95%CI: 0.48–1.75).

4. Discussion

The current study expands the existing literature on trauma and PTSD in women by providing a close look at an understudied and growing population of women with complex psychosocial, financial, legal, and health-related needs. Our findings highlight the saturation of trauma exposure and hardship in this high-risk population. They also demonstrate that certain markers of risk for negative outcomes in the general population, such as the presence of PTSD and experience of assaultive vs. non-assaultive events are less useful in this high-risk population for identifying women with the greatest need for services addressing psychosocial and financial problems.

4.1. Rates of trauma exposure and PTSD

Trauma exposure is almost universal in our sample. Ninety-one percent of participants reported experiencing one or more traumatic events (on average, six different types of events), 81% at least one assaultive event. The event most commonly identified as the worst was sexual assault. The prevalence of PTSD is considerably higher than in the general population (20% vs. approximately 12% (Resnick et al., 1993; Kessler et al., 1995; Breslau et al., 1998)), as would be expected given the elevated rates of PTSD reported in other studies of community-dwelling heavy drug users (16–19%) (Helzer et al., 1987; Cottler et al., 2001; Afful et al., 2010) and female criminal offenders (20–45%) (Teplin et al., 1996; Butler et al., 2005; Goff et al., 2007; Ariga et al., 2008).

There are a number of differences between the female drug court participants we studied and the general population, which are important to keep in mind when interpreting differences by trauma status in the sample. For example, well over half of women in our study were unemployed in the past year (compared with 3.9% of women in the same age range in the general population at the time of data collection (Bureau of Labor Statistics, 2007)), one in six have stayed in battered women’s shelters, and approximately two-thirds have household members

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<th>Table 2</th>
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<td>Demographics by trauma/PTSD status (%).</td>
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<tr>
<td>TE-PTSD n = 64</td>
</tr>
<tr>
<td><strong>Age (in years)</strong></td>
</tr>
<tr>
<td>Currently married or living as if married</td>
</tr>
<tr>
<td>African-American/Caribbean ethnicity</td>
</tr>
<tr>
<td>One or more biological children</td>
</tr>
<tr>
<td>Raised (or raising) all biological children</td>
</tr>
<tr>
<td><strong>Socioeconomic status and participation in illegal activities to earn income in past 12 months</strong></td>
</tr>
<tr>
<td>Homeless</td>
</tr>
<tr>
<td>Employed</td>
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<tr>
<td>High school education or higher</td>
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<tr>
<td>Income of $4000 or greater</td>
</tr>
<tr>
<td>Received assistance for food (e.g., foodstamps, WIC)</td>
</tr>
<tr>
<td>Eligible for subsidized housing or energy assistance</td>
</tr>
<tr>
<td>Engaged in prostitution</td>
</tr>
<tr>
<td>Received income from illegal activities other than prostitution</td>
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* Test of association significant at the p < 0.05 level.

* Follow-up test of association comparing no trauma to combined TE groups significant at the p < 0.05 level.
who receive food stamps, WIC, or reduced price school meals (compared with 8% in the general population (Food and Nutrition Service, 2011, 2012; World Hunger Education Service, 2012)). Despite the overall high degree of hardship in this high-risk sample, we did not see a ‘ceiling effect’ for all indicators of socioeconomic and psychosocial stability assessed in our study. Rates of homelessness and prostitution were significantly higher in the trauma-exposed groups compared to the no trauma group. However, of greatest relevance to our study’s aims, rates of homelessness and prostitution were equally elevated in the TE-PTSD and TE-Only groups, indicating that female drug users who meet criteria for PTSD do not evidence worse outcomes in these domains than those who have experienced traumatic events but did not develop the disorder. In this high-risk population, PTSD may not be a marker of the severity of such potential negative correlates of trauma as homelessness and involvement in prostitution.

4.2. Sociodemographic characteristics, trauma, and PTSD

Studies of military veterans and general population-based studies examining indicators of socioeconomic status and interpersonal functioning in relation to PTSD have found poorer functioning in individuals with PTSD than in their unaffected counterparts for a wide range of outcomes, including income, education, employment, use of public assistance, and divorce (Jordan et al., 1992; McCarren et al., 1995; Amaya-Jackson et al., 1999; Laffaye et al., 2003). By including a trauma without PTSD group in our study, we were able to examine distinctions both by trauma exposure and by PTSD status within trauma-exposed individuals on familial status, socioeconomic status, and involvement in illegal activities to earn income. The only differences we observed were between trauma-exposed vs. non trauma-exposed women and were limited to indicators of severe difficulties (i.e., prostitution and homelessness). The absence of differences by trauma status (exposed vs. unexposed) with respect to employment, marital or parental status, income, or use of public assistance in our study can likely be attributed to the overall high degree of hardship in the population of women sentenced to drug court. The elevated prevalence of homelessness and prostitution in trauma-exposed women is likely a reflection of the cyclical nature of the relationship of trauma exposure to homelessness and prostitution. That is, they are indicators of both psychosocial instability that can result from trauma exposure and vulnerability to traumatic events associated with being a sex worker and with living on the streets or staying in homeless shelters (Buhrich et al., 2000; Campbell et al., 2003; Kushel et al., 2003; Christensen et al., 2005).

We found support for the hypothesis that PTSD is not associated with greater hardship than trauma in the absence of PTSD among female drug court participants. The elevated rates of prostitution and homelessness in women who had experienced traumatic events were not specific to individuals with PTSD; they were observed in both groups of trauma-exposed women. Only rarely have studies of PTSD made distinctions within the ‘no PTSD group’ between individuals who have been exposed to trauma but did not develop PTSD vs. those who did not report experiencing any traumatic events. By doing so, it is possible to determine if a given outcome is attributable to PTSD-specific vs. more general trauma-related influences, or, as in our study, whether the presence of a trauma-specific psychiatric disorder (i.e., PTSD) is more strongly associated with indicators of hardship than trauma in the absence of such symptomatology. Among the few other investigations to take this approach was Laffaye et al.’s study examining the relationship of socioeconomic status and education level with IPV exposure in women (2003). Results of the current study are consistent with their finding that women who had experienced IPV but did not develop PTSD did not differ on these measures from those who developed PTSD.

4.3. Assaultive vs. non-assaultive traumatic events

Our sample differs from general population-based samples with respect to the relevance of trauma type to risk for developing PTSD. Investigations conducted with general population-based samples have consistently found higher rates of PTSD in individuals reporting assaultive vs. non-assaultive traumas as their most distressing events (Breslau et al., 1991, 1997, 1998; Resnick et al., 1993; Kessler et al., 1995; Hapke et al., 2006; Sartor et al., 2011), but we did not find any differences in PTSD risk between (worst) assaultive and non-assaultive events—despite having sufficient statistical power to do so. This distinction likely relates to the saturation of trauma in this sample. Over 80% of women in our study reported experiencing assaultive trauma. Ninety-one percent of women who identified a non-assaultive event as the worst had also experienced an assaultive trauma, suggesting that the severity and emotional impact of these non-assaultive events were quite high, perhaps higher than in lower risk populations where identification of a non-assaultive event as the most distressing may reflect the absence of exposure to assaultive events.

4.4. Limitations

The current study has certain limitations to consider. First, as our goal was to characterize trauma exposure and PTSD in this high-risk population and not to determine the direction of effects between trauma and the correlates of interest, inferences regarding causality cannot be drawn. Second, traumatic events were presented in checklist form, rather than being defined behaviorally. When querying sexual assault, using the term ‘rape’ (as opposed to ‘being forced to have sex’) can result in underreporting (Fricker et al., 2003; Weaver, 1998), although the extremely high proportion of participants endorsing rape indicates it is unlikely this occurred in our study. Third, the trauma checklist did not include an item referencing being beaten or struck. The items ‘threatened with weapon’ and ‘held captive, tortured, or kidnapped cover some but not all physically assaultive events. Fourth, the potential influence of alcohol and opiates on PTSD symptoms should be considered when judging the reliability of PTSD symptom reports in a heavy substance using sample such as ours. Fifth, the relatively small size of the no trauma group reduced power to detect significant differences between the no trauma and trauma-exposed groups. Sixth, although the reference event in the PTSD assessment was chosen by asking respondents whether they had experienced certain problems such as sleep difficulties, loss of interest in other people or activities, and jumpiness (i.e., PTSD symptoms), and which event had caused them the most problems, it is possible that in certain cases PTSD developed following a different event, thus leading to the misclassification of a PTSD case as absent for the disorder.

4.5. Conclusions

Female drug court participants are at high risk for experiencing a range of traumatic events and even in the context of the overall high degree of hardship in this population, exposure to traumatic events was associated with elevated rates of homelessness and prostitution in our sample. Although PTSD is more prevalent in these women than in the general population, the majority of trauma-exposed female offenders in our study did not develop the disorder; however, they experienced socioeconomic
and psychosocial difficulties to the same extent as women who did not develop PTSD. Our findings have important public health implications. The literature on trauma and substance misuse supports a cyclical model of the association, with heavy substance use both leading to and resulting from exposure to traumatic events (Stewart et al., 1998). Drug courts present an opportunity to connect women with a history of trauma exposure to resources for managing health-related, financial, and legal problems, and our results indicate that the need for these resources is not limited either to women with PTSD or to women who have experienced assaultive events. In addition to improving the overall well-being of these women and their families, disrupting the trauma-substance abuse cycle reduces the significant burden it places on both the legal and healthcare systems (Golding et al., 1988; Koss et al., 1990; Waigandt et al., 1990; Greenberg et al., 1999; Deykin et al., 2001).

4.6. Future directions

Given the scarcity of literature on trauma and related psychopathology in female offenders with a history of heavy drug use, the first step toward furthering this line of research is to attempt to replicate these findings in a larger sample of women of diverse ethnic backgrounds, including those not represented in our sample (e.g., Hispanic, Asian). Gathering information regarding frequency and timing of traumatic events would greatly enhance our ability to identify pathways between traumatic events and the psychosocial difficulties associated with trauma. A better understanding of these pathways, including their possible bidirectional nature, is critical to the development of prevention and intervention efforts in this high-risk population.

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