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Correlates of Posttraumatic Stress Symptoms among Formerly Incarcerated, Homeless Women

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Abstract

Posttraumatic stress symptoms are a pressing issue among women experiencing incarceration and homelessness. Baseline data were collected among formerly incarcerated homeless women (N=130) who were on average 38.9 (SD = 11.36, range 19–64) years of age and recruited into a pilot randomized control trial (RCT) intervention program. A logistic regression was used to assess correlates of PTSD symptoms. The majority of the sample self-reported witnessing violence (85%) and had moderate PTSD symptoms (M=1.61, SD=1.62, range: 0–4). No past month drug use ($p=0.006$), higher anger scores ($p=0.002$), greater emotional support ($p=0.009$), and psychological frailty ($p=0.02$) were significantly associated with higher odds of PTSD symptoms. Moreover, women who experienced minor family conflicts had lower odds of PTSD symptoms

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relative to those that had family conflicts most of the time ($p=0.02$). Similarly, controlling for all other variables, women who had a higher positive social interaction score also had lower odds of PTSD symptoms ($p=0.006$). These findings are a call to action for academicians, service providers, and health practitioners to develop an intervention which integrates comprehensive PTSD screening, and discussion of ways to build coping skills, relationships with family and social networks, and utilizes a trauma-informed approach during reentry.

Keywords

homelessness; formerly incarcerated; posttraumatic stress disorder symptoms; trauma-informed; and women

Introduction

One of the most rapidly growing populations behind bars is women (Ahmed, Angel, Martell, Pyne, & Keenan, 2016; Golder et al., 2014; Mollard & Brage Hudson, 2016). In California, between 2010 and 2013, there was a 23.7% increase in the average daily female jail population (Bloom, 2015); further, as of 2019, there were 5,065 women incarcerated (California Department of Corrections and Rehabilitation (CDCR), 2019). Upon exiting jail/prison, individuals may be placed on probation/parole; as of 2017, most recent statistics indicate that there are approximately 5,971 women on parole in the state of California (California Department of Corrections and Rehabilitation (CDCR), 2018).

The national profile of women behind bars reflects racial, health and employment disparities, along with trauma survivorship (Bloom, 2015; Swopes, Davis, & Scholl, 2015). A history of trauma and victimization is a common experience among homeless (Hopper, 2010) and justice-involved women. In separate United States (U.S.) based studies, lifetime post-traumatic stress disorder (PTSD) and PTSD in the last 12 months have been assessed among homeless women (Whitbeck, Armenta, & Gentzler, 2015) and women in jails (Lynch et al., 2014). Among U.S.-based, homeless women in mid-sized cities, less than half (42.6%) experienced lifetime PTSD and less than half (39.7%) experienced PTSD in the last year (Whitbeck, Armenta, & Gentzler, 2015). Among women sampled in jails across different U.S. cities, over half (53%) met the criteria for PTSD and 28% met the criteria for PTSD in the last 12 months (Lynch et al., 2014). In one study among incarcerated women ($N=186$), about three quarters (70%) reported being pushed or shoved (DeCou, Lynch, Cole, & Kaplan, 2016). Further, in the year prior to incarceration, over half (53%) were threatened with serious violence, and less than one-third (31%) were physically forced to have sex (DeCou et al., 2016).

Posttraumatic stress disorder symptoms (PTSD) may develop as a response to a directly experienced traumatic event or a witnessed traumatic event (American Psychiatric Association [APA] Diagnostic and Statistical Manual Task Force, 2013). The PTSD diagnostic criteria includes “exposure to an actual or threatened death, serious injury or sexual violence; presence of intrusive symptoms associated with the traumatic event; persistent avoidance of stimuli associated with a traumatic event; negative alterations in mood or cognition; marked alterations in arousal and reactivity” (APA, 2013, pages 271–

272). Further, these disturbances may last for more than one month, cause clinical distress or impairment, etc (APA, 2013, page 272). In the next section, a discussion of trauma-related experiences and factors associated with PTSD symptoms will be presented.

Trauma-Related Experiences and Factors Associated with PTSD Symptoms

Early childhood traumatic experiences may contribute to a cyclical pattern of violence (Lisak & Beszterczey, 2007). Messina and Grella (2006) studied cumulative childhood traumatic events, adult physical and mental health problems among incarcerated women in substance abuse treatment programs (N=500, ages 21 to 57). Women who had experienced childhood traumatic events were significantly more likely to have alcohol problems ($p<.001$), gynecological problems ($p<.004$) and fair/poor health ($p<.003$) (Messina & Grella, 2006). Also, a significant positive relationship was found between number of traumatic childhood events and number of times arrested ($p .001$) (Messina & Grella, 2006).

Childhood adverse events influence physical, mental and behavioral health outcomes. A retrospective cohort study (N=17,337) of health maintenance organization members assessed adverse childhood experiences (ACE) and their relationship between depressed affect, suicide attempts, multiple sexual partners, sexually transmitted disease (STDs) smoking and alcoholism (Dube, Felitti, Dong, Giles, & Anda, 2003). The increase in the ACE score increased the risk of depressed affect, STDs and sexual partners (Dube, Felitti, Dong, Giles, et al., 2003). Further, there was also a relationship between the ACE score, drug use (Dube, Felitti, Dong, Chapman, et al., 2003), along with risk of attempted suicide (Dube et al., 2001).

Incarcerated women have reported past abuse (James & Glaze, 2006). Among incarcerated women (N=204), 61.8% reported a history of physical abuse, 38.2% reported a history of sexual abuse and before 16, while 49% reported a history of intimate partner violence within the year prior to their incarceration (Ramaswamy et al., 2011). For those who have experienced traumatic life events, anger and lower self-esteem may ensue and influence PTSD symptoms. Relatedly, anger may influence treatment outcomes (McHugh et al., 2012) and is associated with PTSD severity (Orth & Wieland, 2006). Anger can function as a protective mechanism assisting with survival mode and avoidance of feelings of fear (McHugh et al., 2012; Orth & Wieland, 2006). There is also an empirical relationship between self-esteem and PTSD symptoms; in particular, previous research has found that among those who survived traumatic events, self-esteem and appraisal support buffered PTSD development (Hyman, Gold, & Cott, 2003).

Substance use may be used as a coping mechanism (Asberg & Renk, 2012; Khantzian, 1985) and contribute to women becoming incarcerated (James & Glaze, 2006) because there is an increased frequency of interacting with law enforcement while inebriated. Among female state prisoners who were incarcerated and had a mental health problem, about 68% reported past physical abuse or sexual abuse, while 34% reported cocaine or crack use in the month before their arrest (James & Glaze, 2006). Thus far, the aforementioned sections have discussed the background of the problem, trauma-related experiences and factors associated with PTSD symptoms and the next section will discuss the theoretical models which have guided the analyses which will follow with a discussion of the aims and hypotheses.

Theoretical Model: The Trauma Process Model (TPM) and Frailty Framework among Vulnerable Populations (FFVP)

The selection of variables for this exploratory analysis was guided by the Trauma Process Model (TPM) (Covington, 2003, 2008) and the Frailty Framework among Vulnerable Populations (FFVP) (Salem et al., 2014). The TPM outlines the process of trauma, how it is interrelated with substance use and other disorders (Covington, 2003, 2008) while the FFVP aims to explore antecedent factors (i.e., individual-level, situational, health-related, behavioral, resource, etc) which influence frailty and adverse outcomes among vulnerable populations (Salem et al., 2014). According to Covington (2003, 2008), in the TPM model, a traumatic event overwhelms the physical and psychological systems and the response to trauma may include numbing, hypervigilance, and hyperarousal. Following a traumatic event such as witnessing violence, the stress response neural systems may be overactive and hypersensitive affecting the development of the brain (Perry, 1996). These experiences may sensitize the nervous system, leading to changes in the brain (Covington, 2003, 2008).

According to Covington (2003, 2008), current stressors may include the reminder of the trauma, life events of lifestyle which lead to a painful emotional state. The main outcomes of the TPM include retreat (i.e., isolation, dissociation, depression, anxiety), self-destructive action (i.e., substance abuse, eating disorders, deliberate self-harm, suicidal actions), and destructive action (i.e., aggression, violence, and rages) (Covington, 2003, 2008). Several hypothesized variables which are integrated into this exploratory analysis include anger, conflict, and painful relationships. For many women, there is a cyclical pattern of violence (Nyamathi, Salem, et al., 2017) in which individuals may have personally witnessed violence or have experienced traumatic life events which may lead to criminal justice engagement. Many women who have criminal justice involvement histories have used self-destructive action, such as drugs and/or alcohol (Nyamathi, Salem, et al., 2017). These experiences amalgamate leading to frailty which is an accumulation of deficits (Rockwood & Mitnitski, 2007) in physical, psychological and social domains (Gobbens, van Assen, Luijckx, & Schols, 2012). The FFVP delineates antecedents to tripartite frailty domains (i.e., physical, psychological and social) which include, but, are not limited to individual-level, situational (i.e., length of time homeless, incarceration), behavioral (i.e., alcohol and drug use), health-related (i.e., PTSD), and resource factors (i.e., emotional, tangible, affectionate support, and positive social interaction) which contribute to physical, psychological and social frailty (Salem et al., 2014). Both the TPM and FFVP aid us in understanding the possible influence of correlates of PTSD symptoms among homeless women.

Aims and Hypotheses.—The purpose of this study was to determine correlates of PTSD symptoms among formerly incarcerated, homeless women during reentry. Guided by the TPM and FFVP, we hypothesized that among formerly incarcerated, homeless women, anger, witnessing violence, experiencing family conflict, using any drug and alcohol in the past month, social support, self-esteem, and physical, psychological and social frailty would be associated with PTSD symptoms. In the next section, the study methods will be discussed.

Methods

Design and Setting.

This paper was an exploratory analysis using baseline data from an RCT, in which formerly incarcerated homeless women were enrolled into an intervention versus a health promotion program between February 2015 to May 2016. There were four participating community-based partner sites (i.e., Homeless Day Center and Residential Drug Treatment Facility) in Los Angeles and Pomona, California.

Sample.

In total, 130 formerly incarcerated, homeless women were enrolled. Eligibility criteria for the parent study included: a) 18–65 years of age, b) homeless, and c) past drug or alcohol use. Exclusion criteria included 1) monolingual speakers of languages other than English and 2) persons judged to be cognitively impaired by the research staff. Persons in need of immediate psychiatric treatment, as determined by the nurse, were referred to a local mental health facility and excluded. For those enrolled, the majority of the population self-reported being African-American (41%), followed by Latino (40%), White (14%), and Other (5%). On average, the population was 38.9 years of age ($SD = 11.36$, range 19–64) and had been in jail an average of 12.85 times ($SD = 17.15$, range 1–100), in prison 1.98 times ($SD = 3.6$, range 0–22) in their lifetime and the average time they had been homeless was 5.44 years ($SD = 6.03$, range 0.08–25). Approval was obtained from the UCLA Human Subject Institutional Review Board prior to the commencement of the research.

Procedures.

Women were recruited by posting flyers, and providing information sessions at the community-based partner sites at prearranged data collection days and times. The informed consent process included two-parts. Potential participants were first screened individually by a brief consent script in a private room at the research site. Depending upon the availability of the site and schedule, participants were given an appointment with a date/time for the session which was provided over a six-week period by the research staff. After determining eligibility, the research staff provided an appointment card with a date/time to complete the second informed consent, an in-depth baseline questionnaire and urinalysis to test for street drugs (e.g., marijuana, heroin, amphetamines, and opiates). Based on group assignment, participants were provided a second part of the informed consent for randomization into either group 1 or 2 for the parent intervention study which compared a 6-month Dialectical Behavioral Therapy–Corrections Modified (DBT-CM) program versus a Health Promotion (HP) program on mitigating drug use (Nyamathi, Shin, et al., 2017) and recidivism (Nyamathi et al., 2018).

Measures

Sociodemographics:

Variables measured included age, race or ethnicity, marital status having children, and length of time homeless.

Incarceration History:

Number of times in jail or prison was assessed using two items. Sample items included, “How many times have you been in jail in your lifetime?” and “How many times have you been in prison in your lifetime?”

Personally Witnessed Violence:

One item of the Lifestyle Criminality Screening Form (LCSF) (Walters, White, & Denney, 1991) was used to ask, “Have you personally witnessed violence?” Responses were limited to “yes” or “no.”

General Health Status:

One item in the RAND 36-Item Health Survey was used to ask participants to rate their health presently (Ware & Sherbourne, 1992). The sample item included, “In general, would you say your health is?” Responses ranged from excellent, very good, good fair or poor.

Frailty:

The Tilburg Frailty Index (TFI), which is a 15-item scale, was used to assess a) physical (8 items), b) psychological (4 items), and c) social frailty (3 items) domains which resulted in a cumulative total of overall frailty (15 items) (Gobbens et al., 2012). Physical frailty sample items included “Do you experience problems in your daily life due to difficulty walking?” Psychological frailty sample items included “Do you have problems with your memory” or “Have you felt down in the last month?” Social frailty sample items for social frailty included “Do you receive enough support from other people?” Responses were limited to “yes” or “no” and for select questions, “sometimes.” A score of 5 or greater was considered frail. In other studies, for overall frailty, Cronbach’s α was 0.73, psychological frailty ($\alpha=0.63$), and social frailty ($\alpha=0.34$) (Gobbens, van Assen, Luijkx, Wijnen-Sponselee, & Schols, 2010). In this sample, the Cronbach’s α included physical ($\alpha =0.72$), psychological ($\alpha =0.49$), social ($\alpha=0.13$) and overall frailty ($\alpha =0.69$). Others have used the TFI with homeless populations (Salem et al., 2017).

Depressive Symptomology:

The Center for Epidemiologic Depression Scale (10 items) was used to ask how individuals may have felt or behaved in the last week (Andresen, Malmgren, Carter, & Patrick, 1994). Sample items included “I was bothered by things that usually don’t bother me” and “I felt that everything that I did was an effort.” Responses included rarely or none of the time (less than 1 day), some of the time (1–2 days), occasionally or a moderate amount of the time (3–4 days), and most of the time (5–7 days). A higher score indicated greater depressive symptoms. Others have used this instrument with a Cronbach’s $\alpha=0.83$ in the homeless population (Nyamathi,Salem, et al., 2017). In this sample, the Cronbach’s α was 0.82.

Any Alcohol and Drug Use:

The Texas Christian University Drug History (TCU) form II (Institute of Behavioral Research, 2007) was used to assess the frequency of alcohol and drug use in the last month. A variable was created to represent drug and alcohol use within the last month by

subtracting the baseline date and the date of the last use. Anyone who had reported any alcohol or marijuana, crack, methamphetamine, cocaine, heroin use received a “1.” Others have used the TCU Form II with homeless populations and the Cronbach’s α was 0.95 (Salem, Nyamathi, Brecht, et al., 2013).

Drug Dependency:

The TCU Drug History Form II (Institute of Behavioral Research, 2007) was used to measure drug dependency within the last six months. Sample items included “Did you use larger amounts of drugs or use them for a longer time than you planned or intended?” The total score ranged from 0 to 9 and the higher score means greater the drug dependency. This instrument has been used with homeless populations with a reliability of .95 (Salem, Nyamathi, Brecht, et al., 2013). In this sample, the Cronbach’s α was 0.82.

Anger/Hostility Scale:

The Women’s Risk Needs Assessment (WRNA) included three items which were used to assess anger and hostility (Wright, Van Voorhis, Bauman, & Salisbury, 2008). The score is calculated as the total number of times a respondent answers “yes” to three of the anger/hostility questions on the WRNA instrument. Some of the sample questions were, “Would you describe yourself as having a strong temper?” Do you have trouble controlling your temper when you get upset? Were you angry or upset when you committed the present offense? Responses were limited to “yes” or “no.” The anger/hostility score is calculated as the total number of times a respondent answers “yes” to these three anger/hostility questions.

Self-Esteem:

The Coopersmith Self-Esteem Inventory (Ahmed, Valliant, & Swindle, 1985; Coopersmith, 1981), a 22-item inventory, was used to ask about feelings towards the self. Sample items included “You often wish you were someone else?” and “Your body is ugly.” Responses include true/false. The Coopersmith Self-Esteem Inventory is shown to have convergent validity with respect to the Piers-Harris Children’s Self-Concept Scale (CSCS) and the Coopersmith Behavioral Academic Assessment Scale (BASE) with an overall internal consistency of 0.86 (Johnson, Redfield, Miller, & Simpson, 1983). Others have used this instrument with homeless populations with a Cronbach’s α of 0.81 (Nyamathi, Wenzel, Lesser, Flaskerud, & Leake, 2001). In this sample, Cronbach’s α was 0.73.

Social Support:

The 19-item Medical Outcomes Study Social Support Survey (MOS-SSS) measured social support using a 5-point Likert scale (none of the time to all of the time) (Sherbourne & Stewart, 1991). The MOS-SSS is composed of four subscales: a) emotional/informational support (9 items), b) tangible support (4 items), c) positive social interaction (3 items), and d) affectionate support (3 items) (Sherbourne & Stewart, 1991). Emotional support can be defined as having a positive affect, empathy, understanding and encouragement (Sherbourne & Stewart, 1991). Informational support can be defined as offering advice, assistance, etc (Sherbourne & Stewart, 1991). Tangible support was defined as elements that assist with

behavioral assistance (Sherbourne & Stewart, 1991). Positive social interaction was defined as the availability of other people doing enjoyable activities (Sherbourne & Stewart, 1991). Affectionate support was defined as having love and affection (Sherbourne & Stewart, 1991). A total score was obtained by summing the subscale scores with a higher score indicating higher social support (Sherbourne & Stewart, 1991). Others have used this instrument with a Cronbach's α of 0.97 (Stein, Dixon, & Nyamathi, 2008). In this sample, the Cronbach's α included emotional/informational support ($\alpha=0.95$), tangible support ($\alpha=0.89$), positive social interaction ($\alpha=0.94$), affectionate support ($\alpha=0.92$) and overall support ($\alpha=0.97$).

Relationship with Family:

One item from the WRNA was used to assess relationship with family (Wright et al., 2008). The sample item included "How is your relationship with your family?" Responses included good, just minor conflicts, or conflictual most of the time.

Painful Relationships:

The WRNA was also used to assess painful relationships with boyfriends/girlfriends, significant others, romantic partners, spouses, etc (Wright et al., 2008). The sample question asked, "Do you get into relationships that are painful for you?" Responses were limited to "yes" or "no."

Posttraumatic Stress Disorder (PTSD):

Symptoms were assessed using four items from the Primary Care PTSD Screen (PC-PTSD) (Prins, 2003) which was part of the WRNA (Wright et al., 2008). The PC-PTSD asked about experiences in the last month which were so frightening, horrible, or upsetting that resulted in having nightmares, trying hard not to think about it, being on guard or easily watchful, and feeling numb or detached. Responses were limited to "yes" or "no." Participants who scored ≥ 1 had PTSD symptoms. In this sample, Cronbach's α for this scale was 0.84.

Analysis

Due to the bimodal distribution of the number of PTSD symptoms and the large number of respondents having no symptoms (42%), the PTSD variable was dichotomized. Given these findings, a dichotomized PTSD symptom variable was chosen such that it indicated if a respondent had expressed PTSD symptoms or not. Bivariate analyses including logistic regression, biserial correlation, Cramer's V, and Spearman correlation are used to evaluate the association of the potential variables to the binary variable indicating no PTSD symptoms versus 1 or more PTSD symptoms. Multivariable relationships were also assessed using logistic regression. The bivariate associations with $p < .20$ are identified prior to utilizing them within a backwards elimination logistic regression, which retained only those with $p < .15$.

The original PTSD symptom score was ordinal in nature (values 0–4), the viability of using ordinal logistic regression was explored; however, the proportional odds assumption was not met and thus this approach was dropped. As having any PTSD symptoms has been used as

a screening criterion (Wright et al., 2008), we dichotomized the score as 0 versus 1 or more symptoms for use in binary logistic regression.

Results

Table 1 reports means, standard deviations, and frequencies for the overall distribution, as well as those with and without PTSD symptoms. The majority were never married (54%), followed by divorced (33%), and currently married (13%). The majority of the sample reported having children (59%). Depressive symptomology scores were moderate ($\mu=9.62$, $SD = 6.38$, range 0–28). Most participants met the criteria for drug dependency with a score ≥ 3 ($\mu=7.11$, $SD = 2.3$, range 0–9). Average scores on all types of support were moderate; in fact, emotional support ($\mu=3.41$, $SD = 1.12$, range 1–5), tangible support ($\mu=3.42$, $SD = 1.22$, range 1–5), affectionate support ($\mu=3.49$, $SD = 1.34$, range 1–5), and positive social interaction were moderate ($\mu=3.47$, $SD = 1.21$, range 1–5) compared with others. The average physical frailty score was low, 1.98 ($SD = 1.95$, range 0–8); similarly, low scores were found on the psychological frailty score, 1.73 ($SD = 1.15$, range 0–4) and social frailty score 1.14 ($SD = 0.8$, range 0–3). In total, 43% of participants had a conflictual relationship with their family some or most of the time. Over half self-reported getting into painful relationships (56%) with boyfriends/girlfriends, significant others, romantic partners, spouses, etc. The average PTSD score was 1.61 ($SD = 1.62$, range 0–4) which is comparable to the average PTSD score in several other articles (Kimerling, Trafton, & Nguyen, 2006; Prins, 2003). The average PTSD score at baseline ranged from 1.30 ($SD = 1.6$) among primary care clinics (Prins, 2003) and 2.11 ($SD = 1.66$) among substance use patients (Kimerling et al., 2006).

Unadjusted Bivariate Results.

Table 2 reports bivariate models which evaluate correlates of PTSD symptoms. Variables significantly associated with PTSD symptoms included psychological frailty ($p<.001$), depressive symptoms ($p<.001$), anger ($p=0.001$), self-esteem ($p<.001$), affectionate support ($p=0.03$) and positive social interaction ($p=0.005$). In addition, the odds of PTSD symptoms was lower for those who had just minor conflicts with family as compared to those with conflicts most of the time ($p<.001$).

Multivariable Logistic Regression.

Table 3 reports a multivariable logistic regression model identifying correlates of PTSD symptoms. The backward selection model removed several variables which included witnessing violence, self-esteem, social frailty, tangible support, and affectionate support; these variables do not provide further information about the odds of PTSD symptoms in addition to those already included in the model. The multivariable findings revealed that after controlling for other variables, women with no past month drug use had 5.95 times higher odds of PTSD symptoms as compared with those who had past month drug use ($p=0.006$). After controlling for other variables, for a one point increase in anger score, there was a 2.17 times higher odds of PTSD symptoms ($p=0.002$). After controlling for other variables, women who experienced only minor family conflicts had a lower odds of PTSD symptoms compared to those with conflict most of the time ($p=0.02$). After controlling for

other variables, for a one point increase in emotional support, there was a 2.48 times higher odds of PTSD symptoms ($p=0.009$); however, an increase in positive social interaction score resulted in a lower odds of PTSD symptoms ($p=0.006$). After controlling for other variables, a one unit increase in psychological frailty resulted in 1.90 times higher odds of PTSD symptoms ($p=0.02$).

Discussion

The purpose of this study was to identify correlates of PTSD symptoms among formerly incarcerated, homeless women. While there is a body of literature which is focused on PTSD among incarcerated women (Piper & Berle, 2019) and homeless populations (Schuster, Park, & Frisman, 2011), less is known among formerly incarcerated, homeless women during community reentry. In our bivariate analyses, we found seven significant associations between participant characteristics and PTSD symptoms. In particular, we found that psychological frailty, depressive symptoms, minor family conflicts, anger, self-esteem, affectionate support and positive social interaction were significantly associated with PTSD symptoms. In our multivariate analysis, after controlling for other variables in the model, no past month drug use, higher anger scores, greater emotional support, and psychological frailty were significantly associated with higher odds of PTSD symptoms. However, women who experienced only minor family conflicts had lower odds of PTSD symptoms relative to those that had family conflicts most of the time. Similarly, controlling for all other variables, women who had a higher positive social interaction score also had lower odds of PTSD symptoms. Our findings revealed that those with no past month drug use had higher odds of PTSD symptoms. The literature details the relationship between co-occurring PTSD and substance use (Roberts, Roberts, Jones, & Bisson, 2015). It is plausible that drug use may address PTSD symptoms, and be used as a maladaptive coping mechanism. Thus, developing coping skills to replace maladaptive coping mechanisms is critical among the population which warrants further study.

In this study, women with higher anger had higher odds of PTSD symptoms. Previous studies have demonstrated the empirical relationship between anger and PTSD (Contractor, Armour, Wang, Forbes, & Elhai, 2015; McHugh, Forbes, Bates, Hopwood, & Creamer, 2012; Orth & Wieland, 2006). In fact, these characteristics are a key predictor of treatment outcome in PTSD; in particular, anger can impede treatment efficacy among those with PTSD resulting in early treatment termination (Stevenson & Chemtob, 2000). Anger may also have a mediating role between PTSD symptoms and impulsivity (Contractor et al., 2015) leading to having aggressive tendencies (Novaco & Chemtob, 2015). However, in this sample, it is less certain if the anger is rooted in the self, others or previous unresolved experiences. Given these gaps, it is critically important to understand the sources of anger, function of anger, and provide programs to address and help manage anger.

Our findings revealed that those with minor family conflicts had lower odds of PTSD symptoms compared to those who reported conflict most of the time. During reentry, reliance on family is critical as it shapes outcomes which would include recidivism if reentry is unsuccessful. However, for many women, difficulties with reconciling with family, due to having burned bridges, poses difficulty with navigating the environment and successfully

reintegrating into society. In particular, family conflict may trigger or exacerbate PTSD symptoms. For many exiting jail and prison, community and familial reintegration are challenging. For those who are released into the community, many rely heavily on their families for various types of support (i.e., housing, financial and emotional support) (Naser & La Vigne, 2006). One means to start to mend burned bridges includes adopting the Huikahi restorative justice ritual circle which is a self-directed reentry and familial healing process (Walker, 2010, 2012). In addition, based on our earlier findings, during reentry, linkage to physical and psychological healthcare, employment opportunities, stable and safe permanent housing (Salem, Nyamathi, Idemundia, Slaughter, & Ames, 2013) are supported by family involvement.

Our findings also pointed to the fact that individuals who experienced greater emotional support had higher odds of PTSD symptoms. It is unclear whether the source of emotional support among the women was positive versus negative. However, certain emotions (e.g., shame, guilt, etc) have been associated with PTSD and can be attributed to higher levels of PTSD (Beck et al., 2011). Relatedly, the perception of the type of emotional support, either positive or negative, can influence PTSD symptoms. In one study among sexually abused youth, initial caregiver emotional support was associated to resilience among the population and authors recommend focusing on providing appropriate emotional support which will undoubtedly encourage optimal adjustment (Rosenthal, Feiring, & Taska, 2003). In fact, appropriate emotional support can alleviate psychosocial problem from developing (Rosenthal et al., 2003).

Our results revealed that higher positive social interaction was related to lower odds of PTSD symptoms. During reentry, it is plausible that positive social interaction may buffer against PTSD symptoms; however, further research is needed to clarify the relationship between how the quality of the interaction and the persons involved in the interaction influence PTSD symptoms. It is plausible that having others who are able to do positive, recreational activities may decrease PTSD symptoms. It is important for health and social service providers to assess women who are not socially engaged or have less positive social interaction as that may increase the odds of PTSD symptoms. Our results revealed that psychological frailty, defined as a change in mood, cognition and coping (Gobbens et al., 2012) was associated with a higher odds of PTSD symptoms. Statistically, this association was not multicollinear, but could be in part due to the constellation of symptoms of PTSD which may have similar characteristics to psychological frailty. Future research should investigate the interrelationship between PTSD as an indicator of psychological frailty as psychological frailty may influence physical and social frailty.

A few notable limitations are critical to this study. Primarily, this is a convenience sample of women aged 19–64, residing in Los Angeles and Pomona, which limits the generalizability of the findings outside of these locations. Second, a heterogeneous mix of women on probation and parole were represented in this sample. Informed by the TPM and FFVP, several single-item measures (i.e., relationship with family, painful relationships with boyfriends/girlfriends, significant others, romantic partners, spouses, personally witnessed violence and general health status) were used because larger structured instruments were not available in the data set and this was an exploratory analysis based on baseline data.

As has been previously documented, single-item measures for self-reported facts as used in this analysis are acceptable (Wanous, Reichers, & Hudy, 1997). This information was still important to ascertain these constructs (e.g., family support, experienced violence and health status); however, these constructs necessitate full structured instruments and assessments. In particular, we were not able to assess those who had traumatic experiences other than if they witnessed trauma.

Likewise, witnessing violence was the only PTSD Criterion A (DSM-5) item that was significantly associated with PTSD and the variable was limited to a dichotomous “yes” or “no” item. Without doubt, the gravity of witnessing violence, the age at which having witnessed violence, the frequency and time since the event have not been explored which necessitates future research. This analysis also utilized a logistic regression that dichotomized PTSD symptoms, and was not assessed continuously. Further we were not able to assess complex PTSD (CPTSD) or able to conduct a full PTSD assessment due to the type of measure which was utilized. Based on these findings, it is critical to conduct a full PTSD measure among this population and CPTSD assessment. In the future, it is also important to assess additional emotions such as anxiety and shame. Lastly, across the TFI domains (i.e., physical, psychological and social), some of the Cronbach’s alpha for the TFI are low (social frailty $\alpha=0.13$) which necessitates greater exploration in this community.

The Case for Trauma-Informed and Trauma-Specific Community Reentry

Given that PTSD symptoms may be exacerbated in jail or prison, worsen or be unresolved during reentry, these findings are a call to action among academicians, service providers, and health practitioners. Given the high rate of PTSD symptoms in practice, for reentry providers it is critical to provide initial PTSD screening, assessment and referral into care in collaboration with psychologists and psychiatrists. In addition, developing programs and systems which help to support women during reentry is critical. While our study findings illuminate how vulnerable populations experience correlates of PTSD, these findings also highlight the need for a greater understanding of trauma-related experiences, PTSD and CPTSD symptoms, the need for trauma-informed and trauma-specific programs, how trauma-related experiences influence frailty across the lifespan, and future research. Mental health nurses are poised to help to meet needs during community reentry by providing screening and specialist referral care for trauma-specific needs. Relatedly, it is critical for service providers to understand the relationships between violence, drug use, emotions (i.e., anger, familial conflicts) and support in relation with PTSD symptoms. Additional research is needed to understand these relationships; in fact, existing models of care and trauma-informed approaches need to be integrated into reentry settings to strengthen the existing services. Academicians and multidisciplinary service providers are in a prime position to develop tailored programs and gain a greater understanding of the development of trauma-informed and trauma-specific practice during reentry to mitigate homelessness, recidivism and improve outcomes.

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Table 1.

Sample Characteristics and Descriptive Statistics of Formerly Incarcerated, Homeless Women (N=130)

Variables	Overall Mean (SD)	No PTSD Symptoms Mean (SD)	PTSD Mean (SD)
Age	38.89 (11.36)	40.46 (11.26)	37.87 (11.42)
Number of Years Homeless ²	5.44 (6.03)	5.88 (7.08)	5.17 (5.17)
Number of Times in Jail	12.85 (17.15)	12.87 (16.62)	13 (17.69)
Number of Times in Prison	1.98 (3.6)	2.59 (4.3)	1.57 (2.97)
Frailty	4.84 (2.78)	3.93 (2.81)	5.51 (2.59)
Physical Frailty	1.98 (1.95)	1.63 (2.01)	2.23 (1.89)
Psychological Frailty	1.73 (1.15)	1.26 (1.1)	2.08 (1.06)
Social Frailty ¹	1.14 (0.8)	1.04 (0.78)	1.22 (0.82)
Depressive Symptomology	9.62 (6.38)	7.11 (5.79)	11.41 (6.25)
General Health Score	1.98 (1.13)	1.98 (1.19)	1.97 (1.1)
Anger Score	1.44 (1.13)	1.04 (1.08)	1.71 (1.08)
Self-Esteem Score	13.14 (3.95)	14.87 (3.31)	11.95 (3.93)
Drug Dependence*	7.11 (2.3)	7.06 (2.42)	7.15 (2.25)
MOS Scale Score¹	61 (26.61)	66.72 (25.68)	56.88 (26.68)
Emotional Support	3.41 (1.12)	3.57 (1.11)	3.29 (1.12)
Tangible Support	3.42 (1.22)	3.59 (1.15)	3.29 (1.26)
Affectionate Support ¹	3.49 (1.34)	3.8 (1.19)	3.27 (1.41)
Positive Social Interaction	3.47 (1.21)	3.83 (1.08)	3.21 (1.24)
PTSD Score¹	1.61 (1.62)	--	2.77 (1.13)

Variables	Overall N (%)	No PTSD Symptoms N (%)	PTSD Symptoms N (%)
Witnessed Violence¹			
No	19 (15)	7 (13)	12 (16)
Yes	110 (85)	47 (87)	63 (84)
Attempted suicide			
No	85 (65)	39 (72)	45 (60)
Yes	45 (35)	15 (28)	30 (40)
Painful relationships			
No	57 (44)	28 (52)	28 (37)
Yes	73 (56)	26 (48)	47 (63)
Family conflict¹			
Just minor conflicts	74 (57)	42 (79)	31 (41)
Conflicts some of the time	22 (17)	6 (11)	16 (21)
Conflicts most of the time	33 (26)	5 (9)	28 (37)
Past month use of drugs (of 5 primary drugs)⁴			
No	84 (72)	29 (63)	54 (77)
Yes	33 (28)	17 (37)	16 (23)

Variables	Overall N (%)	No PTSD Symptoms N (%)	PTSD Symptoms N (%)
PTSD (score of 1 or more) ¹			
No	54 (42)	54 (100)	--
Yes	75 (58)	--	75 (100)
PTSD ¹			
0	54 (42)	54 (100)	
1	14 (11)		14 (19)
2	16 (12)		16 (21)
3	18 (14)		18 (24)
4	27 (21)		27 (36)

Note.

* prior to last incarceration

¹ One subject omitted because of missing data

² Two subjects omitted because of missing data

³ 3 subjects omitted because of missing data

⁴ 13 subjects omitted because of missing data

Table 2.

Bivariate associations between respondent characteristics and PTSD Symptoms among Formerly Incarcerated, Homeless Women (N=129)¹.

Variable	Biserial Correlation	Odds Ratio	95% CI	p
Age	-0.14	0.98	(0.95, 1.01)	0.20
Number of Years Homeless	-0.07	0.98	(0.93, 1.04)	0.51
Number of Times in Jail	0.005	1.00	(0.98, 1.02)	0.97
Number of Times in Prison	-0.18	0.92	(0.83, 1.03)	0.13
Frailty				
Physical Frailty	0.19	1.18	(0.97, 1.43)	0.09
Psychological Frailty	0.44	2.03	(1.41, 2.92)	<0.001*
Social Frailty	0.14	1.33	(0.85, 2.09)	0.21
Depressive Symptomology	0.42	1.13	(1.06, 1.21)	<0.001*
RAND General Health Score	-0.004	0.99	(0.73, 1.35)	0.97
Witnessed violence (no vs. yes) ⁺	-0.04	1.28	(0.47, 3.50)	0.63
Attempted suicide (no vs. yes) ⁺	0.13	0.58	(0.27, 1.23)	0.15
Painful relationships (no vs. yes) ⁺	0.14	0.55	(0.27, 1.13)	0.10
Family conflict (ref. "most of the time")^{..}				
Just minor conflicts		0.13	(0.05, 0.38)	<0.001*
Some of the time		0.48	(0.13, 1.81)	0.62
Anger score	0.37	1.76	(1.25, 2.46)	0.001*
Drug Dependence Score	0.02	1.02	(0.87, 1.18)	0.82
Past month drug use(no vs. yes) ⁺	-0.15	1.98	(0.87, 4.49)	0.10
Self-Esteem Score	-0.46	0.80	(0.72, 0.90)	<0.001*
Social Support				
Emotional Support	-0.15	0.80	(0.58, 1.1)	0.17
Tangible Support	-0.15	0.81	(0.61, 1.09)	0.17
Affectionate Support	-0.25	0.74	(0.56, 0.97)	0.03*
Positive Social Interaction	-0.32	0.63	(0.46, 0.87)	0.005*

Note.

¹See Table 1 for number of subjects missing specific variables

* Significant results.

⁺Cramer's V

^{..} Spearman Correlation

Table 3.

Multivariable Logistic Regression Evaluating Correlates of PTSD Symptoms^{1,2} among Formerly Incarcerated, Homeless Women (n=115)

Variable	Adjusted Odds Ratio	95% CI	<i>p</i>
Physical Frailty	1.29	(0.97, 1.71)	0.08
Psychological Frailty	1.90	(1.12, 3.23)	0.02
Family conflict (ref. "most of the time")			
Just minor conflicts	0.21	(0.06, 0.79)	0.02
Some of the time	0.50	(0.10, 2.53)	0.90
Anger score	2.17	(1.32, 3.56)	0.002
Past month drug use (no vs. yes)	5.95	(1.67, 21.18)	0.006
Emotional Support	2.48	(1.26, 4.90)	0.009
Positive Social Interaction	0.40	(0.20, 0.77)	0.006

Note.

¹Results using backward elimination with $p < .15$ as criterion to remain in model

²Likelihood ratio Chi square=50.41, $df=8$, $p < 0.001$