Predictors of substance abuse treatment participation among homeless adults

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Abstract

The current study focuses on the relationships among a trauma history, a substance use history, chronic homelessness, and the mediating role of recent emotional distress in predicting drug treatment participation among adult homeless people. We explored the predictors of participation in substance abuse treatment because enrolling and retaining clients in substance abuse treatment programs is always a challenge particularly among homeless people. Participants were 853 homeless adults from Los Angeles, California. Using structural equation models, findings indicated that trauma history, substance use history and chronicity of homelessness were associated, and were significant predictors of greater recent emotional distress. The most notable result was that recent emotional distress predicted less participation in current substance abuse treatment (both formal and self-help) whereas a substance use history alone predicted significantly more participation in treatment. Implications concerning treatment engagement and difficulties in obtaining appropriate dual-diagnosis services for homeless mentally distressed individuals are discussed.

Keywords

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1.   Introduction

Homelessness is linked to a host of psychological, economic, and childhood trauma factors (Caton, Wilkins, & Anderson, 2007) as well as drug and alcohol use (Des Jarlais, Braine, & Friedmann, 2007; Winkley, Rockhill, Jatulis, & Fortmann, 1992). More than 67% of homeless people in Los Angeles County are substance abusers (Los Angeles Homeless Services Authority, 2004). Homeless people are usually classified as chronic, episodic or transitional. Chronic homeless persons are homeless for at least 6 months or more; episodic homeless persons are those who shuttle in and out of homelessness, and transitional homeless persons enter the shelter system for one short-term period (Substance Abuse and Mental Health Services Administration [SAMHSA], 2010). In the United States, persons who are chronically homeless are estimated to constitute0.3% of the overall population (Caton et al., 2007). Chronically homeless persons evidence more addiction, mental illness, and physical health problems than other homeless populations (Kertesz et al., 2005; Morrison, 2009; Stein, Grella, Conner, & Gelberg, 2012).

1.1.   Childhood abuse

A childhood abuse history is a common precursor to homelessness. Wu, Schairer, Dellor, and Grella (2010) found a higher prevalence of exposure to childhood traumatic events among a clinic sample of adult with comorbid substance use disorders and mental health problems than among adults in a health problems sample (primary health care setting); exposure to more numerous traumatic events was also significantly associated with a greater likelihood of homelessness. Other studies have confirmed an association between maltreatment in childhood and adolescence and homelessness and substance abuse (Ferguson, 2009; Gwadz, Nish, Leonard, & Strauss, 2007; Hamburger, Leeb, & Swahn, 2008). In addition, Stein, Leslie, and Nyamathi (2002) found that early abuse experiences in homeless women were strongly predictive of adverse psychosocial and behavioral consequences, including increased victimization and poor mental health in adulthood.

1.2.   Substance use

Substance abuse or dependence is disproportionately prevalent among homeless individuals, especially among those who are chronically homeless (Caton et al., 2007; Eyrich-Garg, Cacciola, Carise, Lynch, & McLellan, 2008; SAMHSA, 2010). In 2007, although 9% of the U.S. population reported a substance use disorder (SAMHSA, 2008), among a sheltered population of newly homeless people, 53% had a lifetime diagnosis of substance use disorder, and 44% of the overall sample had received treatment for a substance use disorder (Caton et al., 2005). People with intermittent periods of homelessness report substantial amounts of substance abuse problems (40% of episodic, 28% of transitional), but among the chronically homeless, lifetime rates of substance abuse problems have been reported to be as high as 80% (SAMHSA, 2010). In a large sample of homeless adults, Stein, Dixon, and Nyamathi (2008) found that chronic and severe homelessness was associated with more alcohol use and injection drug use.

Substance abuse and homelessness are also mutual risk factors (Des Jarlais et al., 2007). Problems related to the use of substances have been pointed out as a key factor precipitating

and exacerbating drifting down, homelessness, and marginality (McNaughton, 2008; Salomonsen-Sautel et al., 2008); greater substance abuse could be an outcome of the stressors and social environment associated with homelessness (Shelton, Taylor, Bonner, & van den Bree, 2009). Temporal precedence may not be readily evident, but clearly there is synergy between homelessness, substance abuse problems, and co-occurring mental disorders and emotional distress.

1.3. Mental health

In addition to the direct deleterious consequences of substance use, homeless people who use substances are more likely to have concomitant mental health problems, such as depression and anxiety, and to engage in other high risk behaviors (Nyamathi et al., 2010). A study using a nationally representative sample found that the most prominent risk factor for a history of homelessness in the general population is a behavioral health disorder (e.g., substance abuse or dependence, mood disorder or impulse control disorder), with these disorders generally increasing the odds of homelessness by 2–3 times (Greenberg & Rosenheck, 2010). The relationship between homelessness and mental health could also be bidirectional, although normally problems like mental problems appear to precede the first episode of homelessness (Muñoz, Vázquez, Koegel, Sanz, & Burnam, 1998; Muñoz, Koegel, Vázquez, Sanz, & Burnam, 2002). Homelessness increases the risk of poor physical and mental health, and physical illness and deteriorating mental health can also contribute to a person or family becoming homeless (Frieden & Gibbs, 2005).

1.4. Participation in substance abuse treatment

Apart from physical and psychological health problems, homeless individuals frequently have trouble negotiating the health care system. Seeking health care often is not a main concern for homeless individuals due to other exigent needs such as finding food and shelter (Nyamathi, Leake, Keenan, & Gelberg, 2000; Stein, Andersen, & Gelberg, 2007). Low rates of engagement and retention in substance abuse outpatient treatment are also typical (Caton et al., 2007).

Engagement is the first step in treatment, and an individual's resistance to treatment is often related to the length of time he or she has been homeless (National Institute of Health, NIH, 2001). This is often due to the instability in their lives (e.g., Herndon, Asch, & Kilbourne, 2003); comorbidity between substance abuse and mental health disorders may make continuity of participation in drug abuse treatment problematic (Mangrum, 2009). The literature offers some concrete strategies for engaging homeless individuals, or subgroups of the homeless population; these include methods such as outreach, housing, a safe environment, motivational strategies and peer leadership (Zerger, 2002). The length of time spent in treatment has been associated with positive client outcomes (Zerger, 2002). After engagement, retaining clients in substance abuse treatment programs remains an important challenge, especially when the target population is homeless people.

1.5. Study hypotheses

Psychosocial models have gained importance in homelessness research as they attempt to integrate and explain associations among psychological factors and environmental factors.

This study is based on the Comprehensive Health Seeking and Coping Paradigm (CHSCP; Nyamathi, 1989). The model postulates that a number of psychosocial factors play an influential role in health outcomes and behaviors in vulnerable populations. It has been used in numerous studies examining varied outcomes, including substance use and abuse among homeless people (e.g., Nyamathi, Stein, Dixon, Longshore, & Galaif, 2003; Stein et al., 2002; Stein et al., 2008). In this current study, which examines drug treatment utilization, key predictive variables from the model include situational (trauma and homelessness history), behavioral (use of depressants, hallucinogens and stimulants), and sociodemographic (gender, age, and ethnicity) factors as antecedents of the mediating personal factor of current emotional distress. Associations among past and current drug treatment participation with recent emotional distress are then examined.

The rates of substance abuse are considerably high among homeless individuals (50 % or more), and those who are dependent on alcohol or drugs are less likely to be out of homelessness. For many homeless people, substance abuse co-occurs with mental illness, and they have additional risk for violence or victimization. Although there is important empirical evidence about the factors (child abuse, drug abuse and mental health) that increase the probability of becoming homeless, there are few studies that have attempted to integrate these factors into a model, explain the relations among these factors, and to analyze their associations with treatment engagement and current participation in substance abuse. Rates of engagement and retention in substance abuse treatment are low for homeless people (Caton et al., 2007). Thus, the major innovative aspect of this research is the application of an integrated model of vulnerability factors associated with homelessness as predictors of substance abuse treatment participation, using structural equation modeling. This type of statistical analysis helps to elucidate the directional relationships among a large set of variables, and represents an improvement over the multiple regression techniques more commonly used in the substance abuse treatment research.

Thus the main goal of this study was to use mediational structural equation models (SEM) to assess the roles of the main risk factors of homelessness as predictors of substance treatment participation using an integrated model of vulnerability factors associated with homelessness (O'Toole, Pollini, Ford, & Bigelow, 2008). It was focused on the relationships among trauma history, substance use history, chronicity of homelessness, demographics and the mediating role of recent emotional distress and past substance abuse treatment in predicting current substance treatment participation among adult homeless people. Moreover, an innovative aspect of this study is that trauma history includes abuse of homeless persons during adulthood because previous studies have primarily focused on child abuse. It is hypothesized that traumatic experiences in childhood and/or adulthood will be highly associated with a history of substance use, and more severe homelessness. We naturally expected a large association between prior and current substance treatment participation due to stability across time. Moreover, we explore the predictors of alcohol/drug treatment participation; the challenge is intensified when the target population is homeless and has other dysfunctional problems. Because our data are cross-sectional, we also test an alternative model in which recent participation is used as a predictor of current emotional distress and past drug treatment. Substance abuse treatment has been associated with later improvements in distress among dually diagnosed substance abusers (Grella & Stein, 2006).

2. Materials and methods

2.1. Participants

Homelessness was defined as individuals without permanent housing who live on the streets, stay in a shelter or in any other unstable situation (single room occupancy facilities, abandoned building or vehicle). Using simple random selection of sites stratified by type (homeless shelter, residential drug treatment recovery sites, or outdoor locations), homeless adults were recruited from 12 homeless shelters, four residential drug treatment recovery sites, and outdoor locations. They were recruited to participate in a hepatitis A and B virus inoculation program in the Skid Row area of downtown Los Angeles. A total of 2,086 persons were screened, of which 1,221 were excluded by different reasons (ineligible to undergo HBV, HCV, and HIV, 4 persons refused such testing, and testing positive for HBV antibodies). Thus, participants in the study were initially a baseline sample of 865 adult homeless people residing in Los Angeles, California (77% males) and aged between 19 and 65 (M = 42; S.D. = 9.0). The sample was about 69% African American, 15% White, 14% Hispanic, and 2% other. Gender and ethnic proportions within the sample were highly similar to those found in previous research among Los Angeles homeless people (Stein et al., 2008). Data were collected between 2004 and 2007. A total of 853 participants had complete data for the analyses. Twelve had some scattered missing data, i.e., a single missing score being the most typical pattern. The analyses were carried out using the listwise deletion procedure due to so little data being missing; diagnostics available in the EQS (Bentler, 2006) missing data program indicated that the data were missing completely at random.

2.2. Measures

Instruments utilized in the study had been previously tested. All instruments were adapted to the sixth-grade level and were administered as face-to-face interviews by the research staff to all participants in a private location. They are described in more detail below.

2.2.1. Chronic homelessness—Two items assessed the number of times participants had been homeless and the number of years they had been homeless. This variable represented a latent variable of homelessness severity, and it has been used in previous research (e.g., Stein & Nyamathi, 2004; Stein, Lu, & Gelberg, 2000; Stein et al., 2007; Stein et al., 2008).

2.2.2. Substance use history—The substance use history was based on use of various substances. The substances were categorized into three main types according to the effect on the central nervous system: depressants (which slow down the activity of the brain and nervous system), stimulants (which elevate mood and increase energy and alertness) and hallucinogens (which cause altered perception and feeling). Participants indicated a yes/no response whether they ever had taken alcohol, heroin and other opiates (depressants), crack, cocaine and speed (stimulants), hallucinogens and marijuana (hallucinogens). From these substances, three observed variables were created as indicators of a drug use history latent variable: depressant, stimulant and hallucinogenic drugs. These variables represent the number of substances of each category they had taken in his/her life.

2.2.3. Trauma history—Childhood abuse was measured by four items (*no* = 0, *yes* = 1). They indicated whether a participant before the age of 18 had (a) a history of sexual abuse, (b) a history of rape, (c) a physical assault and(d) physical abuse. Adult abuse was measured by four similar items (*no* = 0, *yes* = 1). They indicated whether a participant as an adult had (a) a history of sexual abuse, (b) a history of rape, (c) a physical assault and (d) physical abuse (see the questionnaire in the Appendix). They were summed within each category, and the latent variable was indicated by childhood and adult abuse.

2.2.4. Recent emotional distress—Current distress was measured using two scales: 1) the RAND Mental Health Index (MHI-5) (Rost, Burnam, & Smith, 1993; Wells et al., 1989); and 2) depressive symptoms felt in the last week were measured by the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The MHI-5 index contains 5 items with responses on a 6-point scale ranging from 1 (*all* of *the time*) to 6 (*none of the time*); it asks about feelings in the last month. The MHI-5 has shown excellent reliability and validity in general population studies, good reliability in homeless studies, and detects significant psychological disorders (Berwick et al., 1991). In this study Cronbach's alpha for this instrument was .80. Items were scored so that a higher score indicates more recent distress. Scores were converted into percentiles.

The CES-D is a widely used 20-item measure for the assessment of depression symptoms in both normative and clinical samples. Each item measures the frequency of a symptom on a 4-point response scale from 0 to 3. Examples of CES-D items are *I felt depressed* and *I felt lonely*. Responses from each item are summed to yield a total score ranging from 0 to 60. In this study Cronbach's alpha for the overall CES-D scale was .82.

2.2.5. Substance abuse treatment participation—Three items assessed the past and current substance abuse treatment history of the participants. One item assessed whether they had ever participated in a treatment program for substance abuse, stayed overnight in a hospital for alcohol or drugs, and/or been seen for problems with alcohol/drugs in the past. This was a sum score. Two additional items were assessed for the past 6 months: a) the number of days they had attended self-help meetings for people with alcohol/drug problems (e.g., alcoholic anonymous or/and narcotics anonymous), and (b) the number of days they had seen a doctor or substance abuse specialist for alcohol or drug problems, or used a daytime drug program.

2.2.6. Demographics—A single item represented ethnicity (1 = *African-American*, 0 = *all others*), and a single item assessed gender (1 = *female*, 0 = *male*); age in years was a continuous variable. Some demographic variables such as educational level and income were originally included but were not significantly related to any of the variables under consideration; thus, they were dropped in the interest of parsimony.

2.3. Data analysis

Analyses were performed using the EQS 6.1 Structural Equation Program (Bentler, 2006). Goodness-of-fit of the models was assessed with the normal theory maximum-likelihood (ML) chi-square and the Satorra and Bentler (1994) robust maximum-likelihood (S-B) chi-

square statistic and the comparative fit index (CFI) and the Satorra-Bentler robust comparative fit index (RCFI). Robust statistics are more appropriate when the data are not multivariate normal (Mardia's normalized coefficient exceeded 128.08). Non-normality was substantially driven by two variables which, as expected, had highly non-normal marginal distributions. The number of times homeless variable had a skew of 5.99 and kurtosis of 53.04, whereas time homeless had a skew of 2.92 and kurtosis of 10.36. Days in drug program variable had a skew of 8.62 and kurtosis of 89.98. A value equal to or greater than .95 was desirable for the CFI and RCFI (Bentler, 2006). The root mean square error of approximation (*RMSEA*) was also used to assess goodness of fit; a value of .06 or less is desirable (Hu & Bentler, 1999). Although fit indices based on normal theory and the robust statistics were very similar, we report both of them.

An initial confirmatory factor analysis (CFA) assessed the adequacy of the hypothesized measurement model and the associations among the latent variables without any inference of precedence: Trauma history (indicators: childhood and adult), chronic homelessness (indicators: time homeless and number of times), substance use history (indicators: depressants, hallucinogens and stimulants), recent emotional distress (indicators: mental health index and depression), substance treatment history, and current substance treatment participation (indicators: time in formal treatment and self-help participation). Then a structural model positioned the demographics of ethnicity, age, and gender as predictors of the factors of trauma history, chronic homelessness and substance use history. Significant correlations were allowed among the background predictors and among the residuals of trauma history, chronic homelessness and substance use history. In turn trauma history, chronic homelessness and substance use history predicted recent emotional distress which served as the intervening variable. Past substance abuse treatment participation was also predicted by trauma history, chronic homelessness and a substance use history and was correlated with recent emotional distress due to concerns about temporal precedence in this cross-sectional model. Past substance abuse treatment and recent emotional distress predicted current substance treatment. We did not rule out the possibility of demographics also predicting the outcome of current substance treatment and examined the results of the LaGrange Multiplier Test (Chou & Bentler, 1990) to assess whether further parameters should be added to the model for fit improvement and further explication. As mentioned above, an alternative model assessed the impact of current substance treatment on recent emotional distress.

3. Results

3.1. Confirmatory factor analysis

Table 1 reports the ranges, means, standard deviations, and factor loadings of the measured variables in the confirmatory factor analysis. All factor loadings were significant ($p < .001$). Fit indexes for the CFA model which required no model modification were all excellent: *ML* χ^2 (58, *N* = 853) = 135.67; *CFI* = .97, *RMSEA* =. 040; Satorra-Bentler χ^2 (58, *N* = 853) = 134.03; *RCFI* = .96, *RMSEA* = .039. Table 2 reports correlations among the factors and the single-item demographics.

There were moderate correlations among trauma history, chronic homelessness, substance use history, past substance abuse treatment, and recent emotional distress (all $p < .001$). Highlighting some of the other substantial associations, females were more likely to report a trauma history ($p < .001$); trauma history was less likely among African-Americans and older participants ($p < .05$). A more severe substance use history was less likely among females, African-Americans and older homeless people. Current substance treatment was most associated with past substance abuse treatment and a substance use history as would be expected; African-Americans and older participants were less likely to have had current substance treatment.

3.2. Structural path model

The final predictive structural model is presented in Fig. 1. The structural model had excellent fit statistics: $ML \chi^2$ (74, $N = 853$) = 152.02; $CFI = .97$, $RMSEA = .035$. Results with the robust method were similar: $S\text{-}B \chi^2 = 151.76$; $RCFI = .96$, $RMSEA = .035$. This model accounted for 70% of the variance in current substance treatment participation. This principally is due to the high association between current substance treatment and past substance abuse treatment. Moreover, a direct effect of African-American ethnicity ($\beta = -.20$, $p < .01$) and recent emotional distress ($\beta = -.17$, $p < .01$) as predictors of less current substance treatment were found. In the bivariate correlations, this association was non-significant, so it surfaced in the path model due to accounting for and controlling for the association between recent emotional distress and past substance abuse treatment. We found direct effects of trauma history ($\beta = .28$, $p < .001$), chronicity of homelessness ($\beta = .12$, $p < .05$) and substance use history ($\beta = .11$, $p < .05$) on emotional distress. Moreover, past substance abuse treatment was predicted by substance use history ($\beta = .43$, $p < .001$) and trauma history ($\beta = .08$, $p < .05$).

Female gender was a significant predictor of trauma history ($\beta = .49$, $p < .001$), less chronicity of homelessness ($\beta = -.11$, $p < .05$) and less of a substance use history ($\beta = -.22$, $p < .001$). African-American ethnicity predicted less trauma history ($\beta = -.09$, $p < .05$), less chronic homelessness, ($\beta = -.10$, $p < .05$), and less substance use history ($\beta = -.26$, $p < .001$). Not surprisingly, older participants reported more homelessness ($\beta = .17$, $p < .001$) since one of the indicators was scaled in years.

The alternative model described above fit the data reasonably well overall and was similar to the final model presented in Fig. 1, but current substance treatment was not a significant predictor of lessened recent emotional distress. The association was negative as it is the alternative significant formulation, but this relationship did not approach significance at even a .05 level, one-tailed test.

We also examined indirect effects mediated through the intermediate variables. Female gender and African-American ethnicity had significant negative indirect effects on recent emotional distress ($p < .001$) and on past substance abuse treatment ($p < .05$, and $p < .001$ respectively). This was due to the lower likelihood of past severe substance use histories among both the women and the African-Americans. Substance use history had a significantly positive indirect effect on current substance treatment mediated through past substance abuse treatment ($p < .001$). The effect of past substance abuse treatment on current

substance treatment was particularly strong. Female gender and African-American ethnicity had significant negative indirect effects on current substance treatment ($p < .01$, and $p < .001$ respectively) probably due again at least in part to their lower likelihood of using drugs in the past.

4.   Discussion

The main goal of this study was to analyze the relationships among trauma history, substance use history, chronic homelessness, and the mediating role of emotional distress in predicting substance treatment participation among adult homeless people. Although the data were cross-sectional, the model was designed to have a logical flow in that immutable background factors of gender, ethnicity and age were used as predictors of longer term predisposing characteristics of the participants. These predisposing factors included earlier trauma due to abuse, their homelessness history, and their substance use histories. The substantial associations that we found among these variables are consistent with prior research that found abuse and substance use as important risk factors and concomitant of homelessness (Ferguson, 2009; Gwadz et al., 2007; Hamburger et al., 2008; Wu et al., 2010). In turn, we positioned these longer term characteristics as predictors of recent emotional distress and also of past episodes of substance treatment. We did not hypothesize directional predictive paths between prior substance treatment and recent emotional distress, so they were best considered as correlates to take account of their positive although modest relationship. We then examined utilization of substance treatment in the very recent past, the key variable in our model. We expected a sizeable association between prior and current substance treatment participation due to stability across time, but were not necessarily expecting that recent distress would predict less treatment participation significantly.

Our findings suggest that due to difficulties in negotiating the mental health/drug abuse systems currently in place, the neediest homeless people with co-occurring disorders may be missing out on substance abuse treatment. Indeed, the neediest homeless people may be falling through the cracks in the service provision system in general. According to Zlotnick, Tam, and Robertson (2003), homeless adults without current substance abuse disorders are more able to exit from homelessness perhaps due to their greater abilities to engage services and obtain support from family and friends than those with ongoing addiction problems.

There were other possible explanations for our findings other than our contention that the directionality of our chosen model is plausible. Those who are participating in treatment may be reaping positive benefits which may include less depression and distress. We needed to test this possibility due to our cross-sectional data. Grella and Stein (2006) found that individuals with co-occurring disorders who were treated in drug treatment programs with specific "dual diagnosis" services and more on-site psychological services subsequently had higher rates of utilizing mental health services, and in turn, showed significantly greater improvements in psychological functioning at follow-up. Thus we also tested this possible association with our alternative model reported above, which was not supported. The directional regression path between current treatment as a predictor and recent emotional distress as an outcome was negative but non-significant. This may in part be due to the fact that our sample is homeless and also was mostly not in formal treatment settings long

enough for improvement in emotional health such as was observed by Grella and Stein (2006). Homeless persons do show some difficulties in completing drug treatment programs. For instance, Caton et al. (2007) reported that only about one-quarter of homeless people completed their treatment programs. It is possible that some aspects of the service/ organizational environment can explain why homeless people impede help-seeking. Lack of trust has been reported to be an important barrier to treatment completion (Altice, Mostashari, & Friedland, 2001). Based on prior experience or beliefs shared within marginalized communities of poor people, mistrust for all mental health providers is high (Bray et al., 2010). Homeless people's negative experiences with services in the past could be related with their lower engagement in current substance treatment.

The associations among risk factors of homelessness found in this study suggest that substance abuse interventions on homeless should recognize the need for psychological support for the effects of their trauma histories on their lives, and support better service integration when clients present more than one of these issues (trauma, substance use and lack of permanent housing). According to recent findings, the best approach to treating substance abuse among the homeless may be the use of a more global approach, including general treatment for addiction combined with provision of social services and continued monitoring to address new issues as they arise (Stein et al., 2012). For example, in a meta-analysis, Schumacher, Milby, Wallace, and Meehan (2007) found that abstinence-contingent housing appears to be a sufficient condition for improving abstinence behavior in homeless persons with cocaine disorders, as well as an intervention on basic needs.

In this study trauma history had only a modest positive association with prior substance treatment. Sacks, McKendrick, and Banks (2008) found that homeless addicted women with reported histories of childhood trauma and abuse are less likely than their peers without such histories to respond to residential substance abuse treatment. Some previous studies provide promising evidence that women who report experiences of trauma and abuse have better short-term drug abuse and mental health outcomes when counseling integrates a concurrent focus on substance abuse, mental health, and trauma issues (Cocozza et al., 2005; Morrissey et al., 2005).

We also explored the impact of demographics on the substantive variables in our model. The results of this study suggest that intervention programs for homeless persons should consider their gender, ethnicity and age. Women reported more traumatic events associated with sexual, physical, and emotional abuse than males which supports prior findings (e.g., Cocozza et al., 2005; Holbrook, Hoyt, Stein, & Sieber, 2002), and they also modestly reported more emotional distress in the bivariate associations. They were less likely to have a severe substance use history and were less likely to report chronic homelessness. African-American participants reported a less severe substance use history, less chronic homelessness, and less recent emotional distress. Several large epidemiological studies evaluating depression independently from other psychiatric disorders suggest lower rates of depression for African-Americans as compared with other groups (Alim et al., 2006). Moreover, there is some evidence that African-American women exposed to severe trauma may be more resilient to stress (Vogel & Marshall, 2001). Furthermore, African-Americans are often homeless due to severe financial problems rather than pre-existing issues with

substance abuse and trauma. This is often the case for some women as well who may have minor children with them while homeless (Stein et al., 2012).

As with all research, there are limitations in this study including reliance on self-reports of various behaviors such as substance use. However, strong correlations between objective measures of various forms of substance use and self-report data have been demonstrated in other studies among homeless people (e.g., Nyamathi, Leake, Longshore, & Gelberg, 2001). In addition, the participants in this study which is based in Los Angeles may not be representative of all homeless individuals throughout the country. Furthermore, some homeless people that were approached may have been unwilling to be tested for hepatitis A and B which may also have impacted the generalizability of our findings. However, this sample closely mirrors the general demographic characteristics of the homeless population found in the Los Angeles area which increases confidence in this sample (Los Angeles Homeless Services Authority, 2007). As stated previously, due to the cross-sectional nature of the data, influences may be opposite of the way we positioned the variables. However, we did position enduring traits and past behaviors as predictors of more recent behaviors and tested an alternative plausible model that did not provide the explanatory power of our chosen model.

This research builds upon robust empirical evidence about psychosocial factors (including trauma history, substance use history, and mental health) that increase the likelihood of becoming homeless based on a large sample with a wide age range. Moreover, this study goes beyond previous research in its attempt to integrate these psychosocial factors into a model and explain the relations among these factors and their associations with substance treatment participation. Analyzing predictors of substance abuse treatment participation among homeless adults is essential to more effectively address barriers to treatment and attend to the unique needs of people who are homeless.

In conclusion, homeless adults have a variety of risk factors from trauma history and mental health problems to a lack of basic necessities, such as inadequate food and shelter. Thus, interventions that focus only on one aspect of an individual's life, such as drug treatment, will not likely have a meaningful change; rather, a more holistic approach to intervention is required (Slesnick, Dashora, Letcher, Erdem, & Serovich, 2009). Homeless clients with co-occurring disorders have better housing outcomes in communities with more service integration – although not necessarily better outcomes regarding substance use or mental health status (Rosenheck et al., 2002; Rosenheck, Kasprow, Frisman, & Liu-Mares, 2003). Thus, stable housing may provide only one needed platform for ongoing exigent interventions to address the complex behavioral disorders associated with addiction problems among homeless people.

The common barriers to engaging homeless individuals into a treatment system are (Zerger, 2002): disaffiliation (general lack of social support system), distrust (disenchantment with service providers), mobility (difficult to engage a long-term treatment plan), and multiplicity of needs (physical, mental and social problems). The accessibility of homeless people to primary care is often limited due to factors such as opening hours, inflexible appointment procedures and location (Griffiths, 2002). Thus, outreach has been shown consistently to be

a successful method for reducing these barriers as a first step in increasing their use of primary care (Elissen, Van Raak, Derckx, & Vrijhoef, 2013). In general, the success of homeless care programs depends in large part on providers' ability to adapt to the unique characteristics of their target population (Elissen et al., 2013). The training of nurses, social workers, psychologists, physicians and other professionals who are in contact with homeless people will be the key to break these barriers. Then, creating meaningful collaborations between these professionals will be especially important. In addition, after engaging homeless people in substance abuse treatment, emotional distress should be treated simultaneously to increase their time in substance treatment. Future research could study the role that protective factors have on exiting homelessness as well as implementing programs designed to control emotional distress among homeless persons. Furthermore, contextual and interactive factors could be studied in relation to substance treatment engagement.

Acknowledgments

Appendix

Questionnaire: Trauma history

Childhood

1. Sexual abuse: As a child (less than 18 years of age), were you ever touched or made to touch someone else in a sexual way, because you felt forced in some way or threatened by harm to yourself or someone else?

   Yes ☐

   No ☐

2. Rape: As a child, did you ever have sex (oral, anal and/or genital) because you felt forced in some way or threatened by harm to yourself or someone else?

   Yes ☐

   No ☐

3. Physical assault: As a child, were you ever robbed, mugged, or physically (not sexually) attacked?

   Yes ☐

   No ☐

4. Physical abuse: As a child, were you ever physically abused (for example, hit, choked, burned or beaten)?

   Yes ☐

No ☐

Adulthood

5.   Sexual abuse: As an adult, were you ever touched or made to touch someone else in a sexual way, because you felt forced in some way or threatened by harm to yourself or someone else?

Yes ☐

No ☐

6.   Rape: As an adult, did you ever have sex (oral, anal and/or genital) because you felt forced in some way or threatened by harm to yourself or someone else?

Yes ☐

No ☐

7.   Physical assault: As an adult, were you ever robbed, mugged, or physically (not sexually) attacked by a stranger or someone you did not know very well?

Yes ☐

No ☐

8.   Physical abuse: As an adult, were you ever physically abused (for example, hit, choked, burned, stabbed or beaten) by a stranger or someone you knew well (for example, a parent, sibling, boyfriend, girlfriend)?

Yes ☐

No ☐

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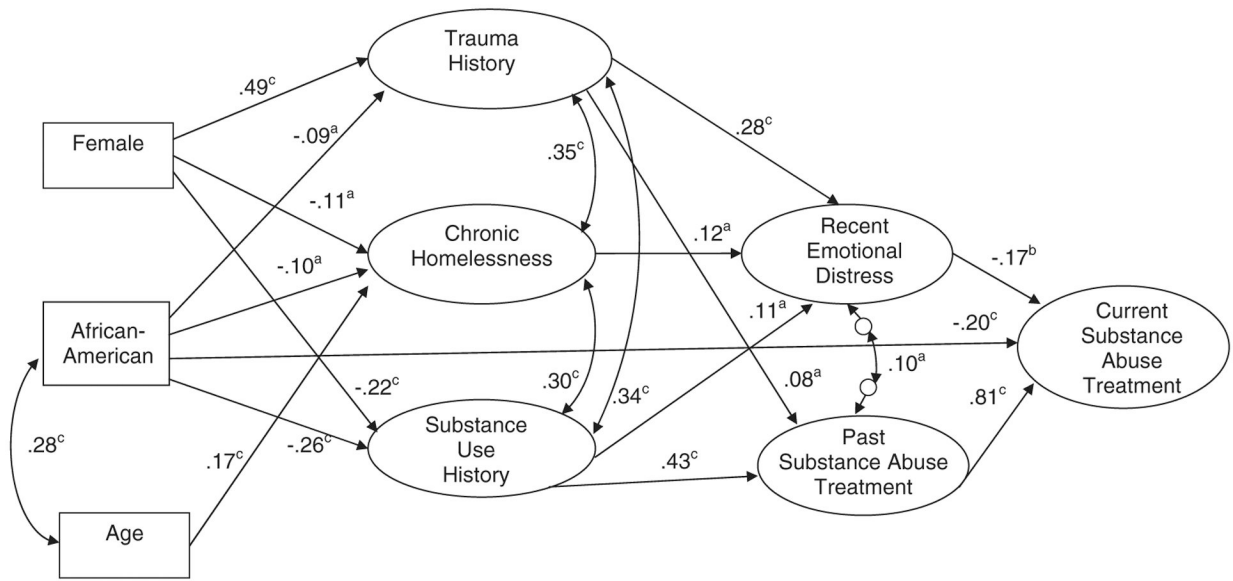
Fig. 1.
Structural model predicting participation in substance abuse treatment by 853 homeless people. All estimated parameters are standardized. Two-headed arrows represent correlations; one-headed arrows represent regression paths. a = $p < .05$; b = $p < .01$; c = $p < .001$.

Table 1

Means, standard deviations, ranges and standardized factor loadings of measured variables in analysis of 853 homeless persons.

Variables	Range	M/%	SD	Factor loading
Trauma history				
1. Childhood abuse	0–3	.57	1.05	.56
2. Adulthood abuse	0–3	.56	1.04	.76
Substance use history				
3. Stimulants	0–3	1.40	.67	.78
4. Depressants	0–3	1.08	.73	.65
5. Hallucinogens	0–2	1.01	1.01	.76
Chronicity of homelessness				
6. Time homeless	0–30	3.02	3.84	.62
7. Number of times	0–50	2.95	4.26	.55
Recent emotional distress				
8. Mental health index	0–100	34.33	21.85	.86
9. Depression	0–60	16.82	11.64	.81
Past substance abuse treatment				
10. Substance treatment history	0–3	.76	.92	-
Current substance abuse treatment (past 6 months)				
11. Days in substance treatment	0–180	2.00	11.95	.42
12. Days in self-help	0–180	15.31	30.40	.42
Demographics				
13. Female	-	23%	-	-
14. African-American	-	69%	-	-
15. Age	19–65	42.28	9.02	-

All factor loadings are significant (p .001).

Table 2

Correlations among latent variables among 853 homeless persons.

	1	2	3	4	5	6	7	8
1. Trauma history	-							
2. Chronic homelessness	.24 ***	–						
3. Recent emotional distress	.34 ***	.22 ***						
4. Substance use history	.20 ***	.30 ***	.19 ***	–				
5. Past substance abuse treatment	.18 ***	.16 ***	.19 ***	.45 ***				
6. Current substance abuse treatment	.12	–.03	.01	.45 ***	.80 ***	-		
7. Female	.50 ***	–.11 **	.09 *	–.21 ***	–.08 *	–.04	-	
8. African-American	–.09 *	–.05	–.11 **	–.26 ***	–.08 *	–.25 ***	–.02	-
9. Age	–.09 *	.13 **	–.04	–.12 **	–.07 *	–.15 **	–.03	.28 ***

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.