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The effects of the therapeutic workplace and heavy alcohol use on homelessness among homeless alcohol-dependent adults

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ABSTRACT

Background: A clinical trial demonstrated that a therapeutic workplace could promote alcohol abstinence in homeless, alcohol-dependent adults. This secondary-data analysis examined rates of homelessness and their relation to the therapeutic workplace intervention and alcohol use during the trial.
Methods: In the trial, homeless, alcohol-dependent adults could work in a therapeutic workplace for 6 months and were randomly assigned to Unpaid Training, Paid Training, or Contingent Paid Training groups. Unpaid Training participants were not paid for working. Paid Training participants were paid for working. Contingent Paid Training participants were paid for working if they provided alcohol-negative breath samples. Rates of homelessness during the study were calculated for each participant and the three groups were compared. Mixed-effects regression models were conducted to examine the relation between alcohol use (i.e., heavy drinking, drinks per drinking day, and days of alcohol abstinence) and homelessness.
Results: Unpaid Training, Paid Training, and Contingent Paid Training participants did not differ in the percentage of study days spent homeless (31%, 28%, 17%; respectively; $F(2,94) = 1.732$, $p = 0.183$). However, participants with more heavy drinking days ($b = 0.350$, $p < 0.001$), more drinks per drinking day ($b = 0.267$, $p < 0.001$), and fewer days of alcohol abstinence ($b = -0.285$, $p < 0.001$) spent more time homeless.
Conclusions: Reducing heavy drinking and alcohol use may help homeless, alcohol-dependent adults transition out of homelessness.

1. Introduction

Alcohol use and abuse frequently occur alongside homelessness. As many as half of homeless adults have current alcohol use disorders (Fazel et al., 2008). A review of studies examining the relation between homelessness and mortality found that 30–70% of deaths in homeless individuals were related to alcohol intoxication or chronic alcohol use, with average age at death ranging from 42 to 52 years (O'Connell, 2005). Treatment of alcohol use disorder in the homeless is complicated by the range of problems they face (Fischer and Breakey, 1991; Toro et al., 1995) including extreme poverty, unemployment, co-occurring drug use and mental health problems, frequent contact with correctional agencies, and poor general health (Larimer et al., 2009; Polcin and Korcha, 2015). The Institute of Medicine identified the homeless as a group in need of specialized interventions that are tailored to their specific characteristics and needs (IOM, 1990), including housing, income, and employment (Zerger, 2002).

Contingency management interventions have been shown effective in treating substance use in a diverse range of populations (Dutra et al., 2008; Knapp et al., 2007; Lussier et al., 2006). These interventions involve the delivery of tangible consequences (e.g., money or vouchers exchangeable for goods and services) contingent on objective evidence of drug abstinence (Higgins et al., 2002; Silverman et al., 1999). Milby et al. (1996, 2000, 2005) used abstinence-contingent housing and work therapy to promote drug abstinence in homeless adults and Miller (1975) used a contingency management intervention to promote abstinence from alcohol in so-called "chronic public drunkenness offenders." In a recent study, Koffarnus et al. (2011) used abstinence-contingent access to a therapeutic workplace to promote abstinence from alcohol in homeless alcohol-dependent adults. The therapeutic workplace is a

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contingency management intervention that was designed to address some of the interrelated and chronic problems of homelessness, such as unemployment, lack of education and job skills, and drug addiction (Silverman, 2004; Silverman et al., 2012). The therapeutic workplace includes two phases: in the initial phase (Phase 1) participants are paid for engaging in intensive individualized education and job-skills training in a model workplace. To promote drug abstinence, participants must provide drug-negative urine samples to gain access to the workplace and to maintain maximum pay. Once participants initiate abstinence and acquire skills, they can progress to the second phase (Phase 2) in which the emphasis is on employment in real-world businesses. In prior research, participants who progressed to Phase 2 were hired as data entry operators in a business that sold data entry services to paying customers, called Hopkins Data Services (Aklin et al., 2014; Silverman et al., 2005). Subsequent ongoing research is evaluating two additional models for maintaining abstinence and promoting employment in Phase 2, called the Wage Supplement Model and the Cooperative Employer Model (for a detailed description of the models, see Silverman et al., 2016).

The study by Koffarnus et al. (2011) showed that Phase 1 of the therapeutic workplace was effective in reducing alcohol use in homeless alcohol-dependent adults. However, any potential effects of the therapeutic workplace intervention on homelessness were not examined. Because alcohol abuse, unemployment, lack of job skills, and homelessness are interrelated problems, it is possible that the services provided via the therapeutic workplace may have affected homelessness. The present secondary-data analysis was conducted to examine whether participation in the therapeutic workplace program impacted homelessness and to examine whether changes in alcohol use were associated with changes in homelessness.

2. Material and methods

This secondary analysis is based on data collected during a randomized clinical trial that examined whether the therapeutic workplace could promote alcohol abstinence in homeless, alcohol-dependent adults. The primary outcome measures and detailed methods have been reported elsewhere (Koffarnus et al., 2011). Methods pertaining to the present analysis are reproduced here for reference. Given the time-frame of data collection, the current report uses the term “alcohol dependence” as defined by DSM-IV, even though that term has been subsumed by the DSM-V category “alcohol use disorder.”

2.1. Setting and participants

The original clinical trial was conducted in the Center for Learning and Health, located on the Johns Hopkins Bayview Campus in Baltimore, MD. Participants had to be at least 18 years old, reported that they were currently homeless (i.e., stayed in a shelter, on the street or in an abandoned house at least one night over the past 30 days; lost public housing assistance recently or were at risk of losing residence; or slept in more than two places over the past 30 days), were unemployed, and met DSM-IV criteria for alcohol dependence. All participants provided written informed consent.

2.2. Design and description of conditions

Participants (N = 124) of the original trial were invited to attend the therapeutic workplace to participate in a job-skills training program for 4 h every weekday for six months. Twice-daily breath samples were collected and tested for alcohol on workdays. Randomly-scheduled breath samples also were collected and tested to capture alcohol use outside of the workplace (two per week, on average). Participants were randomly assigned to one of three groups (Contingent Paid Training, Paid Training, and Unpaid Training). Contingent Paid Training participants (n = 43) could receive training in the workplace and could earn monetary vouchers for their participation in the workplace. However, access to the workplace and the opportunity to earn vouchers was contingent on providing daily and randomly scheduled alcohol-negative breath samples (BAL < 0.004 g/dl). Contingent Paid Training participants who provided an alcohol-positive breath sample were not allowed access to the workplace until they provided an alcohol-negative breath sample; they also received a temporary decrease in their base pay voucher amount from $5 per hour to $1 per hour. After this base pay reset, the voucher amount increased by $0.10 per hour for each day the participant met the abstinence requirement. After nine consecutive days of meeting the abstinence requirement, the voucher amount was restored to its original value. Paid Training participants (n = 42) were invited to receive training in the workplace and could earn monetary vouchers for their participation in the workplace even if their daily or random breath samples tested positive for alcohol. Unpaid Training participants (n = 39) could receive training in the workplace even if their daily or random breath samples tested positive for alcohol, but they did not earn monetary vouchers for their participation in the workplace.

Contingent Paid Training and Paid Training participants could earn $5 per hour in base pay for working in the workplace plus additional pay for performance on training programs. Performance pay was delivered via two computer-based training programs that taught participants keyboarding skills while in the workplace. Participants could earn performance pay for keyboarding correct characters and for passing steps in the programs. On most steps, participants could earn $0.03 for every 10 correct characters. The bonuses for passing steps began at $1.00 and increased in value as participants progressed through the program.

2.3. Assessments

Assessments were conducted at baseline and every month during the original trial. These assessments included the administration of the Addiction Severity Index (ASI; McLellan et al., 1980), the Timeline Follow-Back interview (Sobell and Sobell, 1996), and questionnaires on demographics and homelessness. At baseline only, alcohol dependence was assessed using the DSM-IV checklist (Hudziak et al., 1993). At each assessment, participants were asked to report how many days in the past 30 days they had stayed or slept in: (1) their own apartment or house (includes living with partner, parents, friends, or other relatives); (2) jail; (3) a residential treatment program or recovery house; (4) a room in a hotel or motel; (5) a hospital; (6) a homeless shelter; and (7) an abandoned house, in a park, in an automobile, in a vacant lot, in an alley, in a dumpster, under a bridge, behind a business, or on the street. For the present analyses, participants who reported that they had stayed or slept in any of the locations listed under items 6 and 7 were considered homeless on those days. This definition of homelessness was selected prior to conducting any of the data analyses and was selected to identify participants that would meet established definitions of literal homelessness (Orwin et al., 2005; Tsemberis et al., 2007). Data from the Timeline Follow-Back interview were used to calculate heavy drinking days (≥5 drinks per day for men and ≥4 drinks per day for women), drinks per drinking day, and days of alcohol abstinence. Participants could earn $30 in vouchers for completing each monthly assessment.

2.4. Data analyses

Of the original 124 participants, 17 did not complete any of the 6 monthly assessments and 10 completed only 1–2 of the