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**VULNERABILITY FACTORS FOR  
HOMELESSNESS ASSOCIATED  
WITH SUBSTANCE DEPENDENCE  
IN A COMMUNITY SAMPLE  
OF HOMELESS ADULTS**

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**ABSTRACT**

We studied a community probability sample of 1185 homeless individuals to examine substance dependence in relationship to other personal and social vulnerabilities linked to homelessness, including sociodemographics, childhood/adolescent factors, pre-homelessness factors, multiple episodes of homelessness, and the quality of shelter in their current episode of homelessness.

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These vulnerability factors were significantly concentrated in homeless individuals with lifetime and recent substance dependence, especially among those with both alcohol and drug dependence. In addition, the profiles of the homeless with alcohol dependence alone were distinct from those with drug dependence alone or both, with older age, more males, longer histories of homelessness, and significantly poorer quality shelter during the previous 30 days.

Therefore, homeless individuals with substance dependence have many vulnerabilities beyond their substance dependence that should be dealt with in treatment or other service settings before lasting housing can be achieved.

*Key Words:* Homelessness; Course of homelessness; Substance dependence; Risk factors; Vulnerabilities

## INTRODUCTION

Individuals with substance use disorders are more prevalent in community samples of the homeless than in the general housed population, with risk ratios of over two.<sup>[1-4]</sup> Excess rates of mental illness, particularly serious mental illness, are similarly high or even higher compared to housed populations.<sup>[1,2]</sup> Not surprisingly, homeless individuals also demonstrate high levels of physical and mental health problems<sup>[5-11]</sup> and excess health care costs compared to the general housed population.<sup>[8,12]</sup>

Much has been written to identify the social and community circumstances and the personal characteristics that are associated with individuals who are homeless. Social and community circumstances include absence or low availability of affordable housing and the de-institutionalization of the mentally ill.<sup>[13-15]</sup> Personal characteristics include persistent poverty, weak social networks and low social support, criminal activity, mental illness, and substance use disorders.<sup>[14,16-19]</sup> Furthermore, homeless individuals are highly likely to have experienced trauma<sup>[8,15,20-22]</sup> and family homelessness or housing instability during childhood and adolescence.<sup>[15,23-26]</sup> Yet, even though the high prevalence of substance use and abuse has been well documented in homeless populations, there has been little documentation of the overlap between substance abuse and other personal and social vulnerabilities associated with homelessness.

Not surprisingly, partly because of the high prevalence of substance use disorders among the homeless, many of these individual risk factors also characterize individuals with substance use and misuse.<sup>[8,27-30]</sup> Many individuals with substance use disorders have also experienced childhood and adolescent trauma,

family dysfunction, and family substance abuse.<sup>[31-36]</sup> Therefore, because these personal risk factors are common to both substance abuse and homelessness, as well as in mental illness,<sup>[14]</sup> they may be particularly concentrated in homeless individuals with substance abuse, as well in those with chronic mental illness.<sup>[14]</sup> We know that homeless individuals with chronic mental illness have higher levels of childhood risk factors, including family instability and childhood experiences of violence and abuse, compared to homeless individuals without mental illness.<sup>[14]</sup> We have also argued elsewhere that mental illness and substance abuse do not in themselves account for the current prevalence of homelessness, but are rather risk factors that leave people more vulnerable to homelessness where there is a dearth of affordable housing.<sup>[14,15]</sup>

From available population data, we know that few homeless individuals with substance use disorders obtain formal treatment or any help with drugs and alcohol from missions and shelters or other treatment locations.<sup>[37]</sup> Therefore, reports on samples from treatment and service settings cannot estimate the full association of substance use disorders with continued homelessness in general populations of the homeless. Little is known about the associations of substance use disorders with risk factors for homelessness in nontreatment and nonservice setting samples, particularly among homeless individuals not identified from shelters and missions.

This report examines the associations of substance use disorders with personal and social vulnerabilities for homelessness using population data from the RAND course of homeless (COH) study, a probability community sample of 1563 homeless adults in Los Angeles County interviewed in 1990 and 1991.

We hypothesized that homeless individuals with substance dependence would report greater vulnerabilities for homelessness, including poorer socio-demographics (e.g., income, and marital status), negative childhood experiences (e.g., more frequent episodes of family homelessness and family disturbances), and lower social support, compared to homeless individuals with no lifetime substance dependence. These domains were selected on the basis of the risk factors for homelessness described previously.

## METHODS

### Sample

Subjects were drawn from two Los Angeles County sites, the downtown "skid row" area (about 85% of the total sample) and the West Side beach area. People were considered homeless if they had spent at least one of the last 30 nights in a setting either defined as temporary shelter (excluding those doubled up with family or friends) or not designed for shelter. Persons currently living in their own dwelling places for less than 30 consecutive days were included to avoid

excluding those regularly homeless for a portion of each month. This group of individuals represented less than 4% of the entire sample, and consisted almost entirely of people who made erratic use of single room occupancy hotels or who were residing with family or friends on the night preceding the interview as a very short-term, makeshift arrangement that included very recent (i.e., within the last 30 days) literal homelessness.

Using a probability sampling method that combined elements of Burnam and Koegel's service-setting sampling approach<sup>[38]</sup> and Rossi's "blitz" sampling,<sup>[39]</sup> subjects were selected at random from homeless shelters, meal facilities, and from literally homeless populations on the streets. Respondents were sampled proportionately to their numbers in the downtown and westside areas, as determined by a one-night enumeration.<sup>[37,40]</sup> They were also sampled proportionately to their distribution across three nested sampling strata: the population using shelter beds, the population using meal facilities, and the unsheltered population using neither. Individual homeless persons were then randomly selected from each of these strata. Women, who actually comprise 16% of the homeless population in these two study areas, were over-sampled to represent 26% of the sample. Of the 1782 individuals who were eligible to participate after screening for homelessness, 88% agreed to complete the baseline interview. Further details on sampling are presented elsewhere.<sup>[15,37,40]</sup>

### Procedures and Measures

Identified homeless adults were administered face-to-face, structured interviews in either English or Spanish between October 1990 and September 1991. Informed consent was obtained and subjects were paid \$10 to complete the baseline interview. Persons were interviewed in meal facilities around meal times, at shelters in the evenings, and on the streets between 11:00 p.m. and 5:00 a.m. The survey instrument was highly structured, and averaged 2 hr in length. The interview measured demographic characteristics, homelessness history including factors that preceded the first episode of homelessness, and early background (before the age of 18) including history of family and individual difficulties. Psychiatric disorders were identified by the Diagnostic Interview Schedule (DIS)<sup>[41]</sup> to identify the American Psychiatric Association's diagnoses from the Diagnostic and Statistical Manual, Third Version Revised (DSM-III-R).<sup>[42]</sup> The DIS interviews were conducted for major depression, mania, schizophrenia, and substance use disorders including alcohol, amphetamines, cannabis, cocaine, heroin, opiates, and sedatives.

In addition to measures of substance dependence, we selected from the baseline interview specific measures in six domains, based on the literature described earlier, that have been identified as risk factors for entry into

homelessness. We defined recent (past 30 days) housing status as: “exits”—nights spent in an apartment house or home, a hotel or motel that the individual paid for or paid by voucher, halfway house, board and care, home or room of a friend, a hospital, nursing home, or convalescent facility, jail or prison; “nights in jail”; “outdoors”—nights spent on the street or in other outdoor places; “limited shelter”—nights spent not outdoors but not in a place meant for sleeping; and nights “in places meant for sleeping”—nights in hotels, apartments, jails, shelters, programs, board and care. Places not meant for sleeping included streets, chapel, chair, an all-night theatre, in a car, or in an abandoned building. This housing category (places meant for sleeping) can be thought of as a measure of the quality of their shelter in the current episode of homelessness. The personal and social vulnerabilities used in this report were:

1. Sociodemographics, including age, income (log transformed due to skewness of this variable), gender, marital and partner status, race, and education,
2. Childhood/adolescent vulnerabilities (before the age of 18), including experiences of physical or sexual abuse, caretaker illness or disability, violence or abuse in the household, family instability (a dichotomous variable measuring whether experienced multiple parental or parent-like living situations such as living with foster parents or in an orphanage), institutional or out of home placement, and residential stability as a child (evicted, shared and had to leave, or moved to less desirable shelter),
3. Homelessness history, including whether this episode was their first episode of homelessness; pattern of homelessness (a created variable summarizing the length of episodes and cycling in and out of homelessness); age at first homelessness; and number of years since first homeless,
4. Measures of personal troubles in the year before the first homeless episode, including whether in institutional care, trouble with income or expenses, alcohol or drug problems, physical or mental health problems, spent time in a hospital, jail, prison, group care or treatment facility, or a foster home,
5. Characteristics of current episode of homelessness (during the past 30 days), including a categorical variable measuring the usual shelter (being in an exit, limited shelter, shelter, outdoors, and other), whether victimized, months since last housed, proportion of nights outdoors, proportion of nights in jail, and the proportion of nights in places meant for sleeping,
6. Social support, including average social support, and social support from partner, family, friends, and staff. Social support was measured by modifications of the Medical Outcomes Study social support assessment.<sup>[43]</sup>

### Data Analysis

In order to focus on vulnerabilities associated with substance use disorders alone, we excluded 319 sampled individuals with chronic mental illness. Chronic mental illness was defined as either a lifetime diagnosis of schizophrenia with symptoms within the past three years or a lifetime affective disorder (mania or major depression) with symptoms within the past three years, multiple episodes, and who met DIS severity criteria (i.e., they saw a doctor or other professional, they took medication, experienced a significant interference with functioning).<sup>[37,44]</sup> We wanted to remove the possible "contamination" of a dual diagnosis group with both substance abuse and mental illness, and our previous paper documented that the chronically mentally ill, especially those who became homeless prior to becoming mentally ill, have the highest levels of disadvantage and family disruption.<sup>[14]</sup> Therefore, inclusion of the mentally ill in the group with no substance dependence would also bring some contamination. We also excluded 59 additional individuals with missing data for a diagnosis of alcohol or drug dependence ( $n = 59$ ), for a final sample size of 1185.

Using the DIS interviews, subjects were classified as to whether they had a lifetime diagnosis of substance use dependence and a recent (past 6 months) diagnosis of the same. A recent diagnosis was measured by a lifetime diagnosis of dependence and at least one symptom of abuse or dependence for the same substance during the 6 months before the interview. We chose to focus on substance dependence rather than including substance abuse,<sup>[42]</sup> because dependence identifies the more severe condition, but in reality few participants ( $n = 29$ , 21 with alcohol abuse and 9 with drug abuse) received a diagnosis of substance abuse alone. In this report, we use the term "substance dependence" to refer to dependence upon alcohol or illegal drugs or both, and "drug dependence" to refer to dependence on illegal drugs alone. For convenience, we also refer to dependence on both alcohol and drugs as "polysubstance," although we recognize that individuals with dependence on more than one drug could also be described as polysubstance dependent.

For analysis, data were weighted by the reciprocal of an estimated probability of selecting each sampled individual. Probabilities were estimated using two different underlying stochastic models that were conceived as bounds on actual probabilities. One model assumed that individuals repeatedly go to the same facilities and street locations over time, and the other model assumed individuals choose randomly among geographically available facilities and street locations. Probabilities estimated under each model included two components: (1) the selection of facilities and street locations on any given day (or night) of survey sampling, and (2) the selection of individuals within locations, given the selection of facility or location. Weights used in this paper average the results



from these two models.<sup>[37]</sup> All statistical analyses were conducted using these weights but unweighted data are reported in the text and in tables.

We contrasted the six groups of personal and social vulnerabilities (described in "Procedures and Measures") for homelessness among individuals with and without a lifetime or a recent (past 6 months) substance dependence. For those with a lifetime diagnosis of substance dependence, we also compared individuals with and without a recent diagnosis to examine additional vulnerabilities associated with recent substance problems compared to those with no recent symptoms. Analyses used weighted tests of independence for categorical data and weighted *t*-tests for continuous data. Because of the large sample size, we set the size of the test ( $\alpha$ ) at 0.01.

We hypothesized that a recent (past 6 months) diagnosis of substance dependence would show the strongest associations with the vulnerabilities. However, we also wondered whether the broader more inclusive classification of any lifetime substance dependence disorder might have similar associations, especially when many of the proposed domains were also historical and retrospective rather than related to the current episode of homelessness.

We conducted exploratory separate analyses of correlates of drug dependence and alcohol dependence (data not reported) and found relatively similar results to those found for substance dependence, except that in a number of instances the findings were nonsignificant because the "absent" group for one diagnosis also included "present" for the other diagnosis. Therefore, to identify differences in vulnerabilities for alcohol and drugs separately, we created a variable summarizing the results of the lifetime substance dependence diagnoses as (1) both alcohol and drug disorders, (2) alcohol alone, (3) drug alone, and (4) neither.

We used contingency tables to identify associations between this summary variable and categorical variables. For simplicity sake, to avoid tables with a large number of cells, categorical variables with many categories were reduced to dichotomous risk variables to give us  $2 \times 4$  contingency tables. Then we used an epidemiologic model to conceptualize the various vulnerabilities as "exposures" and to measure the odds ratios for these exposures given various "disease states," or three dichotomous variables representing both diagnoses, alcohol alone, drug alone, with the none group as the reference group. Using logistic regression, we modeled the probability of each exposure as a function of the diagnosis groups. The logistic regression models calculated odds ratios for each dichotomous variable to identify which substance use diagnosis group had the highest relative odds compared to the no dependence group.

For continuous variables, we used multiple linear regression and Tukey's Studentized Range tests for contrasting pairs of substance dependence groups (e.g., both diagnoses vs. none, both diagnoses vs. alcohol alone, etc.). We hypothesized that vulnerabilities for homelessness would be greatest in the group with both alcohol and drug dependence.

Finally, as an exploratory, cross-sectional, evaluation of the relative strength of substance dependence compared with other personal vulnerabilities in predicting homelessness, we conducted a multiple regression analysis in which we regressed the variable measuring the proportion of nights spent in places for sleeping in the past 30 days (see "Procedures and Measures") on the personal vulnerabilities including substance dependence. We hypothesized that the personal vulnerabilities, as well as substance dependence, would be associated with fewer nights in places meant for sleeping.

## RESULTS

Overall, the sample was three-quarters male (76.2%, see Table 1), 18.1% Caucasian, and 69.1% were high school graduates. Only 7.5% were currently partnered (married or living with a partner) and the sample was on average 37.6 years ( $SD = 10.1$  years) old. Almost half (47.3%) reported being in their first episode of homelessness. The sample reported a lifetime average of 43.4 months ( $SD = 63.5$ ) of homelessness and 7.5 years ( $SD = 9.1$ ) since first homeless. During the past 30 days, the sample spent an average of 33% of the nights outdoors, 2% of the nights in jail, and 51% of the nights in places meant for sleeping.

### Substance Use Diagnoses

Two-thirds (66.8%) of the sample were assigned a lifetime substance dependence diagnosis (alcohol or illegal drug) by the DIS. Almost half the sample (43.9%) had a drug disorder including cannabis, 39.6% had a drug disorder excluding cannabis, and over half (54.5%) had a lifetime alcohol dependence disorder. Almost one-third (31.5%) were dependent on both alcohol and drugs, almost a quarter (23.0%) were dependent on alcohol alone, and 12.2% were dependent on at least one illegal drug (including cannabis) alone. A third (33.3%) were dependent upon neither alcohol nor drugs during their lifetime. Individual lifetime drug dependence diagnoses were: amphetamines (6.6%), cannabis (15.9%), cocaine (32.0%), heroin (9.3%), inhalants (0.5%), opiates (2.6%), PCP (2.5%), and sedatives (3.7%). On average, individuals with drug and alcohol dependence experienced their first dependence symptoms several years before their first episode of homelessness: 9.8 ( $SD = 10.8$ , range -24 to 49) years for alcohol dependence and 5.8 ( $SD = 9.7$ , range -25 to 36) years for drug dependence. In all, only 89 individuals reported onset of alcohol dependence symptoms and 103 reported onset of drug dependence symptoms after the age of their first homeless episode.

Table 1. Correlates of Lifetime and Recent Substance Dependence in 1185 Homeless Adults Without Chronic Mental Illness<sup>a</sup>

Variable	Substance Dependence Diagnosis				Total
	Lifetime Dependence		Recent Dependence (Past 6 Months)		
	Yes (N = 792)	No (N = 393)	Yes (N = 547)	No (N = 633)	
<b>Sociodemographics</b>					
Age (mean, SD)	37.3 (9.2)	38.0 (11.6)	36.6 (9.2)	38.3 (10.8)	37.6 (10.1)
Log income (mean, SD)	5.0 (1.7)*	4.6 (2.0)	5.1 (1.5)*	4.4 (2.0)	4.9 (1.3)
Ever married (%)	49.1	46.6	46.6	49.5	48.3
Have children (%)	63.8***	52.9	61.2	59.0	60.2
Male (%)	81.9*	64.6	84.5*	69.4	76.2
Currently partnered (%)	6.8	9.0	5.9	9.0	7.5
<b>High school education (%)</b>					
Elementary	10.6	10.4	10.2	10.8	10.6
Some high school	19.6	17.4	21.5	16.8	18.9
High school graduate	41.4	36.1	42.8	36.9	39.7
Some college	28.3	36.1	25.6	35.5	30.9
<b>Race (%)</b>					
Hispanic	14.0	15.8	14.3**	15.0	14.6
White	18.2	17.8	16.1	19.6	18.1
Black	61.6	56.5	64.0	56.6	59.9
Other	6.2	9.9	5.7	8.9	7.4
<b>Childhood/adolescence factors</b>					
Physically or sexually abused (%)	15.5	10.6	16.8	11.5	13.9

(continued)

Table 1. Continued

Variable	Substance Dependence Diagnosis				Total
	Lifetime Dependence		Recent Dependence (Past 6 Months)		
	Yes (N = 792)	No (N = 393)	Yes (N = 547)	No (N = 633)	
Caretaker illness or disability (%)	49.0*	30.1	48.2*	33.3	40.1
Violence or abuse in household (%)	20.5**	13.0	21.7***	15.0	18.0
Family instability (%)	51.9*	63.2	50.6***	59.8	55.7
In institution before 18 (%)	23.9*	8.7	25.3*	13.5	18.9
Out of home placement (%)	27.9*	14.3	29.8*	18.0	23.4
Residential stability (%)					
Evicted	4.3***	3.4	4.6***	3.5	4.0
Shared, had to leave	2.6	0.8	2.8	1.3	2.0
Moved to less desirable shelter	10.8	7.0	10.7	8.7	9.6
No unstability	82.3	88.9	82.0	86.5	84.5
Homelessness history					
Currently in first episode (%)	40.4*	61.0	38.6*	54.8	47.3
Total months homeless (mean, SD)	45.1 (63.3)	40.1 (64.0)	49.8 (69.7)**	38.3 (57.4)	43.4 (63.5)
Age at first homelessness (mean, SD)	29.2 (10.5)*	32.3 (12.2)	28.0 (10.1)*	32.1 (11.7)	30.1 (11.2)
# Years since first homeless (mean, SD)	8.3 (9.2)*	6.1 (8.6)	8.8 (9.3)**	6.5 (8.8)	7.5 (9.1)
Pattern of homelessness (%)					
First episode, short	17.8*	33.8	16.3*	28.8	23.0
First episode, long	23.3	27.5	22.6	26.8	24.6
Multiple short episodes	21.3	17.3	21.8	18.3	20.4
Long episodes, low cycling	27.2	16.5	28.0	20.0	5.0
Long episodes, high cycling	10.4	4.9	11.4	6.3	17.0

History before first episode of homelessness					
In institutional care (%)	24.1*	13.8	26.7*	16.4	21.2
Trouble with income or expenses (%)	58.8	55.9	56.3	59.2	57.8
Personal trouble (%)	73.3*	28.5	79.8*	40.1	58.4
Physical or mental health problems (%)	15.2*	11.3	16.0***	12.3	13.9
Substance use (%)	63.7*	11.0	71.1*	24.8	46.2
# Troubles (mean, SD)	0.4 (0.2)*	0.2 (0.2)	0.4 (0.2)*	0.3 (0.2)	0.3 (0.2)
Recent homelessness (past 30 days)					
Usual shelter category (%)					
Exit	16.4**	19.1	15.9**	18.5	17.3
Limited shelter	13.3	13.5	13.4	13.3	13.3
Shelter	29.2	32.6	26.4	33.5	30.3
Outdoors	38.9	31.3	41.9	31.9	36.4
Other	2.1	3.6	2.4	2.8	2.6
Victimization	26.6**	20.1	29.1*	20.7	24.5
Months since last housed	34.9 (62.4)	33.8 (59.5)	38.4 (69.6)	31.4 (53.4)	34.5 (61.4)
Proportion of nights outdoors (mean, SD)	0.35 (0.4)**	0.29 (0.4)	0.37 (0.4)**	0.30 (0.4)	0.33 (0.4)
Proportion of nights in places meant for sleeping (mean, SD)	0.49 (0.42)	0.55 (0.43)	0.47 (0.41)	0.54 (0.43)	0.51 (0.42)
Proportion of nights in jail (mean, SD)	0.02 (0.1)	0.02 (0.1)	0.03 (0.1)***	0.02 (0.1)	0.02 (0.1)
Social support					
Average social support (mean, SD)	2.0 (0.7)**	1.9 (0.7)	2.0 (0.7)	1.9 (0.8)	2.0 (0.7)
Partner support (mean, SD)	1.3 (1.0)	1.3 (0.9)	1.3 (1.0)	1.3 (1.0)	1.3 (1.0)
Family support (mean, SD)	2.5 (1.4)	2.3 (1.4)	2.5 (1.4)	2.4 (1.4)	2.4 (1.4)
Friend support (mean, SD)	2.4 (1.2)	2.3 (1.2)	2.4 (1.2)	2.3 (1.2)	2.4 (1.2)
Staff support (mean, SD)	1.8 (1.2)**	1.6 (1.0)	1.7 (1.1)	1.8 (1.1)	1.7 (1.1)

<sup>a</sup> Some variables have missing data. Percents are column percents. Data presented are unweighted but statistical analyses were conducted using sampling weights to compensate for unequal selection probabilities, \* $p < 0.0001$ , \*\* $p < 0.001$ , \*\*\* $p < 0.01$ .

Almost half the sample (46.4%) also had a recent substance dependence diagnosis within the past 6 months. Of these, alcohol dependence was the most frequent (34.3%), followed by cocaine dependence (20.0%), cannabis (5.0%), and heroin (2.9%). Recent dependence on other individual drugs was less than 1%. Thirteen percent (13.3%) were recently dependent upon both alcohol and drugs, 21.3% on alcohol alone, and 12.0% on an illegal drug alone. Just over half (53.7%) were not dependent on either alcohol or drugs in the previous 6 months.

### Homelessness Vulnerabilities Associated with Lifetime Substance Dependence

There were few sociodemographic differences among substance-dependent individuals and those who were not substance-dependent in their lifetime (Table 1). Not surprisingly, substance-dependent individuals were more likely to be male ( $p < 0.0001$ ), but they also were more likely to have had children and had higher recent incomes.

Individuals with lifetime substance dependence reported substantially greater childhood and adolescent factors, including family and residential instability, and family and personal difficulties before the age of 18 (see Table 1). Specifically, substance-dependent individuals were more likely to have been evicted, shared housing but had to leave, or moved to a less desirable housing during childhood or adolescence ( $p < 0.01$ ). They were also substantially more likely to have experienced a caretaker with illness or disability, violence or abuse in their household, to have been in an institution or an out-of-home placement before the age of 18 (all  $p < 0.0001$  or  $p < 0.001$ ).

Similarly, the substance-dependent homeless reported more multiple episodes of homelessness, longer episodes of homelessness, earlier age at first homelessness, and significantly more troubles before their first episode of homelessness (Table 1, all  $p < 0.01$ ). They were more likely to have experienced institutional care, physical or mental health problems, and substance use before their first episode of homelessness compared to homeless individuals with no substance dependence. Not only were they significantly more likely to have had multiple episodes of homelessness, but they also had longer episodes and more "cycling", defined as cycling in and out of homelessness at least once a year.

During the 30 days before interviewed, homeless individuals with substance dependence were more likely to have been a victim of assault, spent proportionately more nights outdoors, but similar proportion of nights in jails or in places meant for sleeping. They were also substantially less likely to be in their first episode of homelessness during the current episode (40.4 vs. 61.0%,  $p < 0.0001$ ).

We calculated a summary score totaling up the relevant personal vulnerabilities depicted in Table 1 (range 6–23). Not surprisingly, we found that

individuals with substance dependence had significantly higher scores (12.3 vs. 10.9) on this scale ( $p < 0.0001$ ), indicating greater clustering of vulnerabilities.

Finally, individuals with lifetime substance dependence reported significantly higher average social support, although the differences in means were slight (2.0 vs. 1.9), and significantly higher support from staff in shelters, service agencies, etc. (1.8 vs. 1.6).

#### **Homelessness Vulnerabilities Associated with Recent (Past 6 Months) Substance Dependence**

Results comparing homeless individuals with recent substance dependence to those without were relatively similar to results for individuals with lifetime dependence (Table 1). Means and proportions were sometimes higher in the no recent diagnosis group due to inclusion of subjects with a lifetime diagnosis but no reported symptoms in the previous 6 months. In analyses of the subset of individuals with a lifetime diagnosis comparing those with a recent diagnosis to those with no recent symptoms (data not shown), we found quite similar results to Table 1. Therefore, because the associations of recent diagnoses were somewhat weaker, we continued analyses using lifetime rather than recent diagnoses.

#### **Homelessness Vulnerabilities Associated with Type of Substance Dependence**

We examined the associations of lifetime polysubstance dependence (defined as both alcohol and drug dependence) compared to alcohol dependence alone, drug dependence alone, and no dependence. Results of the categorical data analyses are displayed in Table 2 and results of the continuous variable analyses are displayed in Table 3. For demographics, we found that the alcohol alone group was significantly older (mean = 40.6 years) than all other groups (alcohol and drug, mean 30.9 years, drug only, mean 34.3 years, neither, mean 38.0 years) but that the other groups had similar ages. Income was also significantly different among the groups, with the highest income surprisingly in the polysubstance dependence group. Males were also most represented in the polysubstance group (OR = 2.9) and alcohol only group (OR = 2.8) compared to the no dependence group. Polysubstance dependent homeless and drug dependent only were also more likely to have had children. There were no differences in lifetime marital status or being currently partnered.

The polysubstance dependent group reported substantially more difficulties before first homelessness compared to all other groups (Tables 2 and 3). They were more likely to have experienced physical or mental health problems (OR = 1.9),

**Table 2.** Correlates of Polysubstance Dependence in 1185 Homeless Adults with No Chronic Mental Illness (Categorical Data)<sup>a</sup>

	Lifetime Substance Dependence						
	Alcohol and Drugs, N = 371		Alcohol Alone, N = 271		Drug Alone, N = 144		Neither, N = 393 %
	%	OR	%	OR	%	OR	
<b>Sociodemographic</b>							
Ever married	49.3	1.1	48.7	1.1	47.9	1.0	46.6
Have children**	66.6	1.8	57.8	1.2	66.0	1.9*	52.9
Male*	84.1	2.9*	83.8	2.8	74.3	1.6	64.6
Currently partnered	6.7	0.7	6.7	0.7	7.6	0.8	9.0
High school education*	72.0	1.1	60.9	0.6**	75.0	1.2	70.7
<b>Childhood/adolescence factors</b>							
Physically or sexually abused	16.5	1.6	12.0	1.1	20.3	2.1***	10.6
Caretaker illness/disability*	53.2	2.5*	40.6	1.5	32.8	1.1	30.1
Violence or abuse in household***	23.2	2.1**	17.2	1.4	20.3	1.7	13.0
Residential instability*	21.3	2.0*	13.9	1.2	16.2	1.4	11.0
Family instability*	55.0	2.0*	42.4	1.1	47.9	1.5	37.4
In institution	30.5	4.2*	16.0	1.8	22.9	2.8*	8.7
Out of home placement*	34.3	2.9*	19.4	1.3	28.5	2.2**	14.3
<b>Homelessness history</b>							
First episode: current*	36.7	0.4*	44.9	0.5*	41.3	0.4*	61.0
<b>Before first homeless episode</b>							
Institutional care*	30.1	2.6*	19.1	1.4	22.4	1.8	13.8
Trouble with income or expenses	60.1	1.2	55.8	1.0	62.0	1.3	55.9
Personal trouble*	82.8	12.0*	61.0	3.9*	73.4	6.9*	28.5
Physical and mental health problems*	19.1	1.9*	15.0	1.5	6.3	0.6	11.3
Substance use*	75.4	23.1*	47.6	6.8*	65.0	14.0*	11.0
<b>Current homelessness (past 30 days)</b>							
Victimization	25.9	1.4	27.3	1.6	28.5	1.6	20.1

<sup>a</sup> Percents are column percents. Data presented are unweighted but statistical analyses were conducted using sampling weights to compensate for unequal selection probabilities, \* $p < 0.0001$ , \*\* $p < 0.001$ , \*\*\* $p < 0.01$ . When placed by variable name, superscripts indicate overall results of contingency table analysis. When placed by the OR (= odds ratio), superscripts indicate results of test for OR = 1 by logistic regression with the "neither" group as the reference group.



**Table 3.** Correlates of Polysubstance Dependence in 1185 Homeless Adults Without Serious Mental Illness (Continuous Variables)<sup>a</sup>

Variable	Lifetime Substance Dependence							
	Alcohol and Drug, N = 371		Alcohol Alone, N = 271		Drug Alone, N = 144		Neither, N = 393	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
<b>Sociodemographics</b>								
Age*	36.0 <sup>2</sup>	(7.9)	40.6 <sup>1,2,3</sup>	(10.9)	34.3 <sup>3</sup>	(6.6)	38.0 <sup>1</sup>	(11.7)
Log income*	5.2 <sup>1,2</sup>	(1.5)	4.7 <sup>1</sup>	(1.9)	5.2	(1.4)	4.6 <sup>2</sup>	(2.0)
<b>Homelessness history</b>								
Age at first homelessness*	28.0 <sup>1,2</sup>	(9.6)	30.7 <sup>2</sup>	(12.2)	29.0	(9.0)	32.3 <sup>1</sup>	(12.2)
Lifetime total months homeless*	42.9 <sup>1,4</sup>	(52.9)	60.1 <sup>1,2,3</sup>	(83.9)	24.2 <sup>3,4,5</sup>	(28.6)	40.1 <sup>2,5</sup>	(64.0)
# Of years since first homeless*	8.1 <sup>1,4</sup>	(8.7)	9.9 <sup>1,2,3</sup>	(10.5)	5.5 <sup>2</sup>	(7.0)	6.1 <sup>3,4</sup>	(8.6)
# Of homeless episodes*	3.2 <sup>3</sup>	(2.9)	3.0 <sup>1,2</sup>	(2.9)	2.5 <sup>1</sup>	(2.1)	2.1 <sup>2,3</sup>	(2.3)
<b>Current episode (past 30 days)</b>								
Proportion of nights outdoors**	0.34 <sup>3</sup>	(0.39)	0.40 <sup>1,2</sup>	(0.42)	0.28 <sup>1</sup>	(0.39)	0.29 <sup>2,3</sup>	(0.40)
Proportion of nights in jail	0.03	(0.13)	0.01	(0.05)	0.03	(0.13)	0.02	(0.11)
Proportion of nights in places meant for sleeping***	0.51	(0.41)	0.42 <sup>1,2</sup>	(0.42)	0.59 <sup>1</sup>	(0.41)	0.53 <sup>2</sup>	(0.43)
# Of months since last housed*	29.9 <sup>1,4</sup>	(45.6)	49.1 <sup>1,2,3</sup>	(77.3)	22.5 <sup>3,4,5</sup>	(65.7)	33.8 <sup>2,5</sup>	(59.5)
Social support Overall**	2.1 <sup>1,2</sup>	(0.7)	2.0	(0.7)	2.0 <sup>1</sup>	(0.7)	1.9 <sup>2</sup>	(0.7)

<sup>a</sup> Data presented are unweighted but statistical analyses were conducted using sampling weights to compensate for unequal selection probabilities. \* $p < 0.0001$ , \*\* $p < 0.001$ , \*\*\* $p < 0.01$ . When placed by variable name, superscripts indicate overall results of main effect  $F$  test with three numerator degrees of freedom. Denominator degrees of freedom varied because of missing data, but ranged from 1095 to 1175. Means with the same numerical superscript indicate significant pairwise differences by Tukey's Studentized Range Tests.

and substance use (OR = 23.1) before first homelessness compared to those with no substance use diagnosis. In contrast, comparable odds ratios on these variables were 1.5, and 6.8, respectively, for alcohol alone vs. no dependence, and 0.6, and 14.0 for drug diagnosis vs. no dependence. They were also significantly younger (28.0 years) at their first episode of homelessness (compared to 30.7, 29.0, and 32.3 years for alcohol only, drug only, and neither groups). Where significant, odds ratios for the alcohol only and drug only dependent homeless were substantially smaller than the odds ratios for the polysubstance dependent homeless.

Similarly, the polysubstance dependence group reported greater childhood/adolescent factors, including violence or abuse in the household (OR = 2.1), caretaker illness or disability (OR = 2.5), institutionalization (OR = 4.2), out of home placement (OR = 2.9), residential instability (OR = 2.0), and family instability (OR = 2.0). The alcohol alone group had no odds ratios significantly different from 1.0 compared to the no dependence homeless in this set of personal vulnerabilities. The drug only group had significant odds ratios for being physically or sexually abused (OR = 2.1), placed in an institution before the age of 18 (OR = 2.8), and out of home placement (OR = 2.2) compared to the no dependence homeless. In general, significant odds ratios for the drug only group were smaller in comparison to the alcohol and drug dependent group.

On the other hand, the alcohol dependent only group reported more severe duration of homelessness, including lifetime number of months homeless, months since last housed, and number of years since first homeless. The alcohol only group also reported more severe current (past 30 days) homelessness, including more nights outdoors and fewer nights in places meant for sleeping.

#### **Association Between Substance Dependence and Recent Quality of Shelter ("Places Meant for Sleeping")**

We constructed multiple regression models for the associations among substance use diagnosis and other personal vulnerabilities as predictors of past 30 days' proportion of nights spent in places meant for sleeping. We first used all measures defined in Table 1 and eliminated nonsignificant variables to determine a model in which all variables were significant (Table 4). In early analyses, we measured substance dependence by dichotomous indicators of both lifetime and recent substance dependence and, separately, by the summary variable used in Tables 2 and 3 defining polysubstance dependence. These measures were nonsignificant. However, based on the results described in Tables 2 and 3, we hypothesized that the effects of alcohol and drug dependence might be so different that they were canceling each other out either when measured as a single or the grouped variable. Therefore, we measured recent substance dependence by two dichotomous variables representing recent alcohol dependence and

**Table 4.** ANOVA Table for Final Multiple Linear Regression Model for Recent Quality of Shelter ( $n = 1010$ )<sup>a</sup>

Variable	Df	Mean Square	F	p
Male gender	1	1.10	8.23	0.0042
Race	3	1.93	4.82	0.0024
Social support	1	1.83	13.69	0.0002
Lifetime # months homeless	1	4.86	36.38	<0.0001
Total # homeless episodes	1	2.2	16.45	<0.0001
Income (log transformation)	1	1.32	9.86	0.0017
Recent alcohol dependence	1	1.2	8.9	0.0028
Recent drug dependence	1	0.66	4.93	0.0266

<sup>a</sup>Quality of Shelter defined as proportion of nights in places meant for sleeping. Statistical analyses were conducted using sampling weights to compensate for unequal selection probabilities. Sample size for this analysis is reduced due to missing data on some variables.

recent drug dependence. We used recent diagnosis because of the close temporal association with recent homelessness. We found that a recent diagnosis of alcohol dependence was highly and negatively significant in relationship to proportion of nights spent in places meant for sleeping in the past 30 days ( $p = 0.0064$ ) but that recent drug dependence was not significant given our pre-determined alpha level of 0.01 (Table 4). Other significant variables were male gender (negatively), race (negatively for Hispanics), social support (positively), lifetime number of months homeless (negatively), total number of homeless episodes (positively), and income (negatively).

## DISCUSSION

Homeless individuals with a lifetime or recent diagnosis of substance dependence reported more severe homeless history, more childhood/adolescent vulnerabilities for homelessness, repeated homelessness, and indications of poorer quality recent shelter (more days outdoors, fewer nights in places meant for sleeping, more victimization). Furthermore, homeless persons with *both* alcohol and drug dependence had the *most severe* childhood/adolescent and other vulnerabilities for homelessness. Individuals with alcohol dependence alone reported the most chronic homelessness. In addition, individuals with a recent diagnosis of alcohol dependence had the poorest quality shelter during the past 30 days (measured by nights in places meant for sleeping), even after controlling for more distal factors such as history of chronic homelessness that were also

significant predictors. The various results suggest that homeless individuals with alcohol disorders alone are a distinct sub-group of the homeless with possibly different pathways to homelessness and, potentially, a different prognosis in terms of subsequent exits from homelessness. Homeless individuals with alcohol dependence alone, because of their longer homelessness history and older chronological age may be less adaptable and less able to make the personal changes necessary to achieve stable housing.

The concentration or clustering of personal and social vulnerabilities among the substance dependent, particularly those with polysubstance dependence, may occur because similar underlying factors such as childhood adversity, dysfunctional family backgrounds, and family histories of substance use and psychiatric disorders, are also associated with the onset of substance use and misuse.<sup>[31-33,35,36,45]</sup> Therefore, these factors increase risk for both substance abuse and homelessness. The majority of the substance-dependent homeless we studied had onset of their substance use disorder before their first episode of homelessness. Undoubtedly some factors that lead to the first episode of homelessness could be attributed to the deleterious consequences of substance dependence or use, including loss of employment, loss of family support, and poor functioning. Other factors that are associated with continued homelessness, such as troubled adolescent family and personal life, may have preceded the onset of substance dependence and undoubtedly contributed to substance use difficulties.

Unfortunately cross-sectional retrospective data cannot disentangle the unique predictors of homelessness and substance abuse, but it is likely that negative childhood and adolescent experiences had both direct and indirect (through development of substance dependence) effects on the study participants' history of homelessness. Documentation of these underlying common factors points to a broad range of vulnerabilities for the homeless person with substance dependence, especially when dependent on both alcohol and illegal drugs, even if the substance dependence is not necessarily recent. These factors both increase the complexities of their personal problems as well as potentially decrease their likelihood of long-term exit from homelessness. Therefore, substance dependence, especially polysubstance dependence, in the homeless can potentially be viewed not only as a clinical problem per se but also as a critical indicator of a host of other social and psychological problems that may need to be assessed and ultimately addressed before successful resolution of homelessness can occur. Furthermore, from a public health perspective, early interventions in troubled families might change or moderate the cycle of homelessness across generations because these distal factors are so long-standing and have undoubtedly already caused considerable psychological distress prior to obtaining services for the homeless. Such early interventions, if successful on a large scale, might also help ameliorate the impact of the broad social changes during the 1980s and 1990s, (including periods of recession, decline in incomes among the very poor,

declining employment opportunities for less well-educated workers), changes for which increased homelessness is both a symptom and an indicator.<sup>[46]</sup>

Our results suggest that homeless individuals who have never been dependent on alcohol or drugs may have a different, and perhaps more optimistic, subsequent course of homelessness. Lacking the severe background of childhood/adolescent deprivation and early onset of homelessness that are associated with substance dependence, and being more likely to be in their first episode of homelessness, these individuals may well demonstrate the best prognosis for early and a more lasting exit from homelessness. Because individuals without substance dependence were much more likely to be in their first episode of homelessness, they have not yet established a pattern of cycling in and out of homelessness. Therefore, a potentially far-reaching intervention would be to make early and targeted efforts for individuals in their first episode of homelessness who are not substance dependent before they begin cycling into multiple episodes of homelessness.

Few homeless individuals with substance use disorders obtain formal or informal treatment for their substance use. In an earlier report from the same study, we found that less than a fifth of the full sample (including the chronically mentally ill) had received formal substance use treatment within the last 60 days of the baseline interview.<sup>[37]</sup> In that report, we found that a key predictor of receiving treatment was receiving help from nonservice providers in accessing formal treatment system or direct help from service providers themselves (OR = 5.3). The nonservice providers included staff from a shelter, drop-in center, or other service program. Because nonservice providers can serve as gateways into the formal treatment system, increasing motivation for engaging in treatment is critical, as well as increasing the availability of treatment programs and treatment capacity for the homeless. These data also suggest that substance abuse treatment and other services for the homeless with substance abuse or dependence need to deal with the broad range of vulnerabilities, many long-standing, identified here, not just with the substance dependence alone if these individuals are to regain stable housing.

Many of the items measured in the baseline interview could indicate possible diagnoses of childhood conduct disorder or antisocial personality disorder (ASPD). However, we have shown previously that many of the criteria for ASPD, such as prolonged unemployment, history of prior arrests, carrying a weapon are also features of homelessness.<sup>[47]</sup> In fact, we concluded that some of the symptoms are explained more accurately by homelessness rather than a diagnosis of ASPD.<sup>[47]</sup> Therefore, the COH study did not include diagnostic interviews for ASPD. Because of time, the study did not include diagnostic interviews for post-traumatic stress disorder (PTSD), so we could not examine issues related to this diagnosis and substance dependence.

The limitations of this study include the inability to establish the etiology of homelessness in a cross-sectional study that does not include nonhomeless individuals, although other such studies do exist.<sup>[24,25,30]</sup> Substance dependent

individuals may have been over-represented in the sample from an epidemiologic perspective because of the study's sampling at a single point in time and the substance dependent would have been more likely to be included because of multiple episodes of homelessness. Furthermore, this study was located in a geographically limited area—Los Angeles County—and we do not know whether the results here would be applicable elsewhere, especially to the mid-west, the east coast, or to rural areas.

Also, as noted earlier, we cannot disentangle the antecedents of the substance dependence from the antecedents of homelessness with cross-sectional data. Finally, we eliminated individuals with chronic mental illness from the dataset in order to focus on personal vulnerabilities for substance dependence apart from those for mental illness. Given our findings on the pathways to homelessness among the mentally ill,<sup>[14]</sup> we suspect that the personal vulnerabilities might be even more highly concentrated in the smaller group of homeless individuals with dual diagnoses.

These limitations aside, we have found that many of the generally accepted risk factors for homelessness were concentrated or clustered in individuals with substance dependence, particularly those with both alcohol and drug dependence, and that a diagnosis of recent alcohol dependence was independently associated with lower quality shelter in the past 30 days. Thus, homeless individuals with substance dependence appear to be at high risk for continued homelessness and delayed time to obtaining quality housing. Because they have little access to mental health, substance abuse, and general medical health services, homeless individuals with substance dependence may be at particularly high risk for continued homelessness. If so, then concerted efforts must be made by various agencies and services to address both the underlying vulnerabilities as well as the immediate substance use disorder.

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