Physical, Addictive, and Psychiatric Disorders Among Homeless Veterans and Nonveterans

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Synopsis

A cross-sectional survey of 1,431 homeless adults was conducted during the winter of 1989—90 at three shelters in Santa Clara County, CA, with a 98 percent response rate. Of the 1,008 U.S.-born men, 423, or 42 percent, were veterans, including 173 combat-exposed veterans and 250 noncombat-exposed veterans. There were 585 nonveterans.

Both combat and noncombat-exposed veterans were significantly more likely to report excessive alcohol consumption before their initial loss of shelter than were nonveterans. Combat-exposed veterans had the highest prevalences of psychiatric hospitalizations and physical injuries before homelessness, 1.5 to 2 times higher than nonveterans and noncombat-exposed veterans. The length of time between military discharge and initial loss of shelter was longer than a decade for 76 percent of combat-exposed veterans and 50 percent of noncombat-exposed veterans.

The extended time from discharge to homelessness suggests that higher prevalences of alcohol consumption, psychiatric hospitalization, and physical injury among veterans, especially those exposed to combat, may not have arisen from military service. It is possible, however, that such disorders may be considerably delayed before becoming serious enough to impact one's family, work, and the availability of shelter.

PAST STUDIES HAVE DOCUMENTED LARGE NUMBERS of military veterans among the homeless, especially among men who reached young adulthood during the Vietnam era (*1–9*). Although veterans have been suggested to be disproportionately represented among the homeless, the reasons for this have not been explained adequately.

If veterans are at greater risk of homelessness, such risk may be related to their military service and may result from physical injury or substance abuse induced by combat exposure. Alternatively, the risk of homelessness may be unrelated to military service and may result from problems such as substance abuse before or after entering military service.

Our study was conducted to extend the findings of prior research on homeless veterans and was part of a large cross-sectional survey of homeless adults (*10–12*). Our first objective was to examine whether the proportion of veterans among the homeless was higher than among domiciled men. Our second objective was to evaluate whether sociodemographic factors; adverse childhood events; and adult physical, mental, and addictive disorders, with onset before initial loss of shelter, differed among nonveterans, combat-exposed veterans, and noncombat-exposed veterans. Our third objective was to explore the association between time of discharge from military service and onset of homelessness.

Methods

The settings for data collection were three National Guard armories in Santa Clara County, CA, offering free shelter to adults without children. The county population is 1.5 million and includes the City of San Jose, third largest in California. The

three armories were in urban, suburban, and rural locations and provided about half of the shelter beds in the county for homeless adults.

All adults were sampled on the first night that they registered at the armories from November 29, 1989, through March 31, 1990. There were no admitting restrictions and registration was allowed throughout the night. Since guests could stay for an unlimited number of nights, they were given registration cards as a means of identifying those who participated in the survey. An analysis at the end of the study, using an algorithm of birth date and sociodemographic information, confirmed that no one was interviewed more than once. Confidentiality was maintained by administering the survey in a private area. Respondents were provided a hygiene kit for their participation.

Measurement of variables. Data were collected through the use of a questionnaire with 58 items, administered by registered nurses and health interviewers from Stanford University. Interviews were conducted in either English or Spanish. Sociodemographic questions were modeled after those used by the census, allowing for comparisons with nonhomeless men (*13*). Participants were classified as veterans if they answered *yes* to the census question "Did you ever serve on active duty in the military?" Additional questions elicited information on the branch of service, number of years served, and involvement in military combat.

Questions on adverse childhood events concerned sexual or physical abuse and placement in foster care before the age of 18. Questions on physical illnesses and injuries asked whether such problems were present when the respondent first became homeless and whether the problems contributed significantly to the loss of shelter.

Adult medical disorders were assessed using three items on alcohol intake and illegal drug use from the National Institute on Mental Health's (NIMH) Diagnostic Interview Schedule (DIS) (*14*) and one item on overnight psychiatric hospitalization from the NIMH Epidemiologic Catchment Area household sample questionnaire (*15*). The DIS, which has been used in community surveys conducted in five epidemiologic catchment areas in the United States, including California, contains data on more than 18,000 adults randomly selected from household probability samples. We expanded the DIS questions in order to distinguish disorders present before the first episode of homelessness from those present later, permitting delineation of problems before the loss of shelter.

Survey Population, Study of Homeless Veteran and Nonveteran Men, Santa Clara County, CA, 1989–90

1,464	adults on the first night they registered at three armories from November 29, 1989, through March 31, 1990.
1,431	adults participated (98 percent response rate).
169	women were excluded (10 of whom were veterans).
254	foreign-born men were excluded (41 of whom were veterans).
1,008	were U.S.-born men. Of them,
585	were nonveterans and
423	were veterans, 42 percent of U.S.-born men. Of the 423,
250	were noncombat-exposed veterans and
173	were combat-exposed veterans.
68	percent of the combat veterans and
39	percent of the noncombat veterans in the survey population served during the Vietnam War years, 1964–75.

The DIS questions on alcohol use addressed both perceptual ("Did you ever think you were an excessive drinker?") and quantitative ("Did you ever consume seven or more beers, drinks, or glasses of wine every day for 2 weeks or more?") aspects of drinking. The DIS question on illegal drug use asked if respondents had ever used any illegal drug (including opiates, cocaine, or marijuana) every day for 2 weeks or more. The psychiatric hospitalization question asked whether participants had ever been admitted overnight to a hospital or treatment program for family or personal problems, emotional problems, or problems with drugs or alcohol.

Analysis. The analysis was stratified into three groups of homeless men: nonveterans, combat-exposed veterans, and noncombat-exposed veterans. A Kruskal-Wallis rank test was used to test for differences in continuous variables and a chi-square statistic was used for categorical variables. All P values are two-tailed.

Results

Study population. Survey data were collected from 1,431 of the 1,464 persons who registered at the three armories (98 percent response rate). For those

Table 1. Demographic characteristics in a sample of homeless veteran and nonveteran men in Santa Clara County and domiciled men in California, 1989–90

Characteristic	Percent of homeless sample: Nonveteran (N = 585)	Noncombat veteran (N = 250)	Combat veteran (N = 173)	P value[1]	Percent of domiciled men[2]
Ethnicity:					
White	55	59	55		67
Black	25	28	25		8
Hispanic	17	10	8	<0.001	20
Other	3	4	12		6
Age (years):					
18–24	16	5	1		23
25–34	40	39	12		29
35–44	29	28	56	<0.001	19
45 and older	14	28	31		30
Education:[3]					
Less than high school	34	16	16		25
High school	39	46	40		27
Some college	23	30	28	<0.001	23
Four years college or more	4	7	16		24
Marital status:					
Never married	57	47	23		32
Currently married	7	8	8		59
Separated or divorced	34	43	63	<0.001	7
Widower	2	2	6		2
Homelessness:					
More than once	49	50	38	<0.03	[4]...
More than 1 year[5]	43	46	46	0.52	[4]...
Medical insurance:					
None	81	72	60		[4]...
VA[6]	0	14	24	<0.001	[4]...
Private, HMO, or other	19	14	16		[4]...

[1]Tests for differences between nonveterans, noncombat veterans, and combat veterans.
[2]Reference *13*.
[3]25 years and older.
[4]Not available from census data.
[5]Total cumulative time.
[6]Department of Veterans Affairs.

Table 2. Prevalences of childhood and adult medical disorders in a sample of homeless veteran and nonveteran men prior to initial loss of shelter, Santa Clara County, CA, 1989–90 (percentages)

Self-reported event	Percent Nonveteran	Percent noncombat veteran	Percent combat veteran	P value
Adverse childhood event				
Low income growing up	35	36	32	0.67
Physical abuse	12	16	15	0.27
Sexual abuse	5	8	6	0.33
Placed in foster care	12	12	11	0.89
Adult medical disorder				
Alcohol abuse:				
Perceived use[1]	32	38	40	0.04
Actual use[2]	25	31	26	0.23
Illegal drug use[3]	27	23	21	0.19
Psychiatric hospitalization[4]	12	14	22	<0.01
Physical illness or injury[5]	13	10	19	0.02

[1] As defined by the question, "Did you ever think you were an excessive drinker?"
[2] As defined by the question, "Did you ever consume 7 or more beers, drinks, or glasses of wine every day for 2 weeks or more?"
[3] As defined by the question, "Have you ever used any illegal drug every day for 2 weeks or more?"
[4] As defined by the question, "Have you ever been admitted overnight to a hospital or treatment program for family or personal problems, emotional problems, or problems with drugs or alcohol?"
[5] As defined by the question, "Did a physical injury or medical problem contribute to your becoming homeless for the first time?"

who chose not to participate, the interviewer completed a brief nonrespondent questionnaire. Analysis of the questionnaires showed that participants and nonparticipants did not differ significantly in terms of sex, age, or race ($P > 0.05$).

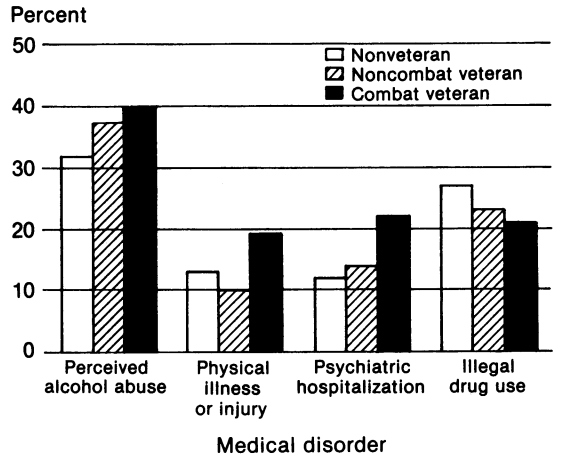
Our analysis of the participants included 1,008 men who were born in the United States and excluded 169 women, 10 of whom were veterans, and 254 foreign-born men, 41 of whom were veterans. Of the 1,008 U.S.-born men, 585 were nonveterans, 173 were combat-exposed veterans, and 250 were noncombat-exposed veterans. The prevalence of veterans was 42 percent when restricted to U.S.-born men and 37 percent when foreign-born men were included (see box).

Most homeless veterans had served in the Army (54 percent); 21 percent had served in the Navy, 16 percent in the Marines, and 8 percent in the Air Force. About half of the veterans (68 percent of combat veterans and 39 percent of noncombat veterans) had served in the military during the Vietnam War years, 1964–75.

Sociodemographic characteristics. Sociodemographic variables and homeless characteristics varied significantly between the nonveteran and veteran groups (table 1) and distinguished homeless veterans from nonhomeless men. The proportion of homeless white and black veterans was almost identical to that of nonveterans; however, Hispanics were significantly underrepresented among veterans ($P < 0.001$). There were significant differences in age, education, and marital status between homeless veterans and nonveterans. Both groups of veterans were older, more highly educated, and more likely to be separated or divorced than nonveterans ($P < 0.001$). Of the three groups, combat veterans were the oldest, most highly educated, and most likely to be separated or divorced. Although both groups of veterans were more likely to have health insurance than nonveterans, only 40 percent of combat veterans and 28 percent of noncombat veterans reported having medical insurance. About 20 percent of veterans reported medical coverage by the Department of Veterans Affairs.

Compared with data on nonhomeless men from the census of California, combat and noncombat veterans were more likely to be black, to have completed high school (but less likely to have graduated from college), and to be separated or divorced. Although blacks were overrepresented in all homeless groups, a previous analysis (*12*) suggests that their overrepresentation mirrors the income and poverty level incomes of blacks in the United States, where 30 percent of blacks, compared with 9 percent of whites, have incomes below the poverty level (*13*).

Prevalences of adult physical, addictive, and psychiatric disorders and illegal drug use prior to the loss of shelter among sample of homeless nonveterans, noncombat veterans, and combat veterans, Santa Clara County, CA, 1989—90



Childhood and adult disorders. No significant differences existed between the veteran and nonveteran groups for adverse childhood events (table 2). In contrast, prevalences of physical and mental disorders and of excessive alcohol intake were higher among veterans, especially among those who had served in combat (table 2 and figure). Both groups of veterans were significantly more likely than were nonveterans to report that they were excessive alcohol drinkers before their initial loss of shelter. Alcohol abuse as measured by actual use was not significantly different. Combat veterans had significantly higher prevalences of psychiatric hospitalizations and physical injuries than nonveterans or noncombat veterans. These differences were not confounded by education, a key indicator of social class (*16*), since combat veterans were the most highly educated. Illegal drug use was lower in both veteran groups than in the nonveteran group, although the differences were not statistically significant.

Veterans were older and entered homelessness at later ages than nonveterans (mean age of 44 years for combat veterans, 30 years for noncombat veterans, and 34 years for nonveterans; mean age when first homeless was 39 years for combat veterans, 34 years for noncombat veterans and 30 years for nonveterans). We examined whether the

Table 3. Percent distribution of a sample of homeless veteran men by period between military discharge and first episode of homelessness, Santa Clara County, CA, 1989–90[1]

Period	Percent of combat veterans	Percent of noncombat veterans	Percent of total veterans
0–5 years	12	28	21
6–10 years	12	22	18
11–15 years	23	17	20
16–20 years	27	11	18
20 or more	26	22	24
Mean (in years)[2]	17	13	15

[1] Excluded from analysis are 9 combat-exposed veterans and 26 noncombat-exposed veterans who reported having been homeless prior to serving on active duty.
[2] $P = < 0.001$.

observed differences were confounded by age or by age-when-first-homeless. We stratified all adult medical disorders into four age groups and four age-when-first-homeless groups, younger than 25 years, 25–34 years, 35–44 years, and 45 years and older. All findings showed the same trend, with little change in magnitude. Within each age- and age-when-first-homeless stratum, veterans continued to show a higher prevalence of alcohol intake than nonveterans. Combat veterans showed the highest prevalences of psychiatric hospitalizations and physical injuries.

Military discharge and initial homelessness. To examine the association between military service and onset of homelessness, we calculated the mean number of years between discharge from active duty in the military and initial loss of shelter (table 3). Seventy-six percent of combat veterans and 50 percent of noncombat veterans initially became homeless more than a decade after leaving the service.

Case histories. Of the 423 homeless veterans, 10 reported that military service had been directly related to their first becoming homeless. The finding is based on an open-ended question that asked about events that precipitated their initial loss of shelter. Nine of the 10 had been exposed to combat. The case histories all described severe injuries, most commonly to the head, back, or extremities.

Discussion

We found 42 percent of the U.S.-born men to be veterans. When foreign-born men were included, the percentage was 37 percent. Both percentages are similar to the veteran's status in the adult male U.S.-domiciled population, among whom 41 percent are veterans (*17*). These figures are within the range of those reported for past studies of homeless adults, which showed that between 18 percent and 51 percent of the homeless had reported prior military service (*1–6, 8*).

Our findings on sociodemographic factors and adult medical disorders showed significant differences between veterans and nonveterans. Veterans were older, more highly educated, and more likely to have been married than nonveterans, findings that are consistent with previous studies (*1, 3*). While adverse childhood events did not distinguish veterans from nonveterans, there were significant differences in adult medical disorders. Both groups of veterans were significantly more likely than nonveterans to report excessive alcohol consumption before their first episode of homelessness. Furthermore, combat-exposed veterans reported rates of psychiatric hospitalizations and physical injuries that were 1.5 to 2 times higher than among nonveterans and noncombat-exposed veterans. As noted in the results section, these findings changed only slightly when age and age-when-first-homeless were taken into account. In addition, the differences between veterans and nonveterans may be conservative, because those with physical or mental impairment are excluded from military service. Such exclusions would create a "healthy recruit effect," in which veterans should exhibit a lower prevalence of medical disorders than nonveterans.

The lower prevalence of illegal drug use among veterans than among nonveterans in our sample possibly reflects the aggressive 1980s military policy against illegal drug use (*18*) and parallels findings among domiciled persons that indicate significantly lower illegal drug use among veterans than nonveterans (*18, 19*). Nevertheless, the prevalence of drug use among veterans in our sample was higher than that of domiciled veterans (*18, 19*), suggesting that homeless veterans did not benefit as much from military drug prevention campaigns, are less likely to stop drug use following discharge (*20*), or disproportionately initiate drug use following military discharge.

Our finding of higher alcohol intake among veterans than nonveterans is consistent with studies of domiciled adults that show veterans substantially more likely than nonveterans to use alcohol (*18, 19, 21*) and to engage in heavy use (*18*). One study (*21*) sampled domiciled veteran twins and showed that the twins exposed to combat in Southeast Asia reported slightly higher alcohol consumption than

the twins who did not serve in Southeast Asia. While the prevalence of psychiatric hospitalization among veterans in our sample is lower than that reported in the past (*7*), the differences may be due in part to our restriction of disorders to those that preceded homelessness.

It remains unclear whether the higher prevalences of medical disorders among veterans are a result of risks associated with military service or with other personal, social, or economic factors, such as early alcohol problems, poor family support, or inadequate job skills (*22, 23*). We hypothesized that if service in the military increased the risk of homelessness, onset of homelessness might occur soon after military discharge. However, we found that, on average, more than a decade elapsed between military discharge and a respondent's first episode of homelessness. While this finding may indicate that the higher prevalences of physical injuries, alcohol intake, and psychiatric hospitalization among veterans are not associated with military service, recent studies of Vietnam combat veterans have documented increased psychological distress and alcoholism occurring up to 15 years after the war among those veterans exposed to combat (*24, 25*). A possible explanation is that disorders such as posttraumatic stress can have a delayed onset (*26*) and may take years to become serious enough to affect a person's family, work, or availability of shelter. Furthermore, if stress-related disorders go untreated, veterans may increase their use of addictive substances, which in time can increase the risk of homelessness.

Limitations. Our findings need to be considered in relation to the limitations inherent in the study design, sample selection procedures, and survey questions. Our results were based on a cross-sectional study design that did not allow for a prospective evaluation of causal links between service in the military and onset of medical disorders. Our analysis included only homeless men who sought shelter at armories in winter. Our study design precluded sampling in other settings where homeless single men reside, such as summer shelters, vehicles, deserted buildings, and parks, limiting the generalizability of our findings.

However, data we obtained from a telephone survey of all 15 county homeless shelter and soup-kitchen managers and from a pretest survey of 20 homeless men living along a riverbank suggested no important differences in the prevalences of medical disorders among shelter and nonshelter users (*11*). Nevertheless, our sample may not be representative of the broader group of homeless veterans in California or the United States.

We were able to assess the study's potential generalizability by reviewing data from the National Shelter Survey (*27*) and from two summaries of combined surveys of the homeless (*28, 29*). We found that our sample was quite similar to past samples of homeless persons in terms of age, ethnic representation, marital status, and lifetime prevalence of substance abuse and psychiatric hospitalization. The reliability of respondents' answers appears high. When 35 randomly selected persons were reinterviewed at the conclusion of the survey, responses to all sociodemographic and medical disorder questions showed 86 percent to 100 percent agreement (*10*).

A further limitation concerns the number of DIS questions we were able to use when evaluating addictive disorders. While these represent only a few of those in the complete DIS instrument, they appear to have high sensitivity, specificity, and predictive value (*30*).

Finally, our question on psychiatric hospitalization, selected because of its frequent use in past homeless studies (*28, 29*), did not permit psychiatric diagnoses according to the Diagnostic and Statistical Manual of Mental Disorders (*31*). Furthermore, our question does not serve as a direct proxy measure for mental illness and does not distinguish hospitalization for psychiatric problems from hospitalization for substance abuse problems. While this probably led to an underestimate of disorders (*32*), the main objective of this analysis was the comparison of disorders across subgroups. Bias would occur only if psychiatric hospitalizations were underreported differentially by study respondents in the three defined subgroups.

Future studies. To determine whether military service is associated with homelessness, further information is needed to distinguish physical, mental, and addictive disorders among homeless veterans preceding military service from disorders following military service. Information is needed on the relationship between service-connected disabilities and the loss of shelter. Because few homeless veterans are covered by medical insurance, studies should evaluate the impact of the lack of medical and rehabilitative care on homelessness. Such knowledge will provide a more scientific basis for understanding the possible risks associated with military service and the needs of the large number of homeless adults who have served in the armed forces.

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