

Employment Status of Veterans Receiving Substance Abuse Treatment From the U.S. Department of Veterans Affairs

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Objective: This study examined employment outcomes of veterans with substance use disorders and comorbid general medical and psychiatric disorders following substance abuse treatment. **Methods:** The authors obtained employment and other information reported by 5,729 veterans at intake and at follow-up three to nine months after receiving substance abuse treatment from the U.S. Department of Veterans Affairs during 2001–2010. Random-effects logistic regression models examined the probability of having employment earnings and days of paid work during the past 30 days among veterans with comorbid conditions. **Results:** The percentage of veterans with any days of paid work rose from 28% at intake to 35% at follow-up. Veterans with comorbid

anxiety and general medical conditions had lower odds of having earnings from employment or days of paid work at follow-up. **Conclusions:** Veterans with substance use disorders, particularly those with comorbid general medical and anxiety disorders, may be at risk of employment problems. (*Psychiatric Services* 64:177–180, 2013; doi: 10.1176/appi.ps.201200024)

Ensuring that veterans have employment opportunities is a high policy priority, as evidenced by the myriad employment programs of the U.S. Departments of Defense and Veterans Affairs (VA) (1). Understanding how veterans' general medical health and behavioral health affect employment may help improve employment outcomes. Previous research found that Vietnam-era veterans with mental health and substance use disorders had lower probability of working (2). Additionally, a 2005 survey of veterans from all eras found that unemployed veterans were twice as likely as employed veterans to have a substance use disorder (3).

Employment outcomes for veterans with a substance use disorder may vary depending on co-occurring risk factors, including comorbid psychiatric and general medical conditions. Studies examining treatment outcomes of persons with substance use disorders have found varying results. Some studies indicated that persons with a substance use disorder and

co-occurring depression and posttraumatic stress disorder (PTSD) have poorer outcomes following treatment (4), yet others indicated that outcomes of substance use treatment are similar for those with and without documented comorbid disorders (5).

In this retrospective study, we examined employment outcomes among veterans receiving substance use treatment from the VA, particularly among those with co-occurring disorders. Identifying risk factors for employment problems can help VA and non-VA providers identify veterans at risk of employment difficulties.

Methods

The VA uses the Addiction Severity Index (ASI) to assess persons in substance abuse treatment at intake and sometimes at six-month follow-up (6). The ASI includes information on psychiatric, legal, medical, family, and employment history (7). We identified all persons (N=16,538) in VA substance abuse treatment programs from September 1, 2001, to February 10, 2010, with valid ASI intake and follow-up assessments. As the target time to true follow-up assessment was six months (6), many assessments coded as follow-ups were likely intake assessments into new treatment episodes. In fact, the average time between baseline and follow-up assessments in our data was two years. Therefore, we limited the analytic cohort to persons with follow-up data collected between three and nine months after intake (N=5,754).

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Additionally, we excluded 25 patients at ten sites that had fewer than ten ASI assessments each and that may have been test sites, leaving 5,729 patients in the analytic cohort. As a sensitivity analysis, we excluded persons receiving disability payments for general medical or psychiatric disorders ($N=3,657$).

Logistic random effects models were used to examine the probabilities of any earnings and of any days of paid work within 30 days before the follow-up interview. A random intercept by treatment site accounted for clustering by treatment site, given that persons within treatment sites may face unique economic conditions (8).

The main outcomes were binary variables indicating any earnings from employment and any days of paid work in the past 30 days. Key independent variables included co-occurring anxiety disorder (measured by self-reported assessment of serious anxiety or tension in the past 30 days), depression (measured by self-reported assessment of serious depression in the past 30 days), suicidality (measured by self-reported suicide attempt in the past 30 days), and general medical problems (measured by the ASI medical composite score, which summarizes questions about general medical health).

We also controlled for other patient and treatment characteristics. Demographic variables included self-reported gender, age, years of education, race (white versus nonwhite, dichotomized because of unreliability of more granular distinctions of race data collected by the VA [9,10]), length of time from intake to follow-up, and number of ASI assessments completed during the study period (9). Because all study patients were receiving substance abuse treatment, the type of substance abuse program served as an indicator of substance abuse severity. Baseline employment status was measured by whether the respondent reported any earnings or days of paid work in the 30 days prior to the intake interview.

All models were estimated by using Stata, version 11. The study was approved by the Edward Hines, Jr. VA Hospital Institutional Review Board, which waived informed consent for this secondary data analysis.

Results

Our sample was largely male, with only 182 (3%) females. At intake, the mean $\pm$ SD age was 48.9 ± 8.0 years; 2,386 (42%) veterans reported non-white race. At intake, 1,577 (28%) veterans reported any earnings and 1,585 (28%) reported any days of paid work during the past 30 days, including 403 (7%) who reported working one to seven days, 274 (5%) eight to 14 days, and 908 (16%) 15 or more days. At follow-up, 1,856 (32%) and 1,981 (35%) veterans, respectively, reported any earnings and any days of paid work during the past 30 days. At baseline, mean $\pm$ SD employment earnings were $\$285 \pm \720 among all veterans and $\$1,036 \pm \$1,052$ among those with earnings. At follow-up employment earnings were $\$341 \pm \754 among all veterans and $\$1,052 \pm 1,003$ among those with earnings. At baseline and at follow-up, mean days paid were 4.5 ± 8.7 and 6.2 ± 9.9 , respectively, among all veterans and 16.1 ± 9.3 and 18.1 ± 8.3 , respectively, among those with days of paid work. Of the 1,585 veterans who had any days of paid work at baseline, 947 (60%) also had paid work at follow-up, which indicated that although many persons in the sample were employed throughout the study, substantial turnover occurred. At intake, 3,130 (55%) reported serious anxiety, 2,920 (51%) reported serious depression, and 193 (3%) reported attempted suicide in the past 30 days.

Veterans with co-occurring anxiety and with co-occurring general medical problems had lower odds of having any earnings (odds ratios [ORs] = .81 and .45, respectively) than veterans without these co-occurring disorders. Being older was associated with lower odds of having any earnings ($OR=.97$), and having more education was marginally associated with higher odds of having any earnings ($OR=1.03$) (Table 1).

We found lower odds of having any days of paid work among persons with co-occurring anxiety ($OR=.80$), higher ASI medical composite scores ($OR=.50$), and older age ($OR=.97$) (Table 1). More educated persons had higher odds of having any days of paid work ($OR=1.04$).

The results were qualitatively similar for sensitivity analyses that excluded

persons receiving pensions for general medical or psychiatric disabilities (Table 1). Of the 2,072 veterans in the sample receiving a disability pension, 345 (17%) had any days of paid work at baseline, slightly lower than the percentage of the overall sample (28%), but still indicating labor market engagement in this population. In addition, the analysis of fixed effects by year of follow-up did not show a statistically significant time trend.

Discussion

Veterans in substance abuse treatment at the VA with co-occurring anxiety and general medical conditions are particularly at risk of employment difficulties, although the effect was greater for those with general medical conditions than with anxiety. Our findings were consistent with Zivin and colleagues' (3) 2005 nationally representative survey of VA health care users aged 18–64 years, which found low rates of employment (35%), particularly among persons with a substance use disorder (20%) and psychiatric disorders, including schizophrenia (10%) and anxiety disorders (26%). Our study findings were consistent across two separate measures of employment status (earnings and days of paid work). Furthermore, our study found that the association of employment and co-occurring disorders was much stronger for general medical conditions than for anxiety. For the analysis of earnings, the OR was .81 ($CI=.69-.95$) for anxiety versus .45 ($CI=.38-.54$) for general medical conditions, and the results for analysis of days of paid work were similar. The results of sensitivity analyses excluding persons with disability pensions only approached statistical significance ($p<.10$).

We acknowledge limitations to this study. The ASI elicits self-reported histories of general medical and psychiatric illness that may reflect a wide range of severity and that may not have reached the level of a diagnosable illness. The time period from baseline to follow-up (three to nine months) was relatively short, and employment problems may have prompted entry into substance use treatment. There was little information on the types of treatment received, including treatment for

Table 1Predictors of probability of employment outcomes among veterans treated for a substance use disorder^a

Variable	All veterans (N=5,729)				Veterans without a disability pension (N=3,657) ^b			
	Any earnings		Any days paid		Any earnings		Any days paid	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Depression, past								
30 days (reference: no)	.91	.77–1.07	.95	.81–1.11	.85	.70–1.03†	.86	.71–1.04
Anxiety, past 30 days (reference: no)	.81	.69–.95**	.80	.68–.94**	.85	.70–1.03†	.83	.69–1.01†
Suicide attempt, past								
30 days (reference: no)	1.01	.70–1.45	.90	.63–1.30	1.16	.77–1.77	1.11	.73–1.69
General medical problems ^c	.45	.38–.54**	.50	.42–.59**	.50	.41–.61**	.53	.43–.65**
Female (reference: male)	1.21	.85–1.71	1.13	.79–1.60	.90	.57–1.39	.88	.57–1.37
Age	.97	.96–.98**	.97	.96–.98**	.97	.96–.98**	.98	.97–.98**
Nonwhite (reference: white) ^d	1.01	.88–1.16	.96	.84–1.10	.98	.83–1.15	.92	.78–1.08
Education (years)	1.03	1.00–1.07†	1.04	1.00–1.07*	1.03	.99–1.07	1.02	.98–1.07
Year of follow-up (reference: 2005)								
2001	.25	.02–2.72	.25	.02–2.66	.26	.02–2.99	.24	.02–2.74
2002	1.10	.85–1.42	1.02	.79–1.33	1.20	.88–1.63	1.15	.85–1.57
2003	.87	.66–1.14	.81	.62–1.06	.89	.65–1.22	.87	.64–1.20
2004	.91	.69–1.22	.80	.60–1.06	.98	.70–1.37	.90	.64–1.26
2006	.79	.56–1.10	.76	.54–1.06	.79	.53–1.18	.73	.49–1.10
2007	.63	.43–.90*	.75	.52–1.07	.66	.43–1.02†	.66	.43–1.02†
2008	.72	.49–1.04†	.85	.59–1.24	.75	.48–1.17	.81	.52–1.26
2009	.76	.51–1.15	.69	.46–1.04†	.77	.47–1.24	.72	.44–1.16
2010	.37	.13–1.03†	.59	.23–1.52	.43	.13–1.39	.65	.20–2.04

^a The analyses used random-effects models by site of treatment. Models also controlled for program type, baseline employment status, time to follow-up, number of times observed, and year of observation.

^b Results are from a sensitivity analysis that excluded veterans who did not receive a pension for a general medical or psychiatric disability.

^c Medical composite score from the Addiction Severity Index

^d Race was dichotomized into white versus nonwhite because of unreliability of more granular distinctions of race data collected by the U.S. Department of Veterans Affairs (9,10). Nonwhite race comprised black, Hispanic, Asian, and American Indian, and a separate ethnicity variable was not included.

* $p < .05$, ** $p < .01$

† $p < .10$

psychiatric disorders, on employment program participation, on other psychiatric diagnoses such as PTSD, and on extent of combat exposure.

The cohort comprised VA users receiving substance abuse treatment rather than a nationally representative sample of U.S. veterans. Data collection procedures may vary across facilities and over time. Because the VA no longer requires use of the ASI as a performance measure, fewer sites use it each year, and the sites that continue to use it may be particularly interested in their patients' employment outcomes. However, a sensitivity analysis limited to 2001–2002—before many sites began dropping the ASI—found similar results (data not shown). A sensitivity analysis examining level of earnings and days of paid work among those who were employed at follow-up found similar results (data not shown). A sensitivity

analysis of the full cohort (N=16,538) found that the magnitude of the effects was similar in the larger sample, although the precision was greater. Thus measures of any earnings and any days paid were significantly different ($p < .01$) among veterans with comorbid general medical conditions, anxiety, and depression (data not shown). The results of this study are not generalizable to nonveteran populations. Sensitivity analyses are available upon request.

Conclusions

These results highlighted the low rates of employment among persons receiving substance abuse treatment from the VA. Veterans with comorbid anxiety and general medical conditions are at particular risk of employment problems. Anxiety disorders are among the most common psychiatric disorders, with lifetime prevalence of

29% (11), and they can lead to a high degree of morbidity. The results of this study can help providers identify areas of functioning that may not be typically included in treatment plans but that can have substantial impacts on quality of life. Given that relatively few veterans receive VA health care (12), these findings can help inform both VA and non-VA providers of the needs facing veterans and encourage providers to make referrals to VA and other supportive programs.

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