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Employment Outcomes from VA Vocational Services involving Transitional Work for Veterans with a Diagnosis of Posttraumatic Stress Disorder

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Abstract

Objective: Transitional work (TW) for Veterans with psychiatric disabilities is the predominant model of vocational rehabilitation in the VA. Although on average, TW employment outcomes have been demonstrated to be inferior to supported employment, little is known about the potential subgroup of veterans for which TW may be most effective. This study of veterans with posttraumatic stress disorder (PTSD) examines differences in competitive employment outcomes and identifies characteristics of veterans who chose to engage in TW compared to those who did not.

Methods: A post-hoc comparative subgroup analysis of veterans with PTSD randomly assigned to TW as part of a randomized controlled trial was conducted. Veterans were divided into two subgroups: those who engaged in TW (n=141) and non-engagers (n=129). Differences in baseline characteristics were examined and 18-month employment outcomes were compared.

Results: There were no differences in 18-month employment outcomes between TW engagers and non-engagers. Compared to TW-engagers, those that did not engage in TW were 2.5 times

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more likely to get a competitive job within the first 6 months and were less likely to obtain lower skilled jobs. Younger age, adequate housing, personal means of transportation, and recent work history factor into the odds of gaining and maintaining competitive work.

Conclusions and Implications for Practice: Consistent with past research, engagement in TW did not result in improved long-term competitive employment outcomes for veterans with PTSD. Those who did not engage in TW were more likely to gain a competitive job within the first 6 months.

Keywords

Posttraumatic Stress Disorder; Vocational Rehabilitation; Transitional Work; Employment; Veterans

Introduction

Vocational rehabilitation programs in the Veterans Health Administration (VHA), known as Therapeutic and Supported Employment Services (TSES), aim to assist veterans confronting serious psychiatric illnesses with obtaining competitive employment (<https://www.va.gov/health/cwt/veterans.asp>). While several models of intervention are employed in TSES, the predominant model of vocational rehabilitation is transitional work (TW; Resnick & Rosenheck 2008). In TW, the veteran participates in a time-limited, set-aside, non-competitive paid work activity, such as grounds maintenance, housekeeping, food, or laundry services, typically within the VA setting. The TW assignment differs from a competitive job in many respects: the job is a temporary position that is set-aside exclusively for veterans in the program, there is no competitive application, the incumbent does not have ownership of the job, and the veteran is paid a minimum wage stipend by the TSES program rather than from an employer. Veterans participating in TW programs compared to supported employment programs are more often minorities recovering from chronic mental illness, substance use disorders, and/or homelessness (Abraham et al., 2014). The VA vocational rehabilitation specialist provides the veteran with guidance for competitive job searches during the TW assignment. During the TW assignment, veterans have an opportunity to improve their work etiquette in a work-like structured setting and meanwhile earn at least minimum wage income (<https://www.va.gov/health/cwt/veterans.asp>), which can help stabilize a veteran's financial situation.

Although TW has been a mainstay of VA vocational rehabilitation services for decades and the rates of competitive employment at discharge from TW has been tracked extensively by the VA Northeast Program Evaluation Center (NEPEC), the published literature on TW's competitive employment outcomes is limited, especially regarding veterans with a diagnosis of posttraumatic stress disorder (PTSD). Using data from NEPEC, Abraham and colleagues (2017) evaluated differences in rates of part-time or full-time competitive employment at the time of discharge from VA TSES programs which included supported employment, TW assignments in community settings, TW assignments in VA settings, or sheltered incentive therapy. Veterans who enrolled but did not engage in any specific category of services were retained as a comparison group. Of the 38,199 veterans who enrolled between fiscal years 2006 and 2010, 58% were in TW assignments in VA settings, 21% engaged in supported

employment, 9% were in incentive therapy or sheltered workshop, 6% held TW positions in community settings, and 6% did not receive any specific services. Although all types of services yielded modest outcomes, veterans who participated in supported employment (predicted probability of competitive employment 34.9) were significantly more likely to gain competitive employment at discharge than those enrolled in TW in VA setting (predicted probability of 30.3, odds ratio = 1.25, $p < .001$). The small number of Veterans participating in transitional work in a community setting (predicted probability of 34.8) were also more likely to obtain competitive employment at discharge than those in transitional work in a VA medical center (odds ratio = 1.24, $p < .001$). There was no difference in rates of competitive employment between those receiving TW in VA settings compared to those who did not get a specific service (30% in both groups). Longer participation in any type of TSES was associated with higher odds of gaining a competitive job, while participation during the years of the US economic recession reduced the odds of achieving competitive employment. Veterans with a PTSD diagnosis (19% of the sample) had significantly lower odds of competitive employment at discharge than those without a PTSD diagnosis. These findings are consistent with those of Resnick & Rosenheck (2008) who found that veterans with a diagnosis of PTSD were 19% less likely to be employed at discharge from VA vocational rehabilitation services than those without PTSD (OR = 0.81, $p = 0.02$; 30% and 36%, respectively).

In a small randomized controlled study in veterans with comorbid psychiatric and substance use disorders ($n = 89$), there was no significant difference in the rates of competitive employment between those who received VA TW compared to those randomized to minimal assistance from a state job placement service over the 12-month follow-up period (60% vs 77%, respectively), nor were there group differences in the amount of time worked in or total income earned from competitive jobs (Penk et al., 2010). Over 80% of those who gained competitive employment said that the vocational services did not play any role in their success in obtaining a job. The investigators concluded that, compared to minimal vocational assistance, TW was ineffective in increasing the chances of veterans to gain or maintain a competitive job. Anecdotally, the advantage of TW seemed to be its ability to help homeless or impoverished veterans engage in a structured activity that has a means of acquiring immediate income during an extended period of psychiatric treatment.

In the largest randomized study comparing individual placement and support (IPS) supported employment to TW services in veterans with a diagnosis of PTSD ($n = 541$), Davis et al. (2018a, 2018b) found that IPS resulted in a greater number of steady workers, more participants competitively employed, and more income earned from competitive jobs over an 18-month period compared to TW. Specifically, 38.7% of IPS participants compared to 23.3% of the TW group became steady workers (odds ratio = 2.14; 95% CI, 1.46 to 3.14; $P < .001$).

Although this prior research suggests that on average, TW does not lead to stronger competitive employment outcomes than supported employment or minimal employment support, except for Davis et al. (2018), these studies have been limited by small sample size or in non-randomized observational approaches. Further, no studies have examined which veterans might benefit most from TW; there may be groups of veterans for whom TW is

most effective. Other studies in veterans with comorbid psychotic and substance use disorders have demonstrated that when compared to no vocational intervention, TW is associated with greater reductions in substance use, homelessness, incarceration, and physical health decline (Kashner et al, 2002), and decreased utilization of inpatient care and increased outpatient care (Blow, Gillon, & Dornfeld, 2001). Thus, it may be that those with more psychosocial challenges may benefit from TW more than those with fewer employment barriers.

Given that in Davis et al. (2018b), only 53% of those randomized to TW engaged in a TW assignment at some point during the 18-month follow-up, the current study provides an opportunity to conduct a post-hoc comparative analysis of the intent-to-treat group of veterans randomly assigned to TW in order to evaluate differences in baseline characteristics and 18-month employment outcomes in the subgroup who engaged in a TW assignment compared to the subgroup who did not. This analysis may provide additional information on the characteristics of veterans most likely to engage in TW, as well as the observational outcomes of TW participation and real world longitudinal employment outcomes.

Method

“Veterans Individual Placement and Support Towards Advancing Recovery” (VIP-STAR) was a VA Cooperative Studies Program (CSP) randomized controlled trial comparing the effectiveness of IPS versus TW in unemployed veterans with a diagnosis of PTSD. The trial was approved by local site Institutional Review Boards and was monitored by a Data Monitoring Committee. The methods and a description of the baseline characteristics of enrolled participants (Davis et al 2018a) and the employment outcome results (Davis et al 2018b) have been published previously.

Eligibility Criteria and Randomization

Consenting veterans with a lifetime diagnosis of PTSD confirmed by the Clinician Administered PTSD Scale for DSM-IV (Blake et al., 1995) who were age 18–65 years, unemployed and interested in competitive work, and otherwise eligible for VA TW assignments (i.e. did not have a significant medically- or psychiatrically-based restriction for returning to work) were included in the study. Veterans with a lifetime diagnosis of dementia, schizophrenia, or schizoaffective, bipolar I, or severe cognitive disorders, current suicidal or homicidal ideation, who were unlikely to complete the study (e.g. expected deployment, incarceration, relocation or long-term hospitalization), or who were participating in another vocational study were excluded. After signing informed consent and privacy authorization, 541 veterans who met eligibility criteria were prospectively randomized to either IPS (n=271) or TW (n=270) at 12 VA Medical Centers from December 2013 through April 2015. Unless the participant withdrew consent, employment outcomes and other assessments were collected for each participant over an 18-month follow-up period regardless of adherence to the intervention, i.e. the participant could decline employment services, TW assignments, job interviews, and/or job offers at any time and remain in the study.

Transitional Work Intervention

TW is part of a VA stepwise vocational intervention that involves vocational assessment followed by a set-aside, pre-employment, brokered, time-limited assignment in non-competitive, typically minimum-wage activities such as warehouse, grounds-keeping, maintenance, housekeeping, food or laundry services. TW assignments are pre-arranged with contracted employers, most often the VA itself, and the TSES program pays the veteran, not the employer. TW specialists in this study are existing employees of the VA Medical Centers embedded in fully operational vocational teams. The TW vocational rehabilitation specialist provides the participant with some guidance for competitive job searches, but, he/she does not typically engage in community-based job development activities or provide long-term follow-up after the first competitive job is obtained or TW ends. Although the study sites were selected based on fully operational TW services, there remained some degree of variability from site to site in terms of the type TW offerings, staffing, and degree of contact with the mental health or PTSD treatment teams.

Outcomes

Baseline assessments included the Clinician Administered PTSD Scale for DSM-IV (CAPS-IV; Blake et al., 1995), MINI International Neuropsychiatric Interview DSM-IV (Sheehan et al., 1998), and PTSD Checklist for DSM-5 (PCL-5; Blevins et al., 2015). The PCL-5 was also collected at all follow-up visits which were monthly for the first 3 months and bimonthly thereafter. At baseline, the research coordinator instructed the participants to maintain a study-formatted Employment Calendar Diary and to bring this employment diary with copies of pay/tax forms to all follow-up visits. Employment outcomes collected for each week consisted of the following: did the participant work for pay (yes/no/unknown); work type (TW/competitive/other); job(s) type per Hollingshead Classification, number of days and hours worked; and gross income earned and sources.

Statistical Analysis

Participants randomized to TW were divided into two subgroups: those who held a TW assignment for at least one day (“engaged in TW”) and those who did not hold a TW assignment at any time during the 18-month follow-up (“non-engaged”). The *a priori* primary outcome was based on the participant becoming a “steady worker”, defined as holding a competitive job for at least 50% of the weeks during the 18-month follow-up (39 of the 78 weeks). Competitive employment was defined as a non-sheltered job earning salary, wages, or commission, excluding military drill and transient cash-based jobs such as yard work, babysitting, and manual day labor. Employment could be full-time or part-time and the weeks did not have to be worked by the participant consecutively to be counted towards meeting the threshold of “steady worker.”

The primary “steady worker” outcome was analyzed using a logistic regression model to calculate an odds ratio, adjusted by site. Analyses of total time worked (days or weeks) was compared the two groups using an analysis of variance (ANOVA) adjusted for site or the Kruskal–Wallis test if the data were not normally distributed. The cumulative gross income from competitive employment was compared between the two groups using a non-parametric test since the income data were not normally distributed. All statistical analyses

were performed with the use of SAS[®] v.9.3 (SAS Institute Inc, Cary, NC). For purposes of primary outcome analysis, missing data for employment status were counted as “not worked.” In keeping with the principal of intent-to-treat, all participants who were randomized to TW were included in the analyses.

Using a logistic regression model, each categorical demographic or clinical characteristic variable that differed at baseline was tested against each outcome variable, and those variables that reached $p=.2$ were included in a multivariate analysis. For continuous variables, multivariable stepwise linear regression was used to assess the relationship between the *a priori* selected baseline variables (same as used for logistic regression models) and employment-related outcomes. Coding in all models was $TW_{(yes)} = 0$ and $TW_{(no)} = 1$. The p-value criterion set for variables to stay in the model was set at the level of 0.05.

Results

Of the 270 participants randomized to TW, 52.2% (n=141) engaged in a TW assignment at some point during the 18-month follow-up and 47.8% (n=129) participants did not engage in a TW assignment. Veterans who engaged in TW had higher rates of adherence to completing protocol assessment visits (79.5 ±9.2 weeks in follow-up with 83.7% completing the 18-month visit) compared to participants who did not engage in a TW assignment (75.2 ±21.5 weeks in follow-up and 78.8% completing the 18-month visit).

Baseline Characteristics

The demographics and clinical characteristics collected at baseline are listed in Table 1 and 2. The participants were comprised of 80.7% males, 19.3% females, 51% White, 42% African American, 13% other races, 17% Hispanic, Spanish, or Latino and were on average 41.9 (*SD* 11.15) years with a range of 22 to 65 years.

Although most baseline variables were balanced between subgroups, there were a few differences. Compared to veterans who did not engage in TW, the subgroup of veterans who participated in a TW assignment were significantly more likely to be older (mean difference -3.8, 95% CI -6.4, -1.2; $p=0.005$), not currently married ($p=0.004$), homeless or living in shelters ($p=0.038$), without a personally-owned form of transportation ($p=0.009$), from pre-Persian Gulf War service ($p=0.042$), without a combat zone deployment ($p=0.021$), not working in a competitive job in the previous 3 years ($p=0.001$), and at a trend for more often identifying as a non-white racial group ($p=0.059$). Compared to the group without TW, the subgroup who held TW assignment were more likely to report non-combat trauma as the primary cause of PTSD ($p=0.031$) and more likely to be in current ($p=0.042$) or past ($p=0.019$) treatment for PTSD. Participants engaged in TW had a longer period of unemployment prior to enrollment into the study compared to those who did not ($p=0.019$; Table 3).

Employment Outcomes

Participants who engaged in TW waited 9.7 (*SD* =10.3) weeks on average (median 6.5 [10 *IQR*]) before the TW assignment was initiated and the TW assignments lasted 21 (*SD* = 15.2) weeks on average (median 21 [20 *IQR*]). Comparing the competitive employment

outcomes for the group who engaged in TW to the group that did not (Table 3), there were no differences in the rate of becoming a steady worker, the rate of becoming competitively employed at any time, the number of weeks or days employed, the amount of income earned, or the type of jobs held during the 18-month follow-up. The baseline variables included in the in a logistic regression model were age (years), race (non-white vs white), marital status (married vs other), period of service (pre- vs post-9/11), combat zone (no vs yes), housing (no vs yes adequate), transportation (own vs other), trauma type (combat vs. other primary trauma), past or current PTSD treatment (no vs yes), previous employment (0 vs 1 competitive jobs in 3 years), time unemployment prior to baseline, and TW engagement (yes vs no). Those variables that reached $p \leq 0.2$ are listed in Table 3 for each employment outcome. Of these, variables that reached a $p \leq 0.2$ were included in a multivariable logistic regression model and those variables that remained significantly different between groups for each outcome are shown in Table 4. In the adjusted analysis, compared to those participants who engaged in TW, those who not did engage in TW were (a) 2.5 times more likely to get a competitive job within the first 6 months and (b) less likely to obtain lower skilled jobs (Hollingshead job classifications 6 semi-skilled and/or 7 unskilled; OR=0.36 and 0.20 respectively).

Figure 1 shows the percent of participants in each subgroup who held a competitive job across the 18-month study period, illustrating that participants who did not engage in TW were more likely to hold a competitive job within the first 6 months ($p < .001$; Table 3 and Table 4), which is the period when the TW participants were participating in TW assignments. There are no differences in the rate of competitive employment after month 9. Figure 2 shows that the time to first competitive job was significantly better for the non-engaged subgroup ($p = 0.022$) compared to those who engaged in TW (also see Table 3).

Nonvocational Outcomes

There were no subgroup differences in terms of change from baseline in PCL-5, Rosenberg Self-Esteem, or PTSD-Related Functional Inventory scores.

Reasons for Not Participating in TW

At the end of the study, the participants were asked that if they did not participate in TW, to select a reason for not engaging in TW from a list of reasons provided on a self-report form. Of those who did not engage in TW, 28 did not follow-up with the TW appointments, 25 got a competitive job before being offered a TW assignment, 13 did not like or accept the TW assignment offered, 1 was not offered a TW assignment, 12 selected “unknown reason,” and 35 selected “other reason.”

Discussion

This post-hoc analysis of veterans with PTSD randomized to TW in the VIP-STAR study found that almost half of veterans randomized to TW did not engage in a TW assignment. Reasons for not engaging in a TW assignment included factors that present during the period in which the veteran is waiting on a TW assignment to become available, such as a veteran’s nonadherence to follow-up with the TW assignment, unwillingness to accept the available

type of TW job assignment, ability to get a competitive job while waiting on the TW assignment, relapse on substances (i.e. subsequently excluding the veteran from working in a TW assignment), and/or loss of interest in returning to work.

The 18-month employment outcomes were no different between the subgroup of veterans who engaged in a TW assignment compared to those that did not. Approximately 54% of the TW-engaged and 61% of the those who did not engage in TW gained a competitive job and about a third of participants in each subgroup became steady workers within the 18-month follow-up. These findings are consistent with those of Penk et al., (2010) who also found no significant difference in the rate of competitive employment or other employment outcomes between those who received VA TW services compared to those randomized to minimal assistance from a state job placement service over the 12-month follow-up period.

The timing of when TW engagers and non-engagers gained employment is notable. Compared to those who held a TW position, those who did not engage in TW were more likely to gain a competitive job within the first 6 months and their average time to gaining the first competitive job was significantly shorter. While similar numbers in both groups obtained competitive jobs, 74% (58 of 78) of the TW non-engagers who gained competitive work did so within 6 months, compared to 37% in the TW-engaged group (28 of 76). In the adjusted analysis, compared to those participants who engaged in TW, those whom did not engage in TW were 2.5 times more likely to get a competitive job within the first 6 months and were less likely to obtain lower-skilled jobs (Table 4).

One possible explanation for these findings is that individuals who did not engage in TW had more personal resources that assisted them in securing employment on their own. Several baseline differences between the two groups support this interpretation. Participants who did not engage in TW had stronger work histories, were younger, were more likely to be married, had adequate housing, and had their own form of transportation. Thus, on average, they may have had more resources and fewer barriers to obtaining competitive work than those who engaged in TW. In the adjusted analysis, participants with adequate housing were almost 4 times more likely to become a steady worker and 2.5 times more likely to hold full-time job than those in transitional, shelter, or homeless conditions. Older participants were less likely to become steady workers, obtain a competitive job, or hold full-time employment. The participants who held one or more competitive jobs in the previous 3 years were 3 times more likely to obtain a competitive job during the 18-month follow-up and 2 times more likely to hold full-time employment compared to those that did not have prior 3-year work history.

Within this context, the finding that those in the TW-engaged group eventually came to match the 18-month employment outcomes as those in the non-engaged group suggests that the TW intervention may have helped those participants with fewer resources who were unable to achieve work on their own. However, these data do not tell us whether the TW-engaged group may have achieved similar rates of employment outcomes earlier had they not been engaging in TW, especially if provided individualized support to help overcome psychosocial barriers. Psychiatric rehabilitation principles suggest that stepwise approaches to rehabilitation such as TW only serve to delay desired outcomes (Bond, 1998; Corrigan,

2001). Further, research on generalization of skills in PTSD suggests that skills learned in one setting may not easily generalize to other settings (Meichenbaum, 2017). Although one of the hypothesized benefits of TW is that TW assignments provide opportunities for veterans to practice work skills, skills learned in TW may not generalize to a competitive job in a new work setting with different tasks and colleagues.

The strengths of the study are the prospective and systematic nature in which the employment data were collected, the selection of research sites which had fully operational TW programs that are representative of VA TSES services, and the broad eligibility criteria which included veterans with PTSD who were also struggling with comorbid conditions. The limitations of this analysis are that it is a post-hoc exploratory within group analysis of nonrandomized subgroups. Thus, selection biases are inherent in this observational dataset, both from the standpoint of the veteran who is making a personal choice in accepting the TW assignment or finding a job on his/her own and the VA providers who are responsible for assigning and filling the TW assignments. In addition, differences in adherence to protocol follow-up visits over the course of the study may complicate the interpretation of the results.

Conclusion

Compared to not engaging in a TW vocational rehabilitation job assignment, engagement in TW did not result in improved long-term competitive employment outcomes for veterans with PTSD. Younger age, adequate housing, personal means of transportation, and recent work history factor into the odds of gaining and maintaining competitive work. Given that veterans with greater employment barriers engaged in TW at higher rates, further investigation of the efficacy of TW for different subpopulations of veterans may be indicated. The finding that only half of the veteran sample randomized the TW adhered to or participated in a TW assignment raises the possibility that TW may not be consistent with every veterans' preferences for vocational services. Effective employment services that are better aligned with patient preferences and long-term goals should be made available as a choice for veterans with a diagnosis of PTSD wishing to re-enter the workplace.

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Impact

Transitional work (TW) is the predominant model of vocational rehabilitation for veterans with psychiatric disabilities in the Veterans Health Administration. This study of veterans with PTSD seeking competitive employment indicates that on average TW does not lead to better employment outcomes than receiving no TW vocational service at all, but suggests that younger age, adequate housing, personal means of transportation, and prior work history enhance the chances of gaining and maintaining competitive employment. Further, almost half of veterans assigned to TW in this study chose not to engage in TW, preferring to job seek independently. VHA should offer a range of services for veterans with PTSD that allow for greater choice and improved employment outcomes.

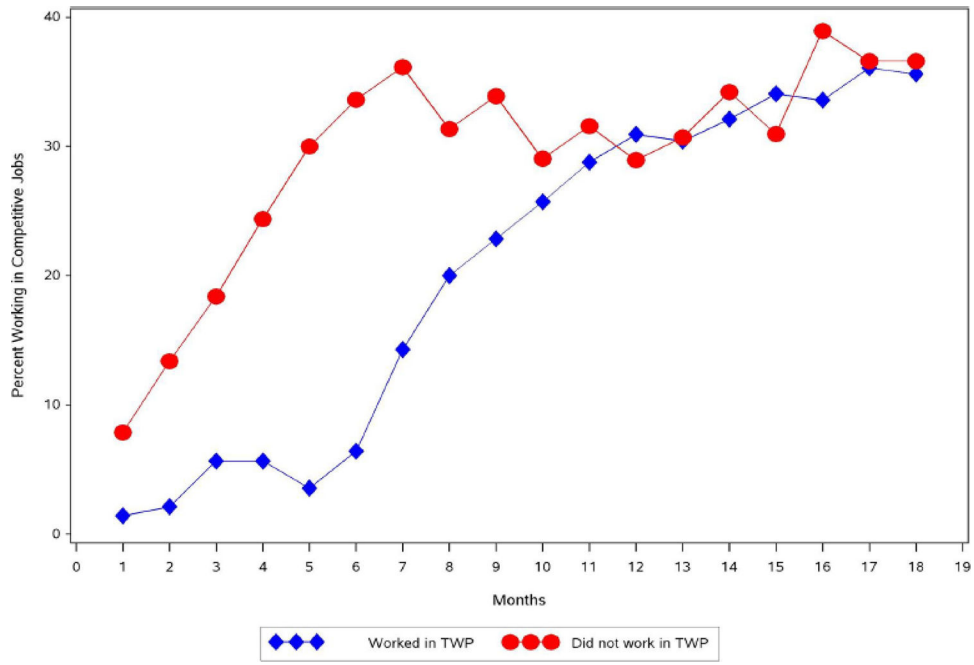
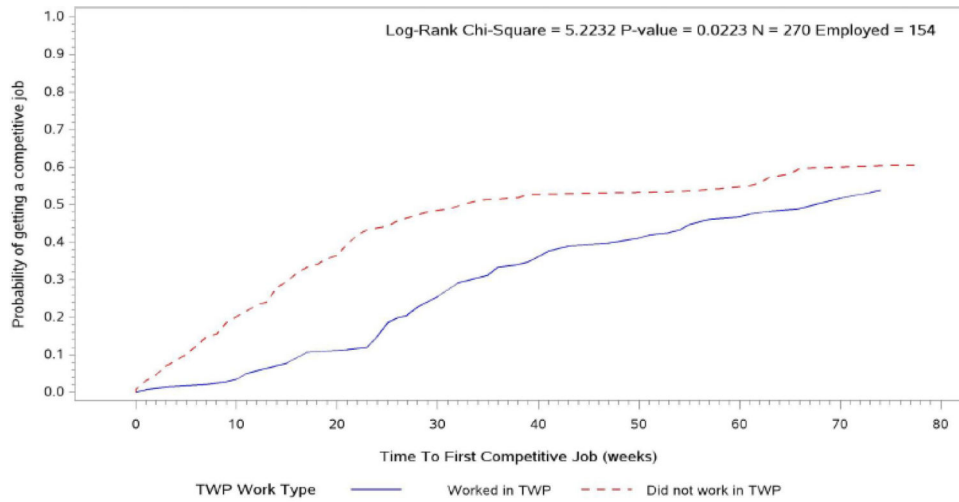


Figure 1. Percentage of TW participants holding a competitive job during each month of follow-up



Worked in TWP									
Unemployed:	141	136	126	105	90	83	75	68	65
Employed:	0	5	15	36	51	58	66	73	76
Did not work in TWP									
Unemployed:	129	103	82	67	61	61	59	52	51
Employed:	0	26	47	62	68	68	70	77	78

Figure 2.
Time to first competitive job comparing those who work in TW to those that did not.

Table 1

Baseline Demographics and Characteristics

Variable	TW (n = 141)		No TW (n = 129)		Total (N = 270)	
	n	%	n	%	n	%
Gender						
Male	112	79.4	106	82.2	218	80.7
Female	29	20.6	23	17.8	52	19.3
Race						
White	62	44.0	74	57.4	136	50.4
African-American	68	48.2	42	32.6	110	40.7
All Other	15	10.5	21	16.4	36	13.3
Spanish, Hispanic or Latino Ethnicity	23	16.3	24	18.6	47	17.4
Marital Status						
Married	33	23.4	51	39.5	84	31.1
Divorced	50	35.5	29	22.5	79	29.3
Never married	34	24.1	33	25.6	67	24.8
Separated/Cohabiting/Widowed	24	17.0	16	12.4	40	14.8
Education						
Less than high school	3	2.1	1	0.8	4	1.5
High school diploma	25	17.7	14	10.9	39	14.4
Some college credit	64	45.4	54	41.9	118	43.7
Associate's Degree	19	13.5	16	12.4	35	13.0
Bachelor's Degree	22	15.6	35	27.1	57	21.1
Master's or Doctoral Degree	8	5.7	9	7.0	17	6.3
Adequate Housing						
Single-family home **	55	39.0	66	51.2	121	44.8
Townhouse/Apartment/Condo **	49	34.8	45	34.9	94	34.8
Other **	12	9.2	8	6.3	20	7.4
Inadequate Housing						
Transitional housing *	16	11.3	7	5.4	23	8.5
Homeless shelter or other *	8	5.7	4	3.2	12	4.4
Number of jobs held in past 3 years						
Zero	58	37.6	29	22.5	87	32.2
One or more	83	58.9	99	76.7	182	67.4
Transportation						
Personal automobile	85	60.3	97	75.2	182	67.4
Public transportation	44	31.2	25	19.4	69	25.6
Other	12	8.6	7	5.4	19	7.0
Financial Dependents						
One	65	46.1	57	44.2	122	45.2
Two	29	20.6	25	19.4	54	20.0

Variable	TW (n = 141)		No TW (n = 129)		Total (N = 270)	
	n	%	n	%	n	%
Three or more	47	33.3	48	36.5	104	34.9
SSDI or SSI						
Yes	21	14.9	15	11.6	36	13.3
No	120	85.1	114	88.4	234	86.7
Filing for SSI or SSDI	19	15.8	12	10.5	31	13.2
VA SC Disability Income Status						
None	19	13.5	10	7.8	29	10.7
Filing for the First Time or Appeal	32	22.7	29	22.5	61	22.5
Receiving	73	51.8	62	48.1	135	50.0
Receiving & Filing for Increase	17	12.1	28	21.7	45	16.7
	Mean	SD	Mean	SD	Mean	SD
Age (yrs)	43.7	11.18	39.9	10.81	41.9	11.15
Current unemployment (yrs)	3.4	4.2	2.3	4.0	2.9	4.1
Duration of longest job in lifetime (yrs)	8.3	6.5	9.1	6.2	8.7	6.4
VA SC Disability Rating ***						
Total %	51.5	32.4	56.8	32.2	54.0	32.3
Medical %	22.2	28.8	30.0	35.9	26.0	32.7
Psychiatric %	4.0	12.9	5.6	17.0	5.0	15.1
PTSD %	32.5	32.7	30.3	29.6	31.4	31.1

SSDI = Social Security Disability; SSI = Supplement Security Income; SC = Service-connected

* if reporting adequate housing

** if reporting inadequate housing

*** For those receiving VA SC Disability income

Table 2**Military History, PTSD Status, PTSD Treatment History, and Baseline Assessments**

Variable	TW (n = 141)		No TW (n = 129)		Total (N = 270)	
	Mean	SD	Mean	SD	Mean	SD
Length of past military service (years)	8.3	6.6	8.7	6.7	8.5	6.6
Duration of PTSD (years)	13.7	11.2	13	11.2	13.4	11.2
Total CAPS (lifetime)	83.1	18.3	86.7	18.3	84.8	18.3
PCL-5 past month (current)	43.8	16.5	46.3	17.4	45.1	17
Rosenberg Self-Esteem Scale	26	6.0	25.5	5.7	25.5	5.8
Cumulative Illness Rating Scale						
Categories Endorsed (n)	4.0	1.9	3.8	2.5	3.9	2.2
Total Score	6.4	3.5	6.5	4.7	6.4	4.2
Severity Index	0.5	0.3	0.5	0.3	0.5	0.3
Quality of Life Inventory	-0.15	2.21	-0.06	1.95	-0.11	2.09
PTSD-Related Functional Inventory	93.3	29.9	99.9	29.6	96.4	29.9
	n	%	n	%	n	%
Branch of Service						
Army	86	61.0	85	65.9	171	63.3
Navy	32	22.7	17	13.2	49	18.1
Marine Corp	11	7.8	21	16.3	32	11.9
Air Force	14	9.9	11	8.5	25	9.3
National Guard, Coast Guard, NOAA	10	7.1	13	10.1	23	8.5
Period of Service						
Vietnam conflict	15	10.6	11	8.5	26	9.6
May 1975-Jul 1990	48	34.0	30	23.3	78	28.9
Persian Gulf War	30	21.3	26	20.2	56	20.7
March 1991-August 2001	44	31.2	40	31.0	84	31.1
OIF/OEF/OND	74	52.5	88	68.2	162	60.0
Served in Combat Zone	95	67.4	103	79.8	198	73.3
Primary Type of Trauma						
Combat-related (non-sexual)	77	54.6	87	67.4	164	60.7
Military sexual trauma	20	14.2	20	15.5	40	14.8
Other Military-related	23	16.3	11	8.5	34	12.6
Civilian adult trauma	11	7.8	5	3.9	16	5.9
Childhood trauma	10	7.1	6	4.7	16	6
PCL-5, current diagnostic threshold (> 33)	104	73.8	100	77.5	204	75.6
PCL-5, current severity						
Very mild (0-18)	10	7.1	10	7.8	20	7.4
Mild (19-37)	34	24.1	26	20.2	60	22.2
Moderate (38-59)	73	51.8	65	50.4	138	51.1
Severe (60-80)	21	14.9	28	21.7	49	18.1
Received treatment for PTSD within past 90 days	137	97.2	118	91.5	255	94.4

Variable	TW (n = 141)		No TW (n = 129)		Total (N = 270)	
	Mean	SD	Mean	SD	Mean	SD
MINI International Neuropsychiatric Interview						
Major Depression (past)	74	52.5	58	45.0	132	48.9
Major Depression (current)	26	18.4	28	21.7	54	20.0
Bipolar II or NOS (past)	4	2.8	0	0.0	4	1.5
Agoraphobia (current)	31	22.0	28	21.7	59	21.9
Panic (lifetime)	38	27.0	24	18.6	62	23.0
Social Anxiety (current)	22	15.6	18	14.0	40	14.8
Obsessive Compulsive (current)	9	6.4	10	7.8	19	7.0
Psychotic Disorder or Features (lifetime)	5	3.5	0	0	5	1.9
Alcohol Use Disorder (past year)	44	31.2	34	26.4	78	28.9
Substance Use Disorder (past year)	26	18.4	14	10.8	40	14.8
Ohio State University Traumatic Brain Injury						
Mild TBI	46	35.7	37	33.0	83	34.4
Moderate TBI	13	10.1	9	8.0	22	9.1
Severe TBI	2	1.6	4	3.6	6	2.5
Rosenberg Self-Esteem Scale						
Score <25	65	46.1	57	44.2	122	45.2
Score ≥25	76	53.9	71	55.0	147	54.4
Quality of Life Inventory						
Score < 0	72	51.1	60	46.5	132	48.9
Score ≥ 0	64	45.4	64	49.6	128	47.4

CAPS = Clinician Administered PTSD Scale; PCL = PTSD Checklist; Rosenberg Self-Esteem Scale score range 10–40 and <25 = low self-esteem; Quality of Life Inventory score range –6 to 6 and ≥ 0 = higher life satisfaction; Post-Traumatic Stress Related Functional Inventory score range 0–165; Cumulative Illness **Rating Scale** score range 0–56.

Table 3

Employment Outcomes During 18-month Period

Employment Outcomes	TW (n=141)		No TW (n=129)		P
	n	%	n	%	
Steady worker (competitive job > 38 weeks)	31	22.0	32	24.8	0.584
Obtained a competitive job within 6 months	28	19.9	58	45.0	<.0001
Obtained a competitive job within 12 months	59	41.8	68	52.7	0.074
Obtained a competitive job within 18 months	76	53.9	78	60.5	0.276
Held full-time (> 30 hrs/wk) competitive job	68	48.2	60	46.5	0.780
Hollingshead Job Classification 1, 2, 3	14	18.4	15	19.0	0.653
Hollingshead Job Classification 4, 5	36	47.4	41	51.9	0.256
Hollingshead Job Classification 6	102	54.8	57	36.8	0.410
Hollingshead Job Classification 7	53	28.5	48	31.0	0.510
	Mean	SD	Mean	SD	P
Income from competitive jobs, (\$)	9,559	14,590	12,553	19,410	0.097
Income from all sources including TW, (\$)	15,670	15,506	13,153	19,418	0.338
Weeks competitively employed	10.7	13.7	13.7	17.1	0.095
Days competitively employed	75.2	95.8	95.6	119.6	0.095
Full-time (> 30 hrs/wk) competitive job, (weeks)	9.3	13.1	10.8	15.7	0.29
Competitive jobs, (no./person employed)	40.6	22.8	32.5	21.6	0.172
Time to 1 st competitive job, (weeks)	35.4	18.6	21.2	18.8	<.0001
Weeks unemployed prior to enrollment*	179	220.0	118	206.9	0.019

* weeks unemployed prior to enrollment. Median = 108 (IQR = 234) for TW vs 56 (IQR = 111) for No TW.

TW = Transitional Work

Hollingshead Job Classification 1=higher executive, major professional, owner of larger business; 2=managers of medium-sized businesses, lesser professions, i.e. nurses, opticians, pharmacists, social workers, teachers; 3=administrative personnel, manager, minor professional, owner or proprietor of small business; 4 =clerical, sales, technicians, small businesses, bank teller, bookkeeper, clerk, timekeeper, secretary; 5=skilled labor, i.e. baker, barber, chef, electrician, fireman, machinist, mechanic, painter, repairman, tailor, welder, police, plumber; 6=semi-skilled, i.e. hospital aide, bartender, bus driver, cutter, cook, garage guard, checker, waiter, spot welder, machine operator; 7=unskilled, i.e. attendant, janitor, construction helper, labor, porter.

Table 4

Adjusted Analyses of Baseline Variables in Terms of Employment Outcomes

Employment Outcome	Baseline Variables* that reached p < 0.2 in univariate model	Baseline variable remaining significant in multivariable model	Univariate OR	Univariate OR (95% CI)	Multivariable OR	Multivariable OR (95% CI)
Steady Worker	Age, race, marital status, period of service, combat zone, housing, transportation, trauma type, previous employment, time unemployed	Age (yrs)	1.05	1.02, 1.08	0.95	0.93, 0.98
		Housing (no vs yes, adequate)	3.66	1.08, 12.38	3.89	1.13, 13.36
		TW (yes vs no, engagement)	3.40	1.98, 5.84	2.49	1.39, 4.47
Obtained a competitive job within 6 mo	Age, race, marital status, period of service, combat zone, housing, transportation, trauma type, previous employment, time unemployed, ±TW	Age (yrs)	1.07	1.04, 1.10	0.96	0.93, 0.99
		Transportation (no vs yes, own)	2.88	1.55, 5.34	2.28	1.16, 4.48
		Time unemployed	1.41	1.21, 1.65	0.81	0.69, 0.95
Obtained a competitive job within 12 mo	Age, race, period of service, combat zone, trauma type, PTSD treatment, previous employment, time unemployed, ±TW	Age (yrs)	1.07	1.03, 1.12	0.94	0.90, 0.99
		Combat zone (no vs yes)	4.62	1.31, 16.29	3.75	1.29, 10.93
		Age (yrs)	1.06	1.03, 1.08	0.97	0.94, 0.99
Obtained a competitive job within 18 mo	Age, race, period of service, combat zone, housing, transportation, trauma type, PTSD treatment, previous employment, time unemployed	Combat zone (no vs yes)	2.54	1.46, 4.41	2.00	1.16, 3.44
		Previous employment (0 vs 1 competitive jobs in 3 years)	4.13	2.41, 7.10	3.02	1.7, 5.37
		Age (yrs)	1.06	1.03, 1.09	0.96	0.93, 0.98
Held full-time competitive job (30 hrs/wk)	Age, race, period of service, combat zone, housing, transportation, trauma type, previous employment, time unemployed	Housing (no vs yes, adequate)	2.72	1.22, 6.06	2.53	1.06, 6.06
		Primary trauma (combat vs other)	3.09	1.84, 5.20	2.22	1.27, 3.87
		Previous employment (0 vs 1 competitive jobs in 3 years)	3.45	1.97, 6.02	2.18	1.18, 4.00
Job Class 1, 2, 3	PTSD treatment, previous employment, time unemployed	Previous employment (0 vs 1 competitive jobs in 3 years)	3.02	1.12, 8.11	3.70	1.25, 10.95
		Transportation (no vs yes, own)	2.93	1.60, 5.37	2.62	1.42, 4.85
Job Class 4,5	Age, race, period of service, combat zone, housing, transportation, trauma type, previous employment, time unemployed	Previous employment (0 vs 1 competitive jobs in 3 years)	2.43	1.35, 4.38	2.12	1.16, 3.88
		TW (yes vs no, engaged)	0.36	0.21, 0.59	0.36	0.21, 0.59
Job Class 6	±TW	0.22	0.13, 0.36	0.20	0.12, 0.35	
Job Class 7	Race, marital status, housing, transportation, ±TW					

Employment Outcome	Baseline Variables* that reached p < 0.2 in univariate model	Baseline variable remaining significant in multivariable model	Univariate OR	Univariate OR (95% CI)	Multivariable OR	Multivariable OR (95% CI)
		Race (non-white vs white)	1.40	0.86, 2.26	1.85	1.07, 3.18
		Housing (no vs yes, adequate)	0.28	0.13, 0.61	0.33	0.15, 0.76

Multivariable Regression model results

Employment Outcome	Variable remaining in stepwise model	Parameter estimate	p-value	Final Model
Income from competitive jobs, (\$)	Age Married (No/Yes)	-380.65 4998.41	<0.0001 0.0273	Income in \$ = 25283 – 380.65 (Age) + 4998.41 (Married)
Income from all sources including TW, (\$)	Age	-321.50	0.0011	Income in \$= 27904 –321.50 (Age)
Weeks competitively employed	Age No. competitive jobs past 3 yrs	-0.31 5.87	0.0004 0.0044	Number Weeks = 20.95 – 0.31 (Age) + 5.87 (No. competitive jobs past 3 yrs)

* The baseline variables included in univariate model were age (years), race (non-white vs white), marital status (married vs other), period of service (pre- vs post-9/11), combat zone (no vs yes), housing (no vs yes adequate), transportation (own vs other), trauma type (combat vs. other primary trauma), past or current PTSD treatment (no vs yes), previous employment (0 vs 1 competitive jobs in 3 years), time unemployment prior to baseline, and TW engagement (yes vs no). Job Class refers to the Hollingshead Job Classification code. Note: coding in all models was TW(yes) = 0 and TW(no) = 1.

Hollingshead Job Classification 1=higher executive, major professional, owner of larger business; 2=managers of medium-sized businesses, lesser professions, i.e. nurses, opticians, pharmacists, social workers, teachers; 3=administrative personnel, manager, minor professional, owner or proprietor of small business; 4 =clerical, sales, technicians, small businesses, bank teller, bookkeeper, clerk, timekeeper, secretary; 5=skilled labor, i.e. baker, barber, chef, electrician, fireman, machinist, mechanic, painter, repairman, tailor, welder, police, plumber; 6=semi-skilled, i.e. hospital aide, bartender, bus driver, cutter, cook, garage guard, checker, waiter, spot welder, machine operator; 7=unskilled, i.e. attendant, janitor, construction helper, labor, porter.