

Financial Well-Being and Postdeployment Adjustment Among Iraq and Afghanistan War Veterans

Eric B. Elbogen, PhD*†; CAPT Sally C. Johnson, USPHS (Ret)*; H. Ryan Wagner, PhD‡; Virginia M. Newton, PhD*; Jean C. Beckham, PhD†‡

ABSTRACT Research has yet to examine the relationship between financial well-being and community reintegration of veterans. To address this, we analyzed data from $n = 1,388$ Iraq and Afghanistan War Era Veterans who completed a national survey on postdeployment adjustment. The results indicated that probable major depressive disorder, post-traumatic stress disorder, and traumatic brain injury were associated with financial difficulties. However, regardless of diagnosis, veterans who reported having money to cover basic needs were significantly less likely to have postdeployment adjustment problems such as criminal arrest, homelessness, substance abuse, suicidal behavior, and aggression. Statistical analyses also indicated that poor money management (e.g., incurring significant debt or writing bad checks) was related to maladjustment, even among veterans at higher income levels. Given these findings, efforts aimed at enhancing financial literacy and promoting meaningful employment may have promise to enhance outcomes and improve quality of life among returning veterans.

INTRODUCTION

A vital challenge faced by Iraq and Afghanistan War Veterans returning home from combat is achieving financial well-being. This goal—which encompasses a sense of material security, the ability to make ends meet, opportunities to grow financially through work, and possessing knowledge and judgment to make good money management decisions^{1–3}—is not accomplished by all veterans postdeployment, and some struggle to afford basic needs. Veterans are not immune to economic downturns faced by civilians, and multiple deployments have been shown to disrupt family life,^{4,5} which can reduce financial well-being and thereby increase financial strain. Other financial problems that have been identified among Iraq and Afghanistan War Veterans include: predatory lending practices, with scammers often located near military bases; mismanagement of, or lack of experience with, finances by younger service members; and lack of an emergency savings plan.⁶

Financial strain could link to postdeployment problems in different ways (see Fig. 1). One could postulate that post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), or major depressive disorder (MDD) related to war experience^{7,8} might lead to disability entailing financial problems such as less income, unemployment, and debt. Substance abuse, which often co-occurs with these disorders, may further exacerbate money management difficulties experienced by veterans.^{9–11} Conversely, returning from deployments requires possible retraining for civilian work, making

it more difficult to find employment. If this is the case, then such veterans may be at risk of having lower income and more difficulty paying bills. Indeed, veterans comprise up to 41% of the homeless population,^{12–15} and studies of homeless veterans have revealed an increased risk of criminal arrest and difficulty accessing vocational resources.^{12,13,16}

Despite the role that money likely plays in veteran community readjustment and attention in the popular press to veteran employment and adjustment issues,¹⁷ to our knowledge, there has been little research examining the impact of veterans' financial status or financial literacy on postdeployment adjustment. There are a number of questions where data could inform policies and interventions to alleviate postdeployment adjustment problems. Do psychological injuries such as PTSD, MDD, or TBI relate to financial characteristics of veterans? Does a veteran having money to cover basic needs (e.g., shelter, food, clothes) relate to fewer postdeployment adjustment problems, such as homelessness, suicidal ideation, criminal arrest, or even aggression? How does poor money management, as opposed to lower income alone, link to worse outcomes for veterans? What are some possible pathways between financial strain and postdeployment problems? The current study thus examines these questions through analysis of a national sample of Iraq and Afghanistan War Veterans representing members of all military branches and reserves who have served since September 11, 2001.

METHODS

Study Population

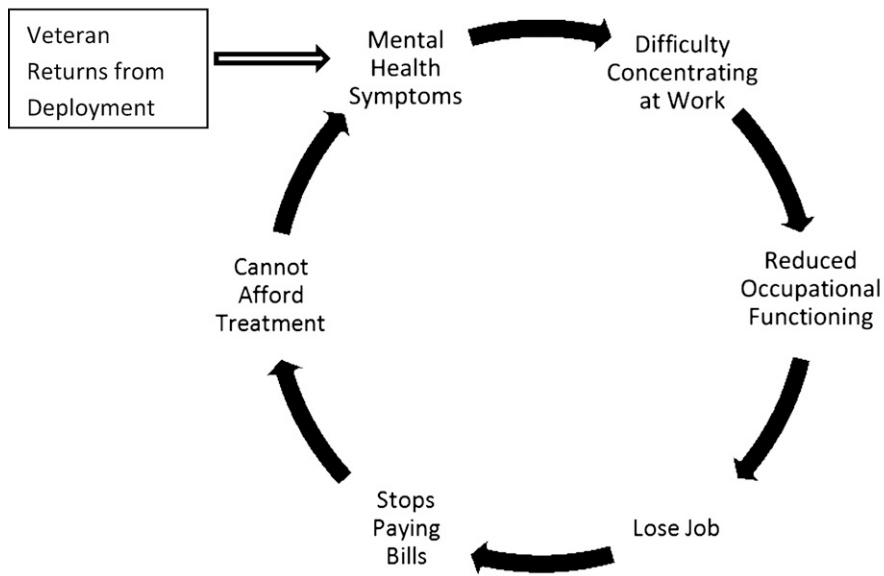
The National Post-Deployment Adjustment Survey (NPDAS) is part of a larger study funded by the National Institute of Mental Health to develop tools to screen for adjustment problems among veterans. For the NPDAS, the U.S. Department of Veteran Affairs (VA) Environmental Epidemiological Service in May 2009 randomly selected a sample of $N = 3,000$

*Forensic Psychiatry Program and Clinic, Department of Psychiatry, University of North Carolina-Chapel Hill School of Medicine, 2218 Nelson Highway, Chapel Hill, NC 27517.

†VISN 6 Mental Illness Research, Education, and Clinical Center (MIRECC), Durham VA Medical Center, 508 Fulton Street, Durham, NC 27705.

‡Department of Psychiatry and Behavioral Sciences, Duke University Medical Center, 200 Trent Drive, 4th Floor, Durham, NC 27710.

Pathway 1: Post-deployment Adjustment Problems Leading to Financial Problems



Pathway 2: Post-deployment Financial Problems leading to Adjustment Problems

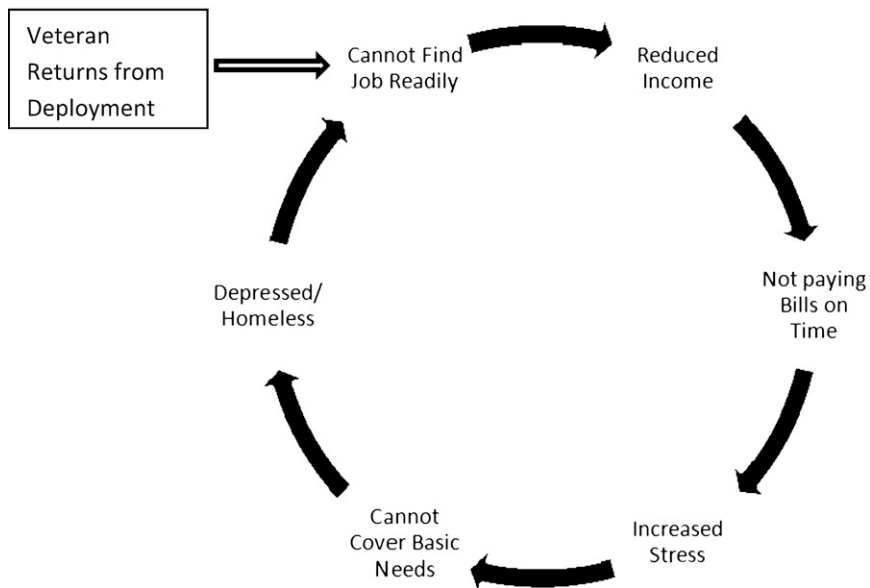


FIGURE 1. Hypothesized associations between postdeployment financial and adjustment problems.

from all separated veterans and reservists who served in the U.S. military after September 11, 2001. The sample was stratified by gender, and women veterans were oversampled to ensure a large enough statistical power to analyze data for women veterans. In total, $n = 1,388$ completed the survey, which yielded a 56% corrected-response rate ($n = 63$ had incomplete addresses or were deceased and $n = 438$ had incorrect addresses). Our response rate was comparable or exceeded recent national surveys of Iraq and Afghanistan military service members.^{18–20}

Close examination found no significant bias in the final sample. Gender ratios did not differ significantly between responders and nonresponders. States with the largest military populations (California, Texas, Florida, Georgia, North Carolina, Virginia, Pennsylvania) were similarly represented in response groups, and respondent demographics corresponded to known military demographics. The average age was 36 years for responders and 34 years for nonresponders. Responder military branch (52% Army, 18% Air Force, 16% Navy, 13% Marines, and 1% Coast Guard) approximated the

actual composition of the U.S. Armed Forces.²¹ Race/ethnicity ratios mirrored the current military breakdown (70% Caucasian and 30% African-American, Hispanic, or other). The final sample represented 50 states, Washington DC, and 4 territories.

Procedure

After obtaining approval from the University of North Carolina-Chapel Hill and Durham VA Medical Center Institutional Review Boards, the current survey used the Dillman Method²² to optimize response rate by making multiple and varied contacts with respondents and using mailings containing elements that connect personally with recipients. The online and print surveys were identical; 80% of respondents completed the survey online and 20% completed the print version. Before the primary survey, a pilot study of 500 surveys was used to identify unanticipated technical problems. Pilot study respondents received \$40 for completing the survey, and those who completed the survey during the remainder of the study period were reimbursed \$50. Overall, 15% of the total sample took the survey during in the pilot phase and 85% completed the survey during in the main study. Apart from a \$10 difference in participant payment, procedures were identical for both phases of the survey.

To analyze for differences in survey medium or reimbursement rate, the sample was compared on demographic and clinical variables. No significant differences between survey media or reimbursement rates were detected with Bonferroni adjustment, which is used when making multiple comparisons. Pooled data generated the final sample of $N = 1,388$ Iraq and Afghanistan War Veterans.

Measures

Financial Well-Being

Veterans were asked about their employment, annual income, and unsecured debt (excluding mortgages and car loans). The Quality of Life Index was used to inquire about perceived material security²³ (coded as 0 if not satisfied with financial situation and coded as 1 if satisfied). The Quality of Life Interview²⁴ was used to measure veterans' ability to make ends meet and cover basic needs (food, shelter, clothes, transportation, social activities, and medical care). If the participant indicated having money to cover all these needs in the past year, this was coded as '1'; otherwise, the veteran was seen as being unable to meet basic needs, coded as '0'. Items from the Financial Capacity Instrument²⁵ were used to assess whether in the past year participants wrote bad checks, fell victim to a money scam, had their lights or power shut off, or were referred to a collection agency. Endorsement of 'yes' to any of these items or report of an unsecured debt of greater than \$40,000, was operationalized as "poor" money management; if participants said no to all these items and did not report unsecured debt greater than \$40,000, this was operationalized as "good" money management.

Postdeployment Adjustment Problems

Veterans were asked if they had been arrested, engaged in suicidal behavior, or had suicidal thoughts since returning home from service. Homelessness within the past year was also assessed. The Drug Misuse Screening Test²⁶ was used to measure drug misuse (cutoff score = 2), and the Alcohol Use Disorder Identification Test (AUDIT)²⁷ was used to measure alcohol misuse (cutoff score = 7). Severe violence in the past year was measured by endorsement of items on the Conflict Tactics Scale²⁸ or the MacArthur Community Violence Scale,²⁹ indicating having caused serious harm to others or used a lethal weapon. Items on these scales indicating less severe acts were used to measure other physical aggression in the past year (i.e., kicking, slapping, and getting into fights).

Demographic, Military, and Clinical Covariates

Data were gathered regarding participant age, sex, race/ethnicity, marital status, income, education, military branch, time since last deployment, and combat exposure. PTSD was measured with the Davidson Trauma Scale³⁰; a cutoff score of 48 on this measure has shown 0.82 sensitivity, 0.94 specificity, and 0.87 diagnostic efficiency for probable PTSD.³¹ Using expert consensus guidelines,³² probable TBI was scored positive if head injury during military service was reported with at least one of the following: loss of consciousness, getting "knocked out," being dazed or "seeing stars," inability to recall the event immediately postinjury or upon regaining consciousness, experiencing a lapse of more than 1 hour postinjury before being able to remember new information, or brain surgery. The Patient Health Questionnaire was administered to assess depressive symptoms³³; scores above 10 have sensitivity and specificity of 0.88 for probable MDD.³⁴

RESULTS

Analyses were weighted by gender because women were oversampled to 33% of the current sample but represented an estimated 15.6% of the military at the time of the survey according to Defense Manpower Data Center.²¹ As such, data were weighted to reflect the latter proportion, adjusting the sampled $n = 1,388$ to a weight-adjusted $n = 1,102$.

19% of participants reported at least a general equivalency or high school diploma, 35% reported some college coursework, and the remaining 46% had a college degree at the associates, bachelors, or graduate level. 48% of respondents served in the reserves or national guard, 80% were enlisted personnel (ranked between E1 and E7), and 15% were commissioned officers (ranked between O1 and O7). 16% indicated that they had served since September 11, 2001 but had not been deployed to Iraq or Afghanistan, 28% had multiple deployments to Iraq or Afghanistan, and 27% reported a deployment longer than 1 year. The average length of deployment was 10 months and the average time since last deployment was 4.5 years.

Of the psychological and cognitive disorders assessed, 20% of participants screened positive for PTSD, 17% met the criteria for probable TBI, and 24% endorsed symptoms meeting criteria probable MDD. 27% of the sample met the criteria for alcohol misuse, 7% met the criteria for drug misuse, 9% reported a criminal arrest since returning home, and 4% were homeless for at least 1 day during the previous year. 33% endorsed committing mostly minor aggressive behavior in the past year, with 11% meeting criteria for severe violence. In addition, 17% endorsed suicidal ideation and 5% reported self-harming behavior since returning home.

The median annual income of respondents was approximately \$50,000, and 78% reported some employment in the last year. 72% of participants were satisfied with their financial situation, and 58% indicated that they were always able to afford food, clothes, transportation, housing, medical costs, and social activities. However, 43% indicated that treatment costs were a barrier to obtaining psychiatric care. During the previous year, 13% of participants lost a job, 15% wrote bad checks, 21% had been referred to collection agencies, 4% had been victims of money scams, and 5% had utilities or power shut off. 10% of respondents reported an unsecured debt greater than \$40,000.

Chi-square analyses were used to test for significant differences and associations between two variables, as opposed to associations occurring by chance. When cell sizes of these comparisons were in the single digits, we employed Fisher's Exact, which is a powerful statistical procedure that permits testing for significant differences even when there are few participants meeting a criterion.³⁵ This is highlighted in tables when used.

As shown in Table I, veterans with probable MDD, PTSD, or TBI were substantially less likely to have money to cover

expenses for clothing and social activities than other veterans and more than twice as likely to have been referred to a collection agency. Correspondingly, participants screening positive for these conditions had lower income and were significantly less satisfied with their financial status. Interestingly, this subset of veterans also was less likely to be employed; conversely, they were more likely to be receiving VA disability benefits.

Table II illustrates veterans who were able to meet their basic needs were less likely to be homeless, be arrested, misuse alcohol, misuse drugs, endorse suicidal ideation/behavior, or report acts of physical aggression.

Table III shows that veterans with low income (below median of \$50,000 annual) and poor money management skills endorsed the most problems with postdeployment adjustment, whereas those with high income (above median of \$50,000 annual) and good money management skills reported the fewest problems. The 'low income/good money management' and 'high income/poor money management' groups exhibited virtually the same frequency of postdeployment adjustment problems.

To examine the association between the financial variables and postdeployment adjustment problems while controlling for covariates, we conducted multiple logistic regression in which variables were only included if they were statistically significant ($p < 0.05$). Readers can contact authors if interested in getting the complete results for all variables. The strength of the association is represented by Odds Ratios (OR), which if above 1 connotes increased odds and if below 1 connotes decreased odds. For each, the 95% confidence intervals (CI) of OR are provided, as well.

All eight postdeployment adjustment problems assessed in this study were significantly related to financial characteristics

TABLE I. Financial Status and Psychological Injuries in Iraq/Afghanistan War Veterans

	Screened Positive for MDD, PTSD, or TBI (n = 387)	Screened Negative for MDD, PTSD, or TBI (n = 715)	χ^2	p Value
Has Money to Cover				
Food	81% (n = 314)	95% (n = 681)	57.4357	<0.0001
Clothing	66% (n = 253)	90% (n = 641)	96.7373	<0.0001
Housing	81% (n = 313)	93% (n = 664)	35.5632	<0.0001
Medical Care	65% (n = 251)	85% (n = 604)	55.1509	<0.0001
Social Activities	43% (n = 167)	73% (n = 520)	93.0746	<0.0001
Transportation	58% (n = 224)	82% (n = 582)	70.8869	<0.0001
All of Above	39% (n = 152)	69% (n = 489)	87.6971	<0.0001
In Past Year				
Lost a Job	22% (n = 83)	9% (n = 61)	36.3169	<0.0001
Bad Check	24% (n = 90)	10% (n = 72)	34.5683	<0.0001
Referred to Collection Agency	33% (n = 127)	14% (n = 95)	58.6980	<0.0001
Lights Turned Off	10% (n = 38)	2% (n = 14)	32.9399	<0.0001
Victim of Scam	6% (n = 21)	3% (n = 20)	4.6201	0.0316
Other Financial Data				
Income > \$50000? % Yes	37% (n = 144)	61% (n = 437)	57.5604	<0.0001
Unsecured Debt > \$40000? % Yes	13% (n = 51)	8% (n = 55)	8.9586	0.003
Employed Past Year? % Yes	68% (n = 262)	84% (n = 599)	37.0906	<0.0001
Satisfied with Financial Status?	52% (n = 199)	84% (n = 602)	135.8390	<0.0001
Receives VA Disability Benefits?	56% (n = 213)	25% (n = 172)	105.8156	<0.0001

TABLE II. Financial Ability to Meet Basic Needs and Postdeployment Adjustment Problems in Iraq/Afghanistan War Veterans

	Probable MDD, PTSD, or TBI (n = 387)				No MDD, PTSD, or TBI (n = 715)			
	Does Not Meet		χ^2	p Value	Does Not Meet		χ^2	p Value
	Basic Needs (n = 225)	Meets Basic Needs (n = 148)			Basic Needs (n = 210)	Meets Basic Needs (n = 472)		
Homeless Since Deployment ^a	12% (n = 36)	3% (n = 6)	11.437	0.0007	5% (n = 15)	0.2% (n = 1)	29.2159	<0.0001
Arrested Since Deployment	21% (n = 49)	6% (n = 8)	17.2286	<0.0001	8% (n = 17)	5% (n = 23)	2.7638	0.0801
Current Alcohol Misuse	43% (n = 101)	31% (n = 47)	5.7214	0.0168	24% (n = 54)	19% (n = 90)	3.3614	0.0667
Current Drug Misuse ^a	17% (n = 51)	8% (n = 16)	7.0726	0.0029	4% (n = 12)	1% (n = 8)	6.8499	0.0055
Suicidal Since Deployment ^a	14% (n = 44)	3% (n = 5)	18.4819	<0.0001	1% (n = 4)	0.3% (n = 2)	3.4542	0.0691
Recent Suicidal Ideation	33% (n = 76)	17% (n = 26)	11.0290	0.0009	6% (n = 13)	3% (n = 13)	4.5624	0.0327
Severe Violence Past Year	21% (n = 48)	19% (n = 28)	0.2294	0.6320	10% (n = 23)	4% (n = 19)	11.2641	0.0008
Other Physical Aggression Past Year	58% (n = 137)	35% (n = 53)	19.6607	<0.0001	33% (n = 73)	19% (n = 93)	15.5854	<0.0001

^aFisher's Exact Chi-Square used for small cell size.

TABLE III. Interaction Between Annual Income and Money Management on Postdeployment Adjustment Problems

	A	B	C	D	χ^2	p Value
	Low Income/ Poor Money Management, n = 264	Low Income/ Good Money Management, n = 256	High Income/ Poor Money Management, n = 166	High Income/ Good Money Management, n = 417		
Severe Violence in Past Year	23% (n = 57)	10% (n = 26)	10% (n = 16)	5% (n = 20)	47.9925	<0.0001
Suicidal Since Deployment ^a	9% (n = 32)	4% (n = 14)	2% (n = 5)	1% (n = 4)	41.3076	<0.0001
Other Physical Aggression in Past Year	55% (n = 146)	30% (n = 77)	33% (n = 54)	19% (n = 81)	95.6745	<0.0001
Recent Suicidal Ideation	20% (n = 53)	14% (n = 36)	11% (n = 19)	5% (n = 23)	34.5522	<0.0001
Current Alcohol Misuse	38% (n = 101)	26% (n = 67)	23% (n = 38)	22% (n = 90)	24.6049	<0.0001
Current Drug Misuse	14% (n = 37)	6% (n = 15)	8% (n = 14)	3% (n = 11)	33.6282	<0.0001
Homeless Since Deployment ^a	14% (n = 46)	2% (n = 6)	2% (n = 4)	0.4% (n = 2)	99.7498	<0.0001
Arrested Since Deployment	18% (n = 46)	9% (n = 23)	8% (n = 14)	4% (n = 16)	36.7591	<0.0001

^aFisher's Exact Chi-Square used for small cell size.

of veterans. Homelessness was associated with lower income (OR = 0.27, CI = 0.13–0.56, $p < 0.001$), having lights or power shut off in the past year (OR = 4.14, CI = 1.86–9.26, $p < 0.001$), and perceived lack of financial security (OR = 0.70, CI = 0.59–0.83, $p < 0.001$). Criminal arrests were linked to job loss in the past year (OR = 2.22, CI = 1.32–3.73, $p = 0.025$) and having been referred to a collection agency (OR = 1.97, CI = 1.21–3.20, $p = 0.006$). Alcohol abuse was related to being referred to a collection agency (OR = 1.51, CI = 1.08–2.12, $p = 0.017$), although drug misuse was predicted by reports of bounced checks in the past year (OR = 2.74, CI = 1.57–4.78, $p = 0.0004$).

Severe violence was also associated with referral to a collection agency (OR = 1.67, CI = 1.07–2.61, $p = 0.025$), and other physical aggression was related to costs as a barrier to obtaining mental health care (OR = 1.50, CI = 1.13–2.20, $p = 0.0057$), having checks bounced in the past year (OR = 1.52, CI = 1.01–2.29, $p = 0.046$), and being referred to a collection agency (OR = 2.20, CI = 1.57–3.09, $p < 0.0001$). Post-deployment suicidal ideation was related to being unable to afford the cost of basic needs (OR = 0.44, CI = 0.27–0.70, $p < 0.001$) and electrical service being shut off (OR = 1.94, CI = 1.24–3.04, $p = 0.0038$). Self-harm behavior was associated

with being unable to afford the cost of basic needs (OR = 0.22, CI = 0.10–0.82, $p = 0.019$) and electrical service being shut off (OR = 3.4, CI = 1.43–8.255, $p = 0.0057$). These findings provide empirical support to several of the links in the pathways hypothesized in Figure 1 between financial strain and postdeployment adjustment problems.

DISCUSSION

This study documents a strong association between post-deployment adjustment and financial well-being among Iraq and Afghanistan War Veterans. The analysis shows lower income and employment among veterans with PTSD, MDD, or TBI, consistent with other research on veterans in the United States³⁶ and United Kingdom²⁰ and in civilian populations.³⁷ At the same time, the data indicated that regardless of diagnosis, veterans who lacked the money needed to meet basic needs were more likely to be arrested, be homeless, misuse alcohol and drugs, demonstrate suicidal behavior, or engage in aggression postdeployment.

Although financial variables were related to adverse outcomes, the data underscored that merely increasing income may not be enough to erase postdeployment adjustment problems;

the more robust predictors involved indicators of money mismanagement such as debt, writing bad checks, not paying for basic needs including utilities, and being referred to a collection agency. Importantly, these variables still predicted poor outcome when modeled with individual demographics, military characteristics, and clinical diagnosis. Finally, we found that Iraq and Afghanistan War Veterans with higher income but poor money management fared about the same as those with lower income and good money management, emphasizing the dual importance of income and financial management skills.

Despite these findings, it is crucial to note that the cross-sectional nature of this study leaves unresolved the causal link between financial problems and postdeployment adjustment. Specifically, this study cannot resolve whether financial problems cause postdeployment adjustment or vice versa. Thus, it may be that financial troubles lead to postdeployment adjustment problems such as homelessness, and that the inability to afford treatment can impede access to mental health services leading to exacerbation of symptoms. However, it may also be that postadjustment problems lead to financial problems. For example, symptoms of PTSD or MDD could interfere with work attendance and reduce stable employment. In addition, adaptive combat behaviors may be unacceptable in civilian settings, leading to lost income stemming from dissolution of relationships or social support, or even arrests and incarceration. Depression, suicidal ideation, and cognitive dysfunction can also increase the likelihood of decreased productivity, job performance, and job loss.

A third possibility raised by the data is that these pathways co-occur; financial strain and postdeployment are mutually reinforcing and can create a downward spiral for veterans' readjustment. Consider a veteran returning from Iraq who needs to pay back debts incurred while deployed. As a civilian, the veteran now has to find a stable job or be retrained for civilian/private-sector employment. However, the veteran may be unable to work immediately if he or she is experiencing symptoms associated with PTSD, MDD, or TBI and may thereby incur additional debts. Increasing debt could contribute to family stress or loss of self-esteem if the veteran cannot adequately contribute to the household. The stress, in turn, may exacerbate symptoms. Problems such as suicidal ideation or physical aggression may emerge, making it even more difficult for the veteran to participate in work or school. Thus, to the extent that financial difficulties and postdeployment adjustment affect one another, policies and educational interventions that address financial literacy^{38,39} or employment^{40,41} may be as important as other clinical interventions in reducing postdeployment adjustment problems.

Veterans returning from deployment face the same financial challenges experienced by civilians. However, this study highlights that they may experience additional financial difficulties related to their combat exposure, military training, service connection, multiple deployments, and psychological or cognitive war injury. All of the eight postdeployment adjustment problems examined in our study were signifi-

cantly related to the financial characteristics of veterans, even after controlling for a wide array of covariates.

It was also noteworthy that veterans with emotional problems had co-occurring financial problems. Money mismanagement and the use of funds to purchase alcohol and drugs occurred more frequently among veterans with disabilities, who typically have the fewest financial resources. Veterans with psychiatric disabilities were also at highest risk of financial exploitation and more likely to have been laid off or fired, which mirrors research findings in civilian populations.^{42,43} Given these findings, improved money management appears to be important for successful postdeployment adjustment, particularly for veterans with psychiatric and cognitive disabilities, and this topic could be readily (and fruitfully) addressed by the military and VA when soldiers return home.

Limitations in the study should be noted. Although some of the characteristics of nonresponders were unknown (e.g., we did not obtain economic status of nonparticipants), given the lack of substantial differences between responders and nonresponders and the similarities between the sample and the post-9/11 military population in terms of military branch and race/ethnicity distributions, the current survey does appear to be among one of the most representative to date of Iraq and Afghanistan War Veterans. Although we used Fisher's Exact Test for small cells, a larger sample size could have improved ability to detect differences in these cases. Additional limitations include reliance on self-report and use of cross-sectional data, which restricted causal interpretation. PTSD and MDD were measured with tools based on validation studies, whereas TBI was measured based on expert consensus criteria and did not include indices of symptoms. Future research should examine more closely severity and characteristics of TBI and financial well-being in veterans. More study is needed to closely examine the effects of civilian employment and VA disability compensation on postdeployment adjustment. Nonetheless, the current study takes a first step in documenting the complex and potentially deleterious impact of financial strain on postdeployment adjustment among Iraq and Afghanistan War Veterans.

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