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RESEARCH ARTICLE

U.S. Military Veterans' Health and Well-Being in the First Year After Service

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Introduction: This study examined the health and well-being of U.S. veterans during the first year after military service and tested several hypotheses regarding differences in veterans' well-being over time, across life domains, and based on sex, military rank, and deployment history.

Methods: A national sample of 9,566 veterans was recruited from a roster of all separating U.S. service members in the fall of 2016. Veterans' status, functioning, and satisfaction with regard to their health, work, and social relationships were assessed within 3 months of separation and then 6 months later. Analyses were completed in 2019.

Results: Health concerns were most salient for newly separated veterans, with many veterans reporting that they had chronic physical (53%) or mental (33%) health conditions and were less satisfied with their health than either their work or social relationships. By contrast, most veterans reported relatively high vocational and social well-being and only work functioning demonstrated a notable decline in the first year following separation. Enlisted personnel reported consistently poorer health, vocational, and social outcomes compared with their officer counterparts, whereas war zone–deployed veterans reported more health concerns and women endorsed more mental health concerns compared with their nondeployed and male peers.

Conclusions: Although most newly separated veterans experience high vocational and social well-being as they reintegrate into civilian life, findings point to the need for additional attention to the health of separating service members and bolstered support for enlisted personnel to prevent the development of chronic readjustment challenges within this population.

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INTRODUCTION

Every year, more than 200,000 U.S. service members transition out of military service,[1] adding to the more than 19 million veterans within the U.S. population.[2] Although many go on to have productive and fulfilling lives, scholars have called for greater attention to the military-to-civilian transition experience, suggesting that some military veterans may have difficulty securing fulfilling employment, meeting healthcare needs, and successfully integrating within civilian society.[3–5] Researchers have also pointed to this period as a critical time for intervention,[6] during which prevention and early intervention efforts can be targeted to at-risk veterans to reduce their vulnerability to the types of chronic readjustment challenges experienced by some veterans from prior cohorts.[7]

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More than 40,000 organizations provide programs, services, and supports intended to assist veterans with the military-to-civilian transition.[8] In addition, information on veteran benefits, education options, federal assistance, and employment help are offered through the federally sponsored transition assistance program.[8] However, it is not known whether these programs address the most pressing health, vocational, and social needs of recently transitioned veterans, as no study has yet to provide a comprehensive assessment of the health and well-being of newly separated post-9/11 veterans.[6,9] Although some research has examined the health and well-being of this cohort, most studies include veterans with widely varying separation dates.[6,10,11] Given that the concerns of newly separated veterans are likely to differ from veterans who left military service many years ago,[12] the applicability of those findings to newly separated veterans remains unknown. In addition, most research has focused on Veterans Administration (VA) healthcare users and war zone–exposed veterans.[6] Though these studies have produced important scientific findings, they may not reflect the experiences of the larger veteran population, as many veterans do not seek assistance for health problems,[13] and almost half never experience a war zone deployment during service.[14] Finally, most research has focused on documenting health conditions known to be of concern for warfare-exposed veterans,[13,15–17] giving less attention to other important aspects of veterans' lives,[6,18] including their experiences in the workplace and their social relationships.

This investigation drew from a large prospective cohort study of newly separated U.S. military veterans identified from a roster of all separating service members and involved a first set of analyses aimed at providing a descriptive picture of veterans' health and well-being in the first year after leaving military service. A second set of analyses tested hypotheses regarding differences in veterans' health and well-being over time, across life domains, and based on sex, military rank, and deployment history. Consistent with the assertion that veterans may experience a "honeymoon period" after they separate from service, with readjustment difficulties becoming more salient over time,[19] Hypothesis 1 proposed that a greater proportion of veterans would report good health and well-being at the time of separation than 6 months later. Consistent with the expectation that health problems, and especially mental health problems, would be of greatest concern for newly separated veterans,[20] Hypothesis 2 proposed that a greater proportion of veterans would report higher well-being in vocational and social domains than in the health domain. Building on the broader literature on subgroup differences in post-military well-being,[21–23] Hypothesis 3 proposed that men, officers, and nondeployed veterans would report better health and well-being compared with women, enlisted personnel, and war zone–deployed veterans.

METHODS

Study Sample

This prospective cohort study drew from a roster of all separating U.S. service members identified from the VA/Department of Defense Identity Repository. The sampling frame was limited to veterans who lived in the continental U.S. and had separated from active component service or activated reservist status within the last 90 days. After an initial test of survey and recruitment method with 2,000 randomly selected veterans, all 46,965 veterans who met inclusion criteria were invited to complete the study in the fall of 2016.

A modified Dillman outreach methodology was used, which involved multiple contacts by mail and provided an opportunity for veterans to opt out of additional contacts.[24] Potential participants were provided a link to a website where they could share their contact information and complete the survey. Consistent with recommendations,[25] all potential participants received a pre-incentive of $5 cash, and those who completed surveys received an electronic gift card valued at $20 at Time 1 (T1) and $25 at Time 2 (T2). Surveys took about 37 minutes to complete and were administered approximately 6 months apart. IRB approval was obtained from VA Boston Healthcare System and ICF International. Additional details on the sampling, recruitment, and data collection strategy are provided in Vogt et al.[6]

Measures

The Well-Being Inventory was administered to assess veterans' status, functioning, and satisfaction with respect to health, vocational experiences, and social relationships[26] (Please note that the finalized Well-Being Inventory includes an additional work functioning item that was added at Wave 2 and therefore not included in these analyses). Evidence for these measures' reliability, validity, and sensitivity to change is available among post-9/11 veterans.[26] Status indicators are categorical, whereas functioning and satisfaction items use a 5-point Likert-type response format that ranges from *never* to *most or all the time* for functioning measures and *very dissatisfied* to *very satisfied* for satisfaction measures. To enhance the interpretability of descriptive results for functioning and satisfaction scales, average item scores were computed for each individual and scores were grouped into 2 categories: those in the highest third of the response continuum, corresponding to average responses of often or always functioning well or being somewhat or very satisfied (scores ranging from 3.668 to 5), and those in the bottom two thirds of the response continuum, reflecting average responses of rarely to sometimes functioning well or not being satisfied on average (scores ranging from 1 to 3.667).

Statistical Analysis

All analyses were completed in Stata, version 10, in 2019 and applied nonresponse bias weights. To provide a descriptive picture of veterans' health and well-being, proportions were computed for all health and well-being measures at both timepoints (left-hand side of Tables 1 and 2). To evaluate whether there would be a significant decline in the proportion of veterans who reported good

Table 1. Weighted Results for Health, Vocational, and Social Status, Functioning, and Satisfaction of Post-9/11 U.S. Military Veterans

Variable	% at T1	% at T2	Adjusted Wald F	*p*-value	OR
Health-related well-being					
Physical health condition			(1, 7,199)=5.94	**0.02**	1.06
No physical health condition	46.80	45.43			
Physical health condition	53.20	54.57			
Mental health condition			(1, 7,199)=19.77	**<0.01**	1.10
No mental health condition	67.78	65.13			
Mental health condition	32.22	34.87			
Health functioning			(1, 7,192)=2.80	0.09	0.95
Lower health functioning	31.29	32.33			
Higher health functioning	68.71	67.67			
Health satisfaction			(1, 7,195)=1.28	0.26	0.97
Not satisfied with health	52.26	52.99			
Satisfied with health	47.74	47.01			
Vocational well-being					
Employed			(1, 7,199)=332.33	**<0.01**	1.59[a]
Unemployed	42.69	31.96			
Employed	57.31	68.04			
Work functioning			(1, 4,721)=93.98	**<0.01**	0.50[a]
Functioning less well at work	7.15	13.28			
Functioning well at work	92.85	86.72			
Work satisfaction			(1, 3,797)=15.15	**<0.01**	0.85
Not satisfied with work	31.68	35.41			
Satisfied with work	68.32	64.59			
Social well-being					
Intimate relationship status			(1, 7,196)=0.19	0.67	0.99
Not in intimate relationship	18.99	19.19			
In intimate relationship	81.01	80.81			
Intimate relationship functioning			(1, 5,801)=4.50	**0.03**	0.97
Functioning less well in relationship	36.54	37.36			
Functioning well in relationship	63.46	62.64			
Intimate relationship satisfaction			(1, 5,801)=9.28	**<0.01**	0.94
Not satisfied with relationship	30.70	31.92			
Satisfied with relationship	69.30	68.08			
Broader community involvement			(1, 7,193)=0.07	0.78	0.99
Lower community involvement	39.80	40.00			
Higher community involvement	60.20	60.00			
Broader community functioning			(1, 7,188)=54.06	**<0.01**	0.81
Functioning less well in community	32.77	37.71			
Functioning well in community	67.23	62.29			
Broader community satisfaction			(1, 7,192)=3.97	**0.05**	0.90
Not as satisfied with community	33.13	35.49			
Satisfied with community	66.87	64.51			

Note: Degrees of freedom vary across outcomes mainly because of differential involvement in life domains across timepoints. Analyses of work satisfaction were limited to individuals with paid employment. Boldface indicates statistical significance ($p<0.05$).
[a]Meets OR effect size criterion.
T1, time 1; T2, time 2.

health and well-being (Hypothesis 1), T1 and T2 proportions were compared using adjusted Wald *F*-tests, which are an extension of the McNemar test, and used for weighted analyses in Stata.[27] This analysis provided a test of group-level differences in the endorsement of better health and well-being over time (right-hand side of Tables 1 and 2). To evaluate whether veterans would report higher well-being in vocational and social domains compared with the health domain (Hypothesis 2), T1 functioning and satisfaction proportions within different life domains were also compared using adjusted Wald *F*-tests. To evaluate whether men, officers,

Table 2. Weighted Results for Health Conditions, Illnesses, or Disabilities of Post-9/11 U.S. Military Veterans

Variable	% at T1	% at T2	Adjusted Wald F (1, 7,199)	*p*-value	OR
Chronic pain			3.57	0.06	1.05
No chronic pain	59.56	58.48			
Chronic pain	40.44	41.52			
Sleep problems			0.39	0.53	1.01
No sleep problems	68.78	68.46			
Sleep problems	31.22	31.54			
Anxiety			10.60	**<0.01**	1.08
No anxiety	77.53	76.10			
Anxiety	22.47	23.90			
Depression			23.96	**<0.01**	1.14
No depression	80.16	77.96			
Depression	19.84	22.04			
Arthritis			6.00	**0.01**	1.07
No arthritis	85.94	85.01			
Arthritis	14.06	14.99			
Hearing condition			0.00	0.97	1.00
No hearing condition	86.28	86.26			
Hearing condition	13.72	13.74			
PTSD			14.56	**<0.01**	1.13
No PTSD	87.68	86.29			
PTSD	12.32	13.71			
High blood pressure			2.30	0.13	1.04
No high blood pressure	88.30	87.84			
High blood pressure	11.70	12.16			
High cholesterol			10.15	**<0.01**	1.14
No high cholesterol	93.34	92.47			
High cholesterol	6.66	7.53			

Note: ORs reflect the odds of endorsing each condition at T2 as compared with T1. Boldface indicates statistical significance ($p<0.05$).
PTSD, post-traumatic stress disorder; T1, time 1; T2, time 2.

and nondeployed veterans would report better health and well-being compared with their female, enlisted, and war zone –deployed counterparts (Hypothesis 3), chi-square difference tests were computed, which are presented along with subgroup proportions in Tables 3 and 4. ORs are included for all comparisons and only those results that reflect at least a small effect (OR of ≥1.52 or ≤0.66[28]) are discussed.

RESULTS

A total of 9,566 veterans completed the first assessment within the allotted timeframe and an additional 581 veterans submitted partial responses. After reducing the denominator by known undeliverable mailings (4,682) and deceased individuals (2), this represents a 23% response rate. This is consistent with response rates for other studies of post-9/11 veterans, which typically range from 20% to 30%.[25,29] Among T1 respondents, 79% of those reached completed the T2 survey. Most participants were male (82%) and white (66%), with an average age of 34.47 (SD=9.55) years at T1. Veterans were from all branches of service, with 75% identifying as enlisted (versus officers), and 23% reporting that they served in a combat arms role Veterans reported 1.83 combat deployments and 10.71 years of military service, on average.

The T1 respondents were similar to the sampling frame on many characteristics, although lower enlisted service members were less likely to participate than officers. To adjust for this and other response differences and enhance the generalizability of study findings to the larger population, an initial set of nonresponse bias weights were calculated based on sex, rank/paygrade, and branch of military service. As described by Vogt and colleagues,[6] this procedure adequately adjusted for observed differences based on the 3 weighting variables as well as age differences. Although differential attrition was not a large problem at T2,[6] a second set of weights were computed to adjust for potential nonresponse bias based on key study variables (e.g., age, health, and employment status). These weights were multiplied by T1 weights to create final weights used in analysis.

Table 3. Weighted Differences in Status, Functioning, and Satisfaction of Post-9/11 U.S. Military Veteran Subgroups

Variable	% at T1	χ^2	*p*-value	OR	% at T2	χ^2	*p*-value	OR
Women (men)								
Health-related well-being								
Physical health condition	51.11 (53.59)	2.39	0.14	1.10	54.01 (54.68)	0.18	0.69	1.02
Mental health condition	40.48 (31.32)	36.68	**<0.01**	0.67	46.11 (32.74)	75.86	**<0.01**	0.57[a]
Good health functioning	73.33 (67.84)	13.55	**<0.01**	0.77	72.00 (66.85)	11.68	**<0.01**	0.78
Satisfied with health	44.06 (48.44)	7.39	**0.01**	1.19	46.34 (47.14)	0.25	0.63	1.03
Vocational well-being								
Employed	45.27 (59.58)	89.30	**<0.01**	1.78[a]	55.84 (70.34)	113.47	**<0.01**	1.87[a]
Functioning well at work	91.97 (93.01)	1.12	0.32	1.16	85.79 (86.90)	0.82	0.38	1.10
Satisfied with work	67.39 (68.46)	0.24	0.65	1.05	64.92 (64.53)	0.04	0.86	0.98
Social well-being								
In intimate relationship	76.13 (81.93)	21.05	**<0.01**	1.42	76.61 (81.61)	15.55	**<0.01**	1.35
Functioning well in relationship	69.48 (62.41)	16.59	**<0.01**	0.73	68.59 (61.59)	16.24	**<0.01**	0.73
Satisfied with relationship	70.55 (69.08)	0.78	0.40	0.93	69.65 (67.81)	1.22	0.29	0.92
Broader social involvement	61.79 (59.89)	2.00	0.41	0.92	61.49 (59.72)	5.98	0.07	0.93
Functioning well in community	70.55 (66.60)	6.84	**0.01**	0.83	68.32 (61.15)	21.09	**<0.01**	0.73
Satisfied with community involvement	64.22 (66.18)	1.65	0.22	1.09	64.08 (64.59)	0.11	0.75	1.02
Enlisted (Officers)								
Health-related well-being								
Physical health condition	53.54 (51.17)	2.02	0.13	0.91	55.00 (52.04)	3.16	0.62	0.89
Mental health condition	35.00 (19.73)	94.48	**<0.01**	0.46[a]	37.11 (21.69)	93.58	**<0.01**	0.47[a]
Good health functioning	65.45 (87.89)	209.20	**<0.01**	3.83[a]	64.45 (86.64)	201.08	**<0.01**	3.58[a]
Satisfied with health	45.12 (63.18)	116.80	**<0.01**	2.08[a]	43.88 (65.48)	167.25	**<0.01**	2.42[a]
Vocational well-being								
Employed	54.93 (71.32)	105.52	**<0.01**	2.04[a]	65.89 (80.68)	96.06	**<0.01**	2.16[a]
Functioning well at work	92.21 (95.83)	14.54	**<0.01**	1.94[a]	85.91 (90.77)	16.43	**<0.01**	1.61[a]
Satisfied with work	65.22 (82.41)	83.51	**<0.01**	2.50[a]	61.87 (77.63)	75.75	**<0.01**	2.14[a]
Social well-being								
In intimate relationship	79.47 (90.06)	65.17	**<0.01**	2.34[a]	79.00 (91.51)	90.36	**<0.01**	2.87[a]
Functioning well in relationship	62.47 (68.62)	13.35	**<0.01**	1.31	61.24 (69.77)	25.77	**<0.01**	1.46
Satisfied with relationship	67.95 (76.30)	26.81	**<0.01**	1.52[a]	66.46 (76.36)	37.46	**<0.01**	1.63[a]
Broader social involvement	56.93 (79.42)	190.54	**<0.01**	2.92[a]	56.51 (80.52)	218.93	**<0.01**	3.18[a]
Functioning well in community	65.74 (75.97)	42.45	**<0.01**	1.65[a]	60.96 (70.09)	31.65	**<0.01**	1.50
Satisfied with community	63.66 (78.82)	91.32	**<0.01**	2.12[a]	62.50 (76.32)	74.55	**<0.01**	1.93[a]
Not deployed (Deployed)								
Health-related well-being								
Physical health condition	45.05 (57.34)	98.08	**<0.01**	1.64[a]	46.24 (58.77)	102.41	**<0.01**	1.66[a]
Mental health condition	28.67 (34.88)	28.26	**<0.01**	1.33	31.20 (36.84)	22.63	**<0.01**	1.29
Good health functioning	67.03 (69.60)	4.91	0.06	1.13	67.66 (67.70)	0.00	0.97	1.00
Satisfied with health	49.28 (46.99)	3.41	0.11	0.91	46.32 (47.46)	0.84	0.42	1.05
Vocational well-being								
Employed	52.10 (59.99)	42.94	**<0.01**	1.38	64.47 (69.91)	25.27	**<0.01**	1.28
Functioning well at work	94.56 (92.15)	9.73	**0.01**	0.68	87.84 (86.19)	2.99	0.14	0.86
Satisfied with work	65.87 (69.47)	5.27	0.05	1.18	62.90 (65.36)	2.83	0.15	1.11
Social well-being								
In intimate relationship	75.00 (84.08)	86.52	**<0.01**	1.76[a]	74.08 (84.29)	108.53	**<0.01**	1.88[a]
Functioning well in relationship	69.10 (60.95)	37.44	**<0.01**	0.70	68.86 (59.90)	44.58	**<0.01**	0.68
Satisfied with relationship	72.90 (67.73)	16.41	**<0.01**	0.78	71.72 (66.57)	15.88	**<0.01**	0.79
Broader social involvement	56.89 (61.88)	29.06	**<0.01**	1.23	55.19 (62.49)	36.06	**<0.01**	1.35
Functioning well in community	69.41 (66.10)	8.06	**0.01**	0.86	64.64 (61.11)	8.55	**0.01**	0.86
Satisfied with community	65.10 (66.26)	0.97	0.39	1.05	63.76 (64.90)	0.92	0.41	1.05

Note: Boldface indicates statistical significance ($p<0.05$).
[a]Meets OR effect size criterion.
T1, time 1; T2, time 2.

Table 4. Weighted Differences in Health Conditions, Illnesses, or Disabilities for Post-9/11 U.S. Military Veteran Subgroups

Variable	% at T1	χ^2	*p*-value	OR	% at T2	χ^2	*p*-value	OR
Women (men)								
Chronic pain	39.23 (40.67)	0.83	0.38	1.06	41.16 (41.59)	0.07	0.80	1.02
Sleep problems	28.76 (31.68)	3.83	0.06	1.15	28.83 (32.06)	4.65	**0.04**	1.16
Anxiety	31.05 (20.84)	57.69	**<0.01**	0.58[a]	34.05 (21.97)	77.32	**<0.01**	0.55[a]
Depression	28.96 (18.11)	71.39	**<0.01**	0.54[a]	31.77 (20.19)	75.24	**<0.01**	0.54[a]
Arthritis	11.42 (14.56)	7.88	**<0.01**	1.32	13.38 (15.29)	2.75	0.09	1.17
Hearing condition	6.20 (15.15)	65.15	**<0.01**	2.70[a]	5.47 (15.30)	78.69	**<0.01**	3.12[a]
PTSD	12.39 (12.31)	0.01	0.94	0.99	16.76 (13.13)	10.72	**<0.01**	0.75
High blood pressure	5.75 (12.83)	46.72	**<0.01**	2.41[a]	7.56 (13.03)	26.98	**<0.01**	1.83[a]
High cholesterol	3.46 (7.27)	22.50	**<0.01**	2.19[a]	4.93 (8.03)	13.27	**<0.01**	1.68[a]
Enlisted (Officers)								
Chronic pain	41.49 (34.28)	19.28	**<0.01**	0.77	42.36 (36.58)	12.31	**<0.01**	0.78
Sleep problems	32.48 (23.76)	31.67	**<0.01**	0.65[a]	32.94 (23.30)	38.45	**<0.01**	0.62[a]
Anxiety	24.18 (12.38)	71.44	**<0.01**	0.44[a]	25.87 (12.29)	90.56	**<0.01**	0.40[a]
Depression	21.50 (10.05)	73.69	**<0.01**	0.41[a]	23.94 (10.83)	89.34	**<0.01**	0.39[a]
Arthritis	13.76 (15.83)	3.16	**0.03**	1.18	14.81 (16.02)	1.02	0.24	1.10
Hearing condition	13.83 (13.10)	0.40	0.48	0.94	14.05 (11.94)	3.36	**0.04**	0.83
PTSD	13.01 (8.32)	18.16	**<0.01**	0.61[a]	14.53 (8.90)	23.88	**<0.01**	0.57[a]
High blood pressure	11.52 (12.78)	1.39	0.18	1.13	12.08 (12.64)	0.26	0.57	1.05
High cholesterol	6.08 (10.11)	23.44	**<0.01**	1.74[a]	7.10 (10.07)	11.33	**<0.01**	1.47
Not deployed (Deployed)								
Chronic pain	33.56 (43.99)	73.06	**<0.01**	1.55[a]	34.18 (45.34)	82.83	**<0.01**	1.59[a]
Sleep problems	23.43 (35.30)	105.99	**<0.01**	1.78[a]	23.20 (35.87)	118.01	**<0.01**	1.85[a]
Anxiety	19.43 (24.09)	20.09	**<0.01**	1.32	21.62 (25.12)	10.86	**<0.01**	1.22
Depression	18.24 (20.71)	6.19	**0.03**	1.17	20.35 (22.96)	6.39	**0.03**	1.17
Arthritis	8.68 (16.87)	89.43	**<0.01**	2.14[a]	9.15 (17.97)	98.59	**<0.01**	2.18[a]
Hearing condition	10.01 (15.67)	43.68	**<0.01**	1.67[a]	9.30 (16.03)	61.81	**<0.01**	1.86[a]
PTSD	5.04 (16.11)	183.27	**<0.01**	3.62[a]	6.02 (17.71)	186.29	**<0.01**	3.36[a]
High blood pressure	6.65 (14.26)	90.79	**<0.01**	2.33[a]	6.66 (14.95)	104.23	**<0.01**	2.46[a]
High cholesterol	2.53 (8.81)	102.18	**<0.01**	3.72[a]	2.98 (9.90)	110.92	**<0.01**	3.58[a]

Note: Boldface indicates statistical significance ($p<0.05$).
[a]Meets OR effect size criterion.
PTSD, post-traumatic stress disorder; T1, time 1; T2, time 2.

As indicated in Table 1, more than half of all veterans reported a physical health condition, and nearly a third reported a mental health condition at both timepoints. A significant minority of individuals also reported difficulties in their health functioning and slightly more than half endorsed reduced satisfaction with their health. As indicated in Table 2, chronic pain, sleep problems, anxiety, and depression were most commonly endorsed by veterans.

Despite their health problems, veterans reported relatively high well-being in vocational and social domains (Table 1). More than half of all veterans reported that they had found work, more than three quarters were in an intimate relationship, and almost two thirds reported regular contact with friends and extended family and involvement in their broader communities. Many veterans also reported functioning well and being satisfied with both their work and social relationships.

In contrast to the hypothesis that there would be a significant decline in the proportion of veterans reporting good health and well-being, there was little change in veterans' status, functioning, or satisfaction within health, work, or social life domains (Table 1) or endorsement of health conditions (Table 1) between the first and second assessment. The one exception was for the work domain. Although veterans' employment increased over time on average, there was a significant decline in work functioning between T1 and T2.

Consistent with the hypothesis that a greater proportion of veterans would report good health and well-being in vocational and social domains than in the health domain, veterans reported poorer health than work functioning at both T1 ($F=852.08$, $p<0.01$, OR=0.20) and T2 ($F=476.17$, $p<0.01$, OR=0.37), on average. However, differences between work functioning and both intimate

relationships (F=70.29, p<0.01, OR=1.34 at T1; F=81.41, p<0.01, OR=1.35 at T2) and broader social functioning (F=4.45, p=0.04, OR=1.07 at T1; F=57.88, p<0.01, OR=1.27 at T2) did not meet the criterion for a small effect at either timepoint. By contrast, health satisfaction was lower than work satisfaction (F=178.44, p<0.01, OR=0.58 at T1; F=182.00, p<0.01, OR=0.60 at T2), intimate relationship satisfaction (F=736.39, p<0.01, OR=0.42 at T1; F=880.19, p<0.01, OR=0.43 at T2), and broader social satisfaction (F=679.69, p<0.01, OR=0.47 at T1; F=660.59, p<0.01, OR=0.49 at T2) at both timepoints.

Although it was hypothesized that male veterans would report better health and well-being compared with female veterans, few differences were observed in the broader well-being of female and male veterans (Table 3), with the exception that men were more likely to indicate being employed at both timepoints and women were more likely to indicate having a mental health condition at T2. In terms of specific health conditions, men were more likely to endorse having a hearing condition, high blood pressure, and high cholesterol, whereas female veterans were more likely to endorse anxiety and depression at both timepoints (Table 4).

Consistent with the hypothesis that officers would report better health and well-being than enlisted personnel, officers were more likely to endorse high scores on nearly all assessed dimensions of well-being (Table 3). They were more likely to be employed and in an intimate relationship and reported higher engagement in their broader community at both timepoints. They were also more likely to report better health and work functioning and endorsed higher satisfaction with work, health, and their broader community relationships at both timepoints. By contrast, enlisted personnel were more likely to report sleep problems, anxiety, depression, and post-traumatic stress disorder than officers at both timepoints (Table 4).

Providing mixed support for the hypothesis that nondeployed veterans would report better health and well-being than their deployed peers, deployed veterans were more likely to report having a physical health condition (Table 3), as well as a number of specific health problems, including post-traumatic stress disorder, high blood pressure, and high cholesterol, than their nondeployed peers (Table 4). However, there was no substantial difference on other measures of health and well-being.

DISCUSSION

In a population-based study of U.S. veterans' health and well-being in the first year after leaving military service, health concerns emerged as the most salient readjustment challenge facing veterans, with many individuals reporting that they had a chronic physical or mental health condition and were less satisfied with their health than work or social relationships. Among the examined veteran subgroups, enlisted personnel reported poorer outcomes on nearly all assessed dimensions of well-being compared with officers, whereas deployed veterans reported poorer health, and female veterans endorsed more mental health concerns, compared with their nondeployed and male peers. Given that health problems are known to erode broader well-being over time,[30–32] these individuals should be considered at risk for poor longer-term readjustment. Indeed, these health concerns may have contributed to another key study finding, which was that the proportion of veterans reporting good work functioning declined over time following separation.

Despite their health concerns, most veterans reported relatively high vocational and social well-being, a finding that highlights the resilience of the veteran population and that should be reassuring to those concerned about the well-being of newly separated veterans. In addition, deployed veterans did not report consistently poorer well-being in vocational and social domains compared with their nondeployed peers, suggesting that deployment is not a marker for poor post-military readjustment in general. Moreover, despite their higher endorsement of mental health concerns, findings did not reveal substantial differences in the broader well-being of women and men, building on research demonstrating more similarities than differences in female and male veterans' post-military health and well-being.[33]

The results of this study suggest a number of important avenues for prevention and early intervention. Although most support for separating veterans has historically focused on bolstering their employment prospects and informing them of their benefits,[34,35] the finding that veterans reported the poorest well-being in the health domain highlights the value of prioritizing attention to veterans' health concerns at the time of separation, especially with regard to chronic pain, sleep, anxiety, and depression. Given that some conditions are likely in place before separation, it may also be necessary to bolster preseparation health screening and intervention efforts.

Findings also point to the value of targeting intervention to at-risk subgroups, an important consideration given the growing call for transition assistance to move from a predominantly one-size-fits-all approach to more tailored intervention strategies.[36] Ideally, these interventions should be implemented before veterans' readjustment challenges worsen or have the chance to erode their broader well-being, a recommendation that may require a fundamental rethinking of how veteran programs prioritize efforts, as most transition support focuses on the needs of veterans with the most acute or

chronic concerns.[3] To the extent that health problems contribute to the erosion of well-being in other life domains, including the decline in work functioning observed in this study, addressing them more proactively could promote veterans' broader well-being. Finally, the finding that most veterans reported relatively high work and social well-being despite health problems supports the value of educating the public about veterans' strengths as well as their weaknesses.[37] Given that many veterans report that negative stereotypes about them are among the most pernicious barriers to their successful reintegration, there could be substantial value in providing a more nuanced understanding of their post-separation readjustment.

Limitations

Though this study has many implications for intervention, its benefits must be considered in light of its limitations. One limitation is the low T1 response rate, along with the possibility that individuals with functional limitations may have been less likely to participate. Although this can bias results, the application of weights to adjust for the small amount of nonresponse bias observed in this study mitigates this concern to some extent. In addition, although surveys were administered confidentially to reduce concerns about self-presentation and most measures required knowledge of life experiences unavailable from other data sources, some veterans may fail to recognize health conditions that are present, especially for conditions that are stigmatized like post-traumatic stress disorder. It is also important to recognize that a number of continuous measures were collapsed into smaller categories to enhance ease of interpretation (e.g., rank and well-being measures), limiting the ability to identify differences within these categories. A key direction for future research will be to provide a more in-depth examination of these factors, as well as differences based on other important characteristics, such as time in service and military specialty. It will also be important to examine the extent to which veterans experience chronic readjustment challenges over time, a key focus of the larger study from which these data were drawn.

CONCLUSIONS

This study represents the first in-depth investigation of U.S. veterans' health and well-being as they leave military service. Findings suggest a number of important directions for future prevention and early intervention efforts, which, if implemented, have the potential to put veterans on the path to more successful and fulfilling post-military lives.

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