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Do functional impairments promote or hinder mental health treatment seeking: Differential results for women and men

Dawne Vogt[*,a,b], Sara B. Danitz[a,1], Annie B. Fox[c,1], Wesley Sanders[a,1], Brian N. Smith[a,b,1]

[a] Women's Health Sciences Division, National Center for PTSD, VA Boston Healthcare System, Boston, MA, USA
[b] Department of Psychiatry, Boston University School of Medicine, Boston, MA, USA
[c] MGH Institute of Health Professions, Boston, MA, USA

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ABSTRACT

Although symptom severity is a known predictor of treatment seeking, the role of functional impairment in this association is unclear. The purpose of this study was to examine the contribution of relationship and work impairment to service use among women and men with posttraumatic stress disorder (PTSD) and depression symptoms. Data from mailed surveys of 363 military veterans were examined longitudinally. Stratified regression analyses were applied to evaluate moderating and mediating effects of functional impairment in association between symptoms and mental health service use, with significant effects observed for relationship but not work impairment. For men, relationship impairment moderated the association between mental health and service use, such that the impact of depression symptoms on treatment seeking was reduced when accompanied by high impairment. For women, subsequently assessed relationship impairment acted as a mediator of the positive association between PTSD symptom severity and service use. The finding that relationship impairment interfered with treatment seeking for men but facilitated treatment seeking for women may help explain widely demonstrated sex differences in treatment seeking. Results underscore the importance of attending to the role of relationship impairment in veterans' treatment seeking and highlight the value of implementing sex-informed approaches to treatment promotion efforts.

1. Introduction

A large body of research has been devoted to uncovering factors that explain why some individuals who would benefit from mental health care seek treatment whereas others do not. This topic has received particular attention in military and veteran populations (Elhai et al., 2007; Erbes et al., 2007), because of their known risk for mental health conditions and their well-documented reluctance to seek assistance for mental health problems (Schell and Marshall, 2008). A key finding is that male veterans (DeViva et al., 2016; Gorman et al., 2016; Haskell et al., 2011; Maguen et al., 2012), like their civilian counterparts (Andrade et al., 2014; Andrews et al., 2001; Mackenzie et al., 2006), are less likely to seek needed treatment than female veterans.

Research has uncovered a variety of factors that are related to treatment seeking in military and veteran populations, with greater symptom severity commonly identified as the most important positive predictor of service use (Di Leone et al., 2013; Elbogen et al., 2013; DeViva et al., 2016). To date, however, few studies have examined potential mechanisms linking symptom severity with service use. In addition, although there is some evidence that men's decreased willingness to seek treatment may be due in part to gender norms related to stoicism and emotional control (Addis and Mahalik, 2003), knowledge of other mechanisms that may explain men's decreased likelihood of seeking treatment remains limited.

One potential mechanism that may link symptom severity and treatment seeking is *functional impairment*: the sequelae of a mental health disorder that reflects one's capacity to perform key role functions. Among military and veteran samples, posttraumatic stress and depression symptomology have been found to lead to functional impairment within a number of life domains, including intimate relationships, family, and work (Adler et al., 2011; Erbes et al., 2011; Gewirtz et al., 2010; Smith et al., 2017; Vogt et al., 2016). For example, results indicate that both PTSD and depression are associated with decreased productivity and output at work (Adler et al., 2011; Erbes et al., 2011), as well as poorer parenting and couple adjustment among veteran and military samples (Gewirtz et al., 2010; Goff et al., 2007). It

[*] Correspondence author at: National Center for PTSD (116B-3), VA Boston Healthcare System, 150 South Huntington Avenue, Boston, MA 02130, USA
E-mail address: Dawne.Vogt@va.gov (D. Vogt).
[1] These authors contributed equally.

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remains unclear, however, whether these functional impairments may increase or decrease the likelihood of treatment seeking and whether functional impairment may operate differently for women and men. Difficulties such as decreased work performance or greater conflict with family members may be a signal that treatment is needed, or alternatively, could interfere with the ability or motivation to seek treatment and thus serve as a barrier to care.

Consistent with the interpretation that functional deficits may motivate treatment seeking, several studies have found that military veterans who report more difficulty readjusting after a war-zone deployment are more likely to seek mental health treatment (Bloeser et al., 2014; Interian et al., 2012). However, there is only one study to our knowledge that has examined the association between symptoms, functioning, and individual treatment seeking in a military or veteran sample (Meis et al., 2010). In this study, National Guard soldiers who exhibited greater PTSD symptoms were more likely to seek treatment as relationship adjustment *increased*, suggesting that these more positive relationships may provide both the support and motivation necessary to aid the veteran in initiating treatment, particularly as symptoms increase (Meis et al., 2010). Additional investigation is needed to disentangle these contradictory findings and inform interventions aimed at targeting the mechanisms that underlie decisions to seek treatment.

It is also important to consider whether the role of functioning deficits in the association between symptom severity and treatment seeking might vary for women and men. While the broader literature on sex differences in the post-9/11 veteran cohorts' post-military health has demonstrated many similarities (e.g., Street et al., 2013), sex differences are often observed in studies that examine predictors of healthcare seeking. For example, study findings have revealed that internalized stigma is less likely to serve as a potential barrier to women's as compared to men's use of treatment (Fox et al., 2015). Other research has revealed differential associations between trauma-related predictors of use of VA mental health care for women and men, with evidence that women who report sexual harassment are more likely to seek care than men who have the same experience (Di Leone et al., 2013). If functional deficits experienced by symptomatic individuals were to increase the likelihood of treatment seeking for women but decrease the likelihood of treatment seeking in men, this could contribute to observed differences in women's and men's treatment seeking. Yet, we are not aware of any studies that have addressed this research question. The one study that examined associations between symptoms, functioning, and treatment seeking in a military/veteran sample included few women, and thus, sex differences were not a focus (Meis et al., 2010).

In the present study, we explored the role of functional impairment in the association between symptom severity and treatment seeking in a sample of former service members who experienced a deployment in support of the U.S. wars in Iraq or Afghanistan (i.e., post-9/11 veterans). We first examined bivariate relationships among study variables and associated differences between women and men. We then examined work and family functioning as potential moderators of the association between concurrently assessed symptoms and service use, as well as a mediator of the relation between previously assessed symptoms and service use. Given their particular relevance for military veterans, we focused on symptoms of PTSD and depression and we conducted stratified analyses to evaluate whether associations differed for women and men. Based on prior research, we hypothesized that bivariate analyses would reveal that associations between both mental health symptom variables (PTSD and depression) and treatment seeking would be greater for women than men (Di Leone et al., 2013). Because of the lack of research on sex differences on the impact of relationship and work impairments on treatment seeking, or the role of either type of functional impairment as a mediator or moderator of associations between symptom severity and treatment seeking, we had no specific hypotheses regarding this set of analyses.

2. Method

2.1. Participants and procedure

Data were drawn from a three-wave longitudinal study of post-9/11 veterans. A randomly selected national sampling frame of veterans was identified from Department of Defense (DoD) records of all separated service members who had experienced a post-9/11 deployment in support of the wars in Iraq or Afghanistan. The sampling frame was stratified on deployment component (50% from Active Duty, 50% from National Guard/Reserves) and sex (50% women, 50% men). For the present study, we used data from the Time 2 (T2) and Time 3 (T3) data collections because these assessments included measures of functional impairment whereas the Time 1 (T1) assessment did not. T2 and T3 were implemented within approximately 5 years of separation from the military and then approximately 9 months later. Among the 892 participants who agreed to be re-contacted for these data collections, 817 participants were thought to have received the T2 survey (73 were returned as non-deliverable and 2 were deceased) and 810 were thought to have received the T3 survey (66 returned as non-deliverable, 2 deceased). A total of 524 and 455 participants completed the T2 and T3 surveys, respectively (64% and 56% of those who received the surveys).

Non-response bias was evaluated by comparing T2 and T3 responders and non-responders on key demographic and military characteristics drawn from DoD administrative records. Only small differences were observed in these comparisons. Specifically, differences between responders and non-responders at both T2 and T3 were small with regard to sex (Cramer's $V = 0.03$ [T2], 0.01 [T3]), race/ethnicity (Cramer's $V = 0.01$ [T2], 0.06 [T3]), age ($r = 0.17$ [T2], 0.14 [T3]), military branch (Cramer's $V = 0.11$ [T2], 0.09 [T3]), and deployment component (Cramer's $V = 0.07$ [T2], 0.02 [T3]), which enhances confidence that nonresponse bias was not a major factor in this study.

Both data collections used a modified Dillman mail survey procedure (Dillman et al., 2009). Using postal mail, we sent potential participants an initial survey, a letter detailing the purpose of the research, an opt-out form, a preaddressed postage-paid envelope, and a $25 Visa gift card that they could keep regardless of whether they returned the survey. Two weeks later potential participants were sent a reminder/thank you postcard and non-responders were sent a second mailing of the survey, followed by a second reminder postcard two weeks later. The same procedure was followed for a third and final mailing. The study received IRB approval and informed consent was inferred by return of the completed survey.

We limited our study sample to individuals who completed both the T2 and T3 surveys ($N = 363$, 195 women, 168 men). Average age reported at T1 was 37.75 ($SD = 11.41$). The sample was predominately White (80.4%), and reported having a college degree or higher (62.6% at T2, 63.0% at T3). Most participants were also married or in a romantic relationship (71.4% at T2, 72.1% at T3). Women were less likely than men to be in a relationship at T3 (67.2% of women, and 76.2% of men), χ^2 (1) = 4.90, $p = 0.027$, and the difference was not significant at T2 (67.2% for women, and 77.7% for men), χ^2 (1) = 3.56, $p = 0.063$. Most participants were also in the labor force (78.2% at T2, 76.0% at T3), and among those in the labor force, most were employed (96.8% at T2, 95.2% at T3). Women and men did not differ significantly with respect to labor force participation at T2 (74.9% of women, 82.0% of men), χ^2 (1) = 2.71, $p = 0.100$, or T3 (75.9% for women, 76.1% for men), χ^2 (1) = 0.002, $p = 0.969$. Among those in the labor force, women and men also did not differ significantly with respect to employment status at T2 (95.2% of women, 98.5% of men), χ^2 (1) = 2.55, $p = 0.110$, or T3 (93.2% for women, 97.6% for men), χ^2 (1) = 2.79, $p = 0.095$. In total 16.3% of women and 22.1% of men met criteria for probable PTSD at T2, χ^2 (1) = 1.84, $p = 0.175$, and 19.6% of women and 23.6% of men met criteria for probable PTSD at T3, χ^2 (1) = 0.837, $p = 0.360$. For probable depression, 35.9% of women and 39.9% of

Table 1
Correlations among study variables for women and men.

	Variable	1	2	3	4	5	6	7
1.	T2 PTSD Symptoms	–	0.70*/0.57*,[a]	0.63*/0.54*	0.52*/0.42*	0.41*/0.54*	0.53*/0.46*	0.42*/0.43*
2.	T2 Depression Symptoms		–	0.64*/0.54*	0.59*/0.52*	0.49*/0.41*	0.52*/0.47*	0.48*/0.29*,[a]
3.	T2 Relationship Impairment			–	0.50*/0.55*	0.71*/0.77*	0.34*/0.52*	0.37*/0.20*
4.	T2 Work Impairment				–	0.31*/0.34*	0.64*/0.67*	0.23*/0.13
5.	T3 Relationship Impairment					–	0.40*/0.51*	0.36*/0.16
6.	T3 Work Impairment						–	0.29*/0.12
7.	T3 Service Use							–
N		190/154	192/163	142/143	133/127	144/140	126/116	195/168
M/%		16.0/19.0	18.5/19.0	31.0/29.9	40.1/43.4	32.0/30.7	41.5/43.4	44.6/37.5[†]
SD		17.1/19.1	7.9/7.7	13.3/11.7	13.7/13.5	13.2/11.5	12.8/11.7	N/A

Note. (women/men),
* $p < 0.05$;
[a] indicates comparison between correlation for women and men is statistically significant using a Fisher z-test ($p < 0.05$). [†]Values in the mean row for T3 Service Use are percentages.

men met the cut-off criteria at T2, χ^2 (1) = 0.582, $p = 0.445$, and 42.3% of women and 39.5% of men met the cut-off criteria at T3, χ^2 (1) = 0.278, $p = 0.598$.

2.2. Measures

2.2.1. Mental health symptom severity

Depression symptoms were assessed with an adapted version of the Beck Depression Inventory-Primary Care (BDI-PC; Beck et al., 1997). The measure consists of seven statements extracted from the original BDI but with a variation in response format; each item is rated on a 5-point scale (1 = strongly disagree to 5 = strongly agree). We summed scores across the 7 items to create a composite depression symptom severity score with higher scores indicating worse depression. The coefficient alpha for the BDI-PC was 0.91 at T2 and 0.92 at T3. *PTSD symptom severity* was assessed with the widely used and well-validated 20-item PTSD Checklist (PCL5; Weathers et al., 2013). Responses are recorded on a 5-point scale (0 = Not at all bothered, to 4 = extremely bothered) and summed to create an overall measure of PTSD symptom severity. The coefficient alpha for the PCL5 was 0.97 at both T2 and T3.

2.2.2. Functional impairment

The 11-item intimate relationship subscale and 21-item work subscale from the Inventory of Psychosocial Functioning (IPF; Bovin et al., 2018) was administered to assess functional impairment within these two domains. Survey respondents were instructed to complete the intimate relationship scale if they had a spouse or romantic partner at any point over the prior six months and the work subscale if they had worked for pay, as a volunteer, or as a homemaker in the past six months. Responses were reported on a 7-point Likert scale from 1 (never) to 7 (always), and respondents were asked to identify how often the following experiences have applied to them. Sample items on the work functioning scale include, “I solved problems or challenges at work without much difficulty” and “I performed my job to the best of my ability.” Sample items on the intimate relationship functioning scale included, “My partner or spouse and I did activities that brought us closer together” and “I had trouble sharing thoughts or feelings with my spouse or partner.” Excellent psychometric properties have been found for both of these scales, with Cronbach alphas ranging from 0.79 to 0.90 (McQuaid et al., 2012). The coefficient alpha was 0.92 at T2 and 0.91 at T3 for the intimate relationship scale, and 0.90 at T2 and 0.87 at T3 for the work scale. Sum scores are calculated with higher scores indicating greater functional impairment. T2 functioning measures were used for moderation analyses and T3 functioning measures were used for mediation analyses.

2.2.3. Mental health service use (T3)

At T3, participants were asked to report if they had received any mental health care for a mental health problem since the previous data collection. Types of mental health care included inpatient treatment, outpatient treatment, urgent care, mental health medications, and self-help/support groups. The variable was dichotomized to reflect whether an individual used any of these different types of care.

2.3. Data analyses

Before conducting moderation and mediation analyses, we examined correlations among all variables. Analyses of moderation and mediation were conducted in SPSS version 24 using PROCESS version 2.16 (Hayes, 2013). The PROCESS macro uses regression-based path analysis to test for evidence of mediation, moderation, or moderated mediation, and allows for both continuous and dichotomous outcomes. In the moderation models, T2 functioning variables were tested as moderators of the relation between T2 mental health symptomatology (PTSD, depression), and T3 mental health service use by including an interaction term. In the mediation models, T3 functioning variables were tested as the mediators of the relation between T2 mental health symptomatology and T3 mental health service use by examining the indirect effects. Confidence intervals for the indirect effects were estimated with 5000 bootstrapped samples, and a confidence interval that did not include zero was interpreted as evidence of significant mediation. Models were tested separately for women and men.

3. Results

As expected, an examination of bivariate correlations among study variables revealed that both PTSD and depression symptoms were associated with increased use of mental health services for both women and men (see Table 1). In addition, both PTSD and depression symptoms were associated with increased relationship and work impairment at both T2 and T3. In turn, relationship and work impairment at both T2 and T3 were associated with increased mental health service use for women, but for men, only T2 relationship impairment was significantly associated with greater likelihood of service use. We compared the bivariate correlations for women and men using Fisher z-tests. Only two correlations were significantly different at the $p < 0.05$ level: The correlation between T2 PTSD symptoms and T2 depressive symptoms was stronger for men than for women, and the relationship between T2 depressive symptoms and T3 service use was greater for women compared to men.

3.1. Moderation models for women

Results of the moderation models for women are presented in the left half of Table 2. For women, T2 PTSD symptomatology was positively associated with T3 mental health service use in both functioning

Table 2
Moderation results for mental health service use.

	Women			Men		
	B	*SE*	*CI*	*B*	*SE*	*CI*
Relationship Impairment	0.039*	0.019	0.002–0.076	−0.004	0.022	−0.046–0.038
PTSD Symptoms	0.045*	0.017	0.013–0.078	0.052*	0.014	0.024–0.080
PTSD * Relationship Impairment	−0.011	0.001	−0.003–0.000	−0.001	0.001	−0.003–0.001
Relationship Impairment	0.023	0.020	−0.017–0.064	0.026	0.019	−0.011–0.063
Depression Symptoms	0.150*	0.034	0.083–0.218	0.062*	0.029	0.004–0.119
Depression * Relationship Impairment	−0.003	0.002	−0.007–0.001	−0.004*	0.002	−0.008–0.000
Work Impairment	0.001	0.017	−0.033–0.034	−0.004	0.018	−0.039–0.031
PTSD Symptoms	0.058*	0.017	0.025–0.091	0.060*	0.015	0.030–0.090
PTSD * Work Impairment	0.000	0.001	−0.002–0.002	−0.000	0.001	−0.003–0.002
Work Impairment	−0.015	0.020	−0.055–0.025	−0.001	0.018	−0.036–0.034
Depression Symptoms	0.162*	0.037	0.090–0.233	0.094*	0.033	0.029–0.158
Depression * Work Impairment	0.001	0.002	−0.003–0.006	−0.001	0.002	−0.006–0.004

Note.
* $p < 0.05$; Unstandardized regression weights are presented; CI = confidence interval.

models. T2 relationship impairment was positively associated with T2 service use, while T2 work impairment was not. There was no evidence of moderation in either model; the interactions between functional impairment and PTSD symptoms were not significant. For both of the depression models, depression symptoms were positively associated with mental health service. Neither work nor relationship impairment was associated with service use in these models, and the interactions were not significant.

3.2. Moderation models for men

The results of the moderation models for men are presented on the right side of Table 2. In both of the PTSD models, T2 PTSD symptomatology was positively associated with T3 mental health service use. However, neither T2 work nor relationship impairment were associated with service use, and the interactions were not significant.

For both of the depression models for men, depression symptom severity was positively associated with mental health service use but functional impairment was not. While there was not a significant interaction between depression and work functioning impairment, the interaction between depression symptoms and relationship impairment was significant (see Fig. 1b). An examination of the conditional effects revealed that as depression symptoms increased, men were more likely to seek care, but only when relationship impairment was low (below the mean). At higher levels of impairment, the association between depression and service use was no longer significant (i.e., the effect weakens as relationship functioning impairment increases).

3.3. Mediation models for women

The results of the mediation models for women are presented in the top half of Table 3. There was a significant and positive association between T2 symptomatology and both T3 service use and T3 impairment in all models. In addition, while T3 relationship impairment was related to T3 service use in both models, T3 work impairment was not related to service use in either model. There was also a significant indirect effect of PTSD symptoms on service use through relationship impairment (see Fig. 1a). As PTSD symptoms worsened, relationship impairment increased; increased relationship impairment was associated with increased likelihood of seeking mental health service use. The indirect effects for the depression models were not significant.

3.4. Mediation models for men

Results of the mediation models for men are presented in the bottom half of Table 3. In all models, there were positive direct effects of T2 symptomatology on T3 service use and T3 functional impairment. However, none of the indirect effects through functional impairment were significant.

4. Discussion

The findings of the present study suggest that relationship impairment, but not work impairment, plays a role in explaining the association between symptom severity and treatment seeking among post-9/11 military veterans. However, the role that relationship impairment plays appears to be different for women and men. While impaired functioning was associated with greater likelihood of service use for women in several models, the same associations were not observed for men. In addition, differential findings emerged in tests of relationship functioning as a moderator or mediator of the association between symptom severity and service use. For men, only moderation was observed, with findings suggesting that the positive impact of depression symptom severity on treatment seeking is reduced when accompanied by high levels of impairment. For women, only mediation was observed, with findings suggesting that functional deficits resulting from symptoms may be a mechanism that explains the positive relation between symptom severity and treatment seeking.

In brief, findings indicate that relationship impairment may interfere with treatment seeking for men but facilitate treatment seeking for women, while no meaningful role for work impairment was observed. It may be that relationship impairment leads to poorer quality relationships, and this translates into the lack of a supportive partner to encourage treatment seeking, which was found to be an important predictor of treatment seeking in a mixed-sex sample (Di Leone et al., 2013), and which could prove to be a more important predictor for men than women. On the other hand, for women experiencing relationship impairment, perhaps the negative impact on relationships serves as a key signal that help is needed. While we cannot be sure why this sex difference emerged, it is possible that this finding is due to the different role that relationships play in women's and men's lives, including women's greater attunement to and emphasis on relationships (Moskowitz et al., 1994) and women's greater propensity toward affiliation when exposed to difficult life circumstances (Taylor et al., 2000). To this end, it is interesting to note that a recent study found that women experienced greater improvement in PTSD symptoms when treatment was expanded to incorporate family involvement (Laws et al., 2018), further highlighting the differential role that relationships play in women's as compared to men's treatment experiences. It is also possible that women may be more likely to seek treatment when they experience impaired functioning because they have more positive attitudes about mental health treatment seeking to begin with (Fox et al.,

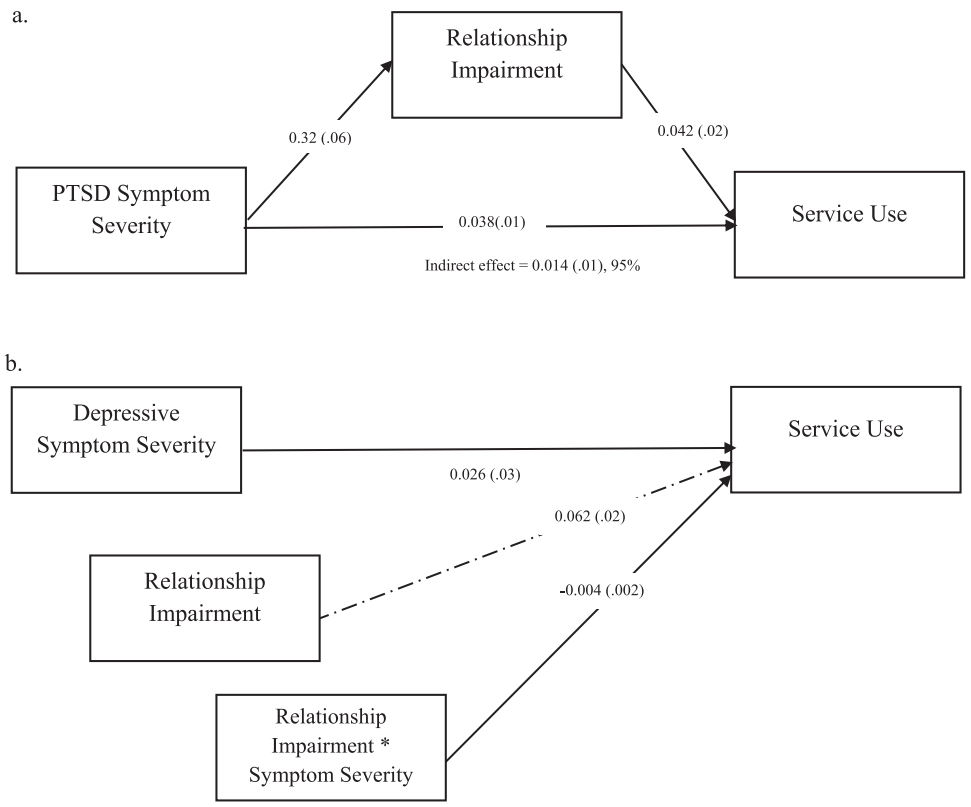

Fig. 1. (a) Mediation Model for Women. *Note*. SE in parentheses. All paths significant, $p < 0.05$. (b) Moderation Model for Men. *Note*. Standard error in parentheses. Dotted path is not statistically significant. All other paths significant, $p < 0.05$.

2015).

Although we did not specify hypotheses about the role of functional impairment in associations between symptom severity and service use we did hypothesize that associations between both mental health symptom variables and service use would be greater for women than men. This hypothesis was partially supported via the finding that depression symptoms were more strongly related to service use for women in bivariate correlations. However, there was no significant sex difference for PTSD. It could be that men are more comfortable receiving care for PTSD than depression, and as a consequence, the sex difference is

Table 3
Mediation results for mental health service use.

	PTSD			Depression		
Women	B	SE	CI	B	SE	CI
Relationship impairment						
Sx→Service Use	0.038*	0.013	0.013–0.063	0.120*	0.030	0.061–0.180
Sx→Impaired Fx	0.320*	0.060	0.202–0.439	0.846*	0.126	0.597–1.094
Impaired Fx→Service Use	0.042*	0.016	0.010–0.074	0.035*	0.017	0.001–0.069
Sx→Impaired Fx→Service Use	0.014*	0.007	0.003–0.030	0.030	0.018	−0.001–0.069
Work impairment						
Sx→Service Use	0.050*	0.016	0.020–0.081	0.108*	0.032	0.045–0.171
Sx→Impaired Fx	0.420*	0.061	0.299–0.542	0.872*	0.129	0.617–1.127
Impaired Fx→Service Use	0.019	0.018	−0.016–0.054	0.027	0.019	−0.010–0.064
Sx→Impaired Fx→Service Use	0.008	0.008	−0.007–0.025	0.024	0.019	−0.014–0.065

	PTSD			Depression		
Men	B	SE	CI	B	SE	CI
Relationship impairment						
Sx→Service Use	0.049*	0.014	0.023–0.076	0.053*	0.027	0.001–0.105
Sx→Impaired Fx	0.349*	0.047	0.256–0.442	0.636*	0.120	0.398–0.873
Impaired Fx→Service Use	−0.014	0.020	−0.053–0.026	0.053	0.026	−0.020–0.046
Sx→Impaired Fx→Service Use	−0.005	0.008	−0.023–0.010	0.008	0.013	−0.020–0.032
Work impairment						
Sx→Service Use	0.056*	0.016	0.026–0.087	0.126*	0.038	0.052–0.199
Sx→Impaired Fx	0.327*	0.061	0.206–0.447	0.752*	0.135	0.485–1.018
Impaired Fx→Service Use	−0.004	0.022	−0.047–0.038	−0.009	0.020	−0.050–0.031
Sx→Impaired Fx→Service Use	−0.002	0.007	−0.015–0.014	−0.007	0.016	−0.041–0.023

Note.
* $p < 0$ 0.05; Unstandardized regression weights are presented; CI = 95% confidence interval. Sx = Symptom severity, Fx = functioning.

attenuated for PTSD. This could also explain why the moderation effect that was observed for men was only found for depression symptoms (not PTSD) and the mediation effect that was observed for women was only found for PTSD symptoms (not depression). That is, that there is a difference in how women and men feel about seeking treatment for PTSD as compared to depression. It was also interesting that associations with service use generally appeared somewhat larger for relationship impairment as compared to work impairment for women across analyses, whereas for men these associations appeared more similar in magnitude. This finding is consistent with the perspective that relationships play an especially important role in women's lives.

As noted previously, while we tested several models (moderation and mediation models for each type of functioning, stratified by sex), moderation and mediation effects were not consistently found in all models. Thus, this study should be viewed as providing initial support for sex differences in the role of functioning in the relationships between mental health symptoms and service use that will need to be replicated and confirmed in future studies and other samples. A multigroup path analysis that simultaneously tests moderation, mediation, and sex differences in a larger sample would be especially helpful in this regard. To the extent that additional research supports these effects, they may provide a critical piece of the puzzle in understanding sex differences in treatment seeking.

Another key direction for research will be to examine relationships with amount of care, adherence to care, and other indicators of treatment engagement, which may differ from those observed with respect to any use of care. A limitation of the current study is the possibility that symptoms and functioning may have been conflated to some extent. While these variables were not related at levels that would suggest that they overlap conceptually, some items within our symptom severity measures are likely to cross the line between internally experienced symptoms and external behaviors addressed in the functioning measures. Likewise, although the only practical source of information regarding how individuals function across a wide variety of settings is their own observations, some individuals may lack insight into their functioning and/or be unwilling to provide accurate reports. While functioning measures were related to outcomes in the direction we would expect, there is likely to be at least some bias in these reports. Finally, although sex differences observed in treatment seeking appear to be widely relevant to both military veterans and other populations, a key direction for future research will be to evaluate whether the role of functional impairment observed in this study generalizes to other populations beyond military veterans. Given that many of the findings observed in the literature on female veterans' health and service use mirror that observed in the larger civilian literature, it seems likely that findings would generalize to other populations. However, this needs verification.

The notion that relationship impairment may serve as a facilitator of treatment seeking for women but not for men has important implications for efforts to enhance the engagement of veterans in mental health treatment. These findings highlight the importance of expanding efforts to engage veterans in treatment beyond typically considered barriers and facilitators to treatment seeking (e.g., access-related issues) to consider the role that functional deficits may play in individuals' willingness and ability to engage in treatment. For men, these efforts might center on bolstering other sources of support for seeking care beyond intimate relationship partners. For women, efforts might focus on addressing concerns regarding how symptoms may negatively impact relationships and the role that treatment seeking may play in preserving these relationships. In addition, it might be beneficial to offer treatments for PTSD and depression that include a loved one in treatment for both women and men, both to increase veterans' motivation to engage in treatment and to improve relationship adjustment to facilitate continued treatment engagement over time. Fortunately, a number of empirically supported conjoint interventions exist for both mental health conditions (Cohen et al., 2010; Monson et al., 2012; Sautter et al., 2015). Together, these outreach and intervention strategies can be applied to reduce longer-term symptom burden and functional deficits that stand in the way of high quality of life.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2018.12.031.

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