

# Sexual Functioning in Military Personnel: Preliminary Estimates and Predictors

Sherrie L. Wilcox, PhD, CHES, Sarah Redmond, BA, and Anthony M. Hassan, EdD, LCSW

Center for Innovation and Research on Veterans & Military Families (CIR), School of Social Work, University of Southern California, Los Angeles, CA, USA

DOI: 10.1111/jsm.12643

## ABSTRACT

**Introduction.** Although the military is a young and vigorous force, service members and veterans may experience sexual functioning problems (SFPs) as a result of military service. Sexual functioning can be impaired by physical, psychological, and social factors and can impact quality of life (QOL) and happiness.

**Aims.** This study aims to estimate rates and correlates of SFPs in male military personnel across demographic and psychosocial characteristics, to examine the QOL concomitants, and to evaluate barriers for treatment seeking.

**Methods.** This exploratory cross-sectional study was conducted using data from a larger nationwide study conducted between October 2013 and November 2013. This sample consists of 367 male active duty service members and recent veterans (military personnel) age 40 or younger.

**Main Outcome Measures.** Erectile dysfunction (ED) was determined using the five-item International Index of Erectile Function, sexual dysfunction (SD) was determined using the Arizona Sexual Experiences Scale, Male, and QOL was determined using the World Health Organization Quality of Life, Brief.

**Results.** SFPs were associated with various demographic, physical, and psychosocial risk factors. The rates of SD and ED were 8.45% and 33.24%, respectively, for male military personnel aged 21–40. Those who were 36–40, nonmarried, nonwhite, and of lower educational attainment reported the highest rates of SFPs. Male military personnel with poor physical and psychosocial health presented the greatest risk for ED and SD. SFPs were associated with reduced QOL and lower happiness, and barriers for treatment were generally related to social barriers.

**Conclusions.** SFPs in young male military personnel are an important public health concern that can severely impact QOL and happiness. **Wilcox SL, Redmond S, and Hassan AM. Sexual functioning in military personnel: Preliminary estimates and predictors. J Sex Med \*\*;\*:\*\*\_\*\*.**

**Key Words.** Erectile Dysfunction; Military Personnel; Military Service; Prevalence; Sexual Dysfunction; Veterans; Young Adult

## Introduction

Although the military is a young and vigorous force, service members and veterans (military personnel) may experience a number of hidden injuries that may influence their quality of life (QOL). Research on the invisible wounds of war have focused largely on posttraumatic stress disorder (PTSD), major depression, generalized anxiety, and traumatic brain injury [1]. However, military personnel experience a number of other invisible

wounds of war, including sexual functioning problems (SFPs) [2]. Although SFPs, particularly erectile dysfunction (ED) and sexual dysfunction (SD), are typically associated with increasing age, those exposed to traumatic events and physical injuries are at risk for developing SFPs, regardless of age [3].

SFPs have been linked to both physical and psychological injuries but have received little attention—likely due to low reporting, which reduces the estimated burden and perceived impor-

tance [2]. Although SFPs in young military personnel is an understudied and underreported problem, it is not a new problem unique to the current generation of military personnel [3–6].

Despite a dearth of research on SFPs in military personnel, two studies have found that over 80% of veterans with PTSD diagnoses also reported clinically relevant SFPs, including ED [7,8]. Furthermore, SFPs are significantly related to many of the psychological effects of war [9,10]. Traumatized populations with PTSD, including veterans, are significantly more likely to have any SFP than those without PTSD, and this relationship between PTSD and SFPs is more pronounced in those also taking medication [11]. Also, for female veterans, those with a mental health diagnosis are 6–10 times more likely to report SD compared with those without a diagnosis [12].

SFPs present a significant reduction in QOL and can impair self-confidence and sense of masculinity in male military personnel [6,13]. The transitions that military personnel experience can further exacerbate sexual functioning, mental health, and other problems, and can strain intimate relationships [14–19]. Unfortunately, SFPs, like many of the invisible wounds of war, are stigmatizing, which limits treatment seeking [20,21].

## Aims

An understanding of causes and treatments of SFPs have been advancing, but there is still a gap in the epidemiology of SFPs, particularly in military personnel who experience a high frequency of risk factors. The present study used national data on young (i.e., 40 or younger) military personnel to estimate rates and correlates of SFPs in male military personnel across demographic, physical, and psychosocial characteristics; examined the QOL and happiness concomitants; and evaluated barriers for treatment seeking.

## Methods

### Data Source

The data presented in this study were part of a larger study evaluating SFPs in military populations. The Sexual Functioning Survey (SFS) consisted of a national sample of U.S. military personnel and military spouses. Respondents were recruited from a pool of existing military partnerships with national military-affiliated organizations and social networks. Recruitment took place

online via e-mail and social media outlets inviting eligible individuals (i.e., military personnel age 40 or younger and military spouses age 45 or younger) to complete a cross-sectional survey on sexual functioning as a result of military service. Data were collected online during an 8-week period between October 2013 and November 2013. This study was approved by the University of Southern California's Institutional Review Board and informed consent was collected online at the beginning of each survey. Respondents who completed the assessment received a \$25 gift card as compensation for their time and effort.

### Participants

This nationwide cross-sectional study included data from male military personnel age 40 or younger, who completed the SFS. A total of 367 U.S. military personnel were included in this study. The sample demographic characteristics were similar to active duty members, although slightly more educated [22]. The average age of the sample was 31.43 (standard deviation = 3.91, range = 21–40). Additional demographic characteristics are presented in Table 1.

### Main Outcome Measures

All items referred to the past 4 weeks. ED severity was assessed with the five-item International Index of Erectile Function (IIEF-5) [23]. Items are rated on a five-point scale; scores are classified as severe (5–7), moderate (8–11), mild-moderate (12–16), mild (17–21), and no ED (22–25). The IIEF-5 has high reliability ( $\alpha = 0.88$ ) in previous research [23] and our sample ( $\alpha = 0.86$ ). SD was assessed with the five-item Arizona Sexual Experiences Scale, Male (ASEX-M), which assesses sex drive, sexual arousal, penile erection, ability to reach orgasm, and satisfaction with orgasm [24]. Items are rated on a six-point scale; higher scores indicate hypofunction. The ASEX has high reliability ( $\alpha = 0.91$ ) [24] and excellent reliability in our sample ( $\alpha = 0.91$ ).

QOL was assessed with the 26-item World Health Organization Quality of Life, Brief, which assesses four domains of QOL (physical, psychological, environmental, and social) [25]. Items are rated on a five-point scale; higher scores indicate greater frequency/satisfaction [25,26]. Reliability was found to be adequate ( $\alpha = 0.7$ ) and was excellent in our sample overall ( $\alpha = 0.90$ ) and adequate across domains ( $\alpha = 0.58$ – $0.82$ ) [25]. To assess happiness, participants were asked to rate their overall level of happiness on a seven-point scale, where

**Table 1** Estimates of dysfunction by demographic characteristics in male military personnel

Demographic characteristics	Sample no. (%)	Erectile dysfunction (IIEF-5)		Sexual dysfunction (ASEX)	
		Symptom no. (%)	OR (95% CI)	Symptom no. (%)	OR (95% CI)
Total	N = 367	N = 122 (33.24)		N = 31 (8.45)	
Age					
18–25	28 (7.63)	9 (24.32)	0.35 (0.13, 0.96)*	2 (6.67)	0.44 (0.08, 2.34)
26–30	119 (32.43)	23 (16.20)	0.18 (0.08, 0.38)**	8 (6.30)	0.41 (0.13, 1.26)
31–35	180 (49.05)	67 (27.13)	0.44 (0.22, 0.88)*	15 (7.69)	0.52 (0.19, 1.42)
36–40	40 (10.90)	23 (36.51)	Referent	6 (13.04)	Referent
Marital status					
Single	71 (19.45)	28 (28.28)	1.42 (0.84, 2.46)	5 (6.58)	0.94 (0.34, 2.61)
Married	269 (73.70)	84 (23.80)	Referent	20 (6.92)	Referent
Separated, divorced, widowed	25 (6.85)	10 (28.57)	1.47 (0.63, 3.40)	5 (16.67)	3.11 (1.06, 9.17)*
Education					
High school	13 (3.54)	6 (31.58)	2.01 (0.66, 6.17)	1 (7.14)	0.94 (0.12, 7.60)
Some college	83 (22.62)	35 (29.66)	1.72 (1.03, 2.84)*	8 (8.79)	1.21 (0.52, 2.82)
College or higher	271 (73.84)	81 (58.62)	Referent	22 (12.73)	Referent
Race & ethnicity					
White	241 (66.03)	63 (20.72)	Referent	17 (6.59)	Referent
Black	56 (15.34)	22 (28.21)	1.83 (1.00, 3.36)*	3 (5.08)	0.75 (0.21, 2.64)
Hispanic	43 (11.78)	20 (31.75)	2.46 (1.26, 4.78)**	8 (15.69)	3.01 (1.21, 7.50)*
Other	25 (6.853)	17 (40.48)	6.00 (2.47, 14.59)**	3 (10.71)	1.80 (0.49, 6.61)

Note: Predictors were compared with non-ED/SD group

\* $p < 0.05$ ; \*\* $p < 0.01$

higher scores indicated greater happiness. To categorize happiness, a cutoff score of 4 was used.

*Mental and physical health factors* included PTSD, depressive disorder, anxiety disorder, suicidal ideation, and genital injuries. PTSD was assessed using the 17-item PTSD Checklist, military version (PCL-M), based upon criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM) [27]. Responses are rated on a five-point scale where higher scores indicate greater PTSD and 50 or higher indicates probable PTSD [28,29]. The PCL-M has excellent psychometric properties, and reliability for our study was excellent ( $\alpha = 0.99$ ) [29]. Frequency of depressive symptoms were assessed with the nine-item Patient Health Questionnaire (PHQ-9) [30]. Items are rated on a four-point scale; cutoff points indicate varying levels of probable depression [30]. The PHQ-9 has excellent psychometric properties and excellent reliability in our study ( $\alpha = 0.96$ ) [30]. Suicidality was assessed using item nine from the PHQ-9, which asks if respondents thought that they would be better off dead or of hurting themselves in any way. Frequency of anxiety symptoms were assessed using the seven-item Generalized Anxiety Disorder (GAD-7) [31]. Items are rated on a four-point scale, where 5, 10, and 15 are used as cutoffs for mild, moderate, and severe anxiety, respectively. The GAD-7 has excellent psychometric properties and excellent reliability in our study ( $\alpha = 0.96$ ) [31]. To assess injuries,

respondents were shown a figure of the human body with arrows pointing to major locations on the body and asked to select the locations of injuries experienced while serving in the military. *Genital injuries* were assessed with an indicator of the genitals on the figure.

The *trauma, sex, and relationship factors* included military sexual trauma (MST), traumatic life events, dyadic adjustment, and genital self-image (GSI). MST was assessed using two items ( $\alpha = 0.66$ ), "During your military service, did you receive uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or verbal remarks?" and "Did someone ever use force or the threat of force to have sexual contact with you against your will?" *Traumatic life events* were assessed using the Life Events Checklist (LEC) [32]. Respondents were presented a list of traumatic life events and asked to indicate whether they experienced it personally, witnessed it, and/or learned about it. We calculated a total score of personally experienced traumatic events by adding all of the events that they experienced personally. The LEC has good reliability ( $\alpha = 0.85$ ) [32] and was good in our sample ( $\alpha = 0.84$ ). *Dyadic adjustment* (severity of relationship discord) was assessed using the 32-item Dyadic Adjustment Scale (DAS) [33]. Higher scores indicate greater adjustment; a cutoff of 100 was selected to indicate a distressed relationship [34,35]. The DAS has excellent reliability

( $\alpha = 0.95$ ) [36,37] and was excellent in our sample ( $\alpha = 0.86$ ). *Male GSI* was assessed using the seven-item Male Genital Self-Image (MGSI) scale [38]. Items are rated on a four-point scale; higher scores indicate positive GSI. A cutoff of 21 was used to indicate positive or negative GSI. The MGSI scale has excellent psychometrics and good reliability in our sample ( $\alpha = 0.95$ ) [38].

### Statistical Analysis

Data were analyzed using SPSS version 21 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were completed to describe sample characteristics. Binary logistic regression (BLR) analyses with odds ratios (ORs) with 95% confidence intervals (CIs) were performed to assess estimates of SFPs across demographic characteristics, which were controlled in subsequent analyses. ORs with 95% CIs were estimated using BLR for a series of risk factors, each modeled separately in a non-nested manner. A set of BLRs, with 95% CIs with ED and SD as predictor variables, was used to measure the association between SFPs and QOL. It is important to note that concomitant outcomes cannot be casually linked as an outcome of SFPs. Descriptive summary statistics addressing service utilization were evaluated.

### Results

A total of 367 Active Duty U.S. military personnel aged 21–40 years ( $M = 31.43$ , standard deviation = 3.91) were included in this study. Most were U.S. born ( $n = 360$ , 98.1%), white (non-Hispanic/Latino;  $n = 241$ , 65.7%), heterosexual ( $n = 362$ , 98.6%), and affiliated with the Army ( $n = 253$ , 68.9%). These data allowed for gross estimates of SFPs in male military personnel and assessment of the relationship of SFPs with physical and psychosocial health issues and QOL, including happiness. Although these data do not connote a clinical definition of SFPs per the DSM, they provide important estimates about the extent of SFPs in young military personnel.

### Estimates of SFPs

The majority of the sample (66.8%) did not screen positive for probable ED, whereas 33.2% reported probable ED. Similarly, the majority (91.6%) did not screen positive for potential SD, whereas 8.4% reported probable SD. Table 1 provides estimates of SFPs for males and bivariate analyses of demographic characteristics predicting SFPs.

Compared with the 36- to 40-year age group, the odds of having ED were significantly lower for younger (i.e., 18–25, 26–30, and 31–35) age groups (0.35, 0.18, and 0.44 times, respectively). There were similar age group findings for SD; the odds of having SD were lower (by approximately half). Marriage seemed to be related to lower reported SFPs, with the odds of having ED being slightly higher for nonmarried, by 1.42–1.47 times, compared with married personnel. For those who were separated/divorced/widowed, the odds of having SD were significantly higher by 3.11 times.

In terms of education, which controlled for age, the odds of having ED were 1.72–2.01 higher for those with lower than a college degree. For SD, only those with some college were at greater odds of having SD compared with those with a college degree or higher. SFPs also varied as a function of race/ethnicity, with black, Hispanic, and other races having significantly higher odds for ED (1.83, 2.64, and 6.00 times, respectively) compared with whites. However, compared with whites, blacks were slightly less likely to have SD and Hispanic and other races were two to three times more likely to have SD.

### Correlates of SFPs

Table 2 presents the relationship of mental and physical health factors, and trauma, sex, and relationship factors with SFPs.

### Mental and Physical Health Factors

In general, compared with those with problems, those without mental or physical health problems were significantly less likely to have ED or SD. Compared with those without probable PTSD, those with probable PTSD were nearly 30 times more likely to report ED and six times more likely to report SD. For depression, compared with those with minimal symptoms, those with mild depressive symptoms were nearly 10 times more likely to have ED and over five times more likely to have SD. Those with moderate-severe depressive symptoms were over 13 times more likely to have SD compared with those with minimal symptoms. Similarly, those with minimal levels of anxiety were nearly 10 times more likely to have ED, but only two times more likely to have SD. Those with moderate-severe anxiety symptoms were over 12 times more likely to have SD and were at greater odds for ED compared with those with minimal symptoms.

Those who reported suicidal ideations were over 17 times more likely to have SFPs compared

**Table 2** Correlates of sexual functioning problems

Predictors	Sample no. (%) N = 367	Erectile dysfunction (IIEF-5) OR (95% CI)	Sexual dysfunction (ASEX) OR (95% CI)
Mental and physical health factors			
PTSD			
No PTSD	299 (82.14)	Referent	Referent
Probable PTSD	65 (17.86)	29.48 (11.38, 76.38)**	6.03 (2.23, 16.29)**
Depression			
Minimal	234 (63.76)	Referent	Referent
Mild	49 (13.35)	9.52 (4.26, 21.26)**	5.16 (1.60, 16.71)**
Moderate–severe	84 (22.89)	73.51 (27.78, 194.56)***	13.20 (4.58, 38.06)**
Anxiety			
Minimal	255 (69.48)	Referent	Referent
Mild	44 (11.99)	9.01 (3.97, 20.40)**	1.72 (0.46, 6.48)
Moderate–severe	68 (18.53)	55.71 (20.23, 153.38)***	12.32 (4.43, 34.28)**
Suicidality			
No suicidal ideations	263 (71.66)	Referent	Referent
Suicidal ideations	104 (28.34)	17.51 (8.89, 34.51)**	17.42 (6.34, 47.89)**
Genital injuries			
No genital injuries	341 (92.92)	Referent	Referent
Genital injuries	26 (7.08)	9.33 (2.48, 35.14)**	31.97 (7.43, 137.66)***
Trauma, sex, and relationship factors			
MST			
No MST	282 (76.84)	Referent	Referent
MST	85 (23.16)	13.33 (6.69, 26.56)**	3.46 (1.40, 8.55)**
Traumatic life events			
Zero	203 (55.31)	Referent	Referent
One	39 (10.63)	2.65 (1.14, 6.13)*	2.23 (0.60, 8.36)
Two–four	71 (19.35)	6.89 (3.37, 14.10)**	2.46 (0.76, 7.96)
Five or more	54 (14.71)	6.54 (2.90, 14.78)**	8.25 (2.78, 24.49)**
DAS			
Distressed	95 (23.8)	2.25 (1.23, 4.09)**	3.53 (1.52, 8.21)**
Nondistressed	266 (66.7)	Referent	Referent
Genital self-image			
High GSI	284 (77.81)	Referent	Referent
Low GSI	81 (22.19)	5.68 (3.00, 10.74)**	9.90 (3.90, 25.13)**

Note: Predictors were compared with non-ED/SD group

\* $p < 0.05$ ; \*\* $p < 0.01$

<sup>†</sup>Limited sample of injured with ED/SD present large CIs and should be interpreted with caution

with those not reporting suicidal ideations. Those who experienced genital injuries were nearly 10 and 32 times more likely to report ED and SD, respectively.

### Trauma, Sex, and Relationship Risk Factors

Compared with those without MST, those with MST have odds of ED or SD that are 13 and 3 times greater, respectively. Those who experience more traumatic life events have significantly greater odds of having ED. Reporting even one traumatic life event increases odds for SFPs by two to three times compared with those without traumatic life events. In terms of dyadic adjustment, those who were in distressed relationships reported two to three times greater odds of SFPs compared with those in nondistressed relationships. GSI was significantly related to SFPs, with

those with low GSI having 6–10 times greater odds of SFPs.

### Impact of SFPs on QOL

Table 3 highlights the associations of SFPs with overall and domains of QOL and happiness. It is important to note that no causal order should be assumed as QOL indicators are concomitant outcomes of SFPs. For males, the absence of both ED and SD was related to statistically high QOL and greater happiness. Those without ED or SD had between 4.31 and 12.79 greater odds of improved QOL and happiness.

Although 33.2% and 8.4% of the male sample reported ED and SD, respectively, only 12% ( $n = 44$ ) reported receiving treatment for ED or SD. Table 4 presents concerns affecting the decision to receive treatment. The most common

**Table 3** Quality of life concomitants by ED/SD

Predictors	QOL—Physical OR (95% CI)	QOL—Psychological OR (95% CI)	QOL—Social OR (95% CI)	QOL—Environmental OR (95% CI)	QOL—Overall OR (95% CI)	Happiness OR (95% CI)
ED						
No ED	12.38 (3.22, 47.59)**	10.32 (3.17, 33.57)**	8.58 (2.68, 27.50)**	8.85 (3.43, 22.87)**	5.65 (2.11, 15.08)**	12.79 (4.97, 32.95)**
ED	Referent	Referent	Referent	Referent	Referent	Referent
SD						
No SD	6.91 (2.21, 21.57)**	7.08 (2.33, 21.54)**	9.64 (3.29, 28.21)**	4.31 (1.61, 11.54)**	7.51 (2.75, 20.53)**	6.44 (2.36, 17.59)**
SD	Referent	Referent	Referent	Referent	Referent	Referent

Note: Predictors were compared with low QOL group

\*\* $p < 0.05$ ; \*\*\* $p < 0.01$

concern was related to the perceived safety of treatment, followed by concerns of what others would think about the affected individual.

### Discussion

SFPs were common in this sample of relatively healthy, young male military personnel. The overall rate of ED in our sample was over 30%, which is three times higher than the rate of ED in civilian males of similar age and 10% more than civilian men over the age of 40 years [39,40]. The rate of ED in our 36- to 40-year age group is most alarming, nearly twice the rate of civilian men over the age of 40 [39,40]. Our rates were also higher than Department of Veterans Affairs (VA) data on SDs obtained from International Classification of Diseases, Ninth Revision, Clinical Modification (ICD9-CM) codes related to sexual health issues and/or ED medication prescriptions, which were below 5% for military personnel 18–40 years of age [2]. Though not presented here, only 1.64% and 3.23% of male military personnel with ED and SD, respectively, reported taking ED-specific medications (e.g., Viagra [Pfizer, New York, NY, USA], Cialis [Eli Lilly and Company, Indianapolis,

IN, USA]). Thus, rates of ED based on ED medication prescriptions at the VA may present large underestimates of the extent of these problems [2]. Although our rate of ED was elevated, our rate of SD was lower than a national estimate of adults who experienced a traumatizing event within the past year [41].

Demographic characteristics were predictive of SFPs, particularly ED. Elevated risk for SFPs were associated with older age (36–40), nonmarried, low educational attainment, and ethnic minority. All of the age groups showed risk for SFPs, indicating increased risk for military personnel in general. Our demographic findings were consistent with previous research [39,42].

Physical and psychosocial factors are differentially predictive of SFPs across demographic characteristics. Although causal ordering is uncertain, it is clear that there is a strong relationship between sexual functioning and psychosocial factors [14]. Specifically, the presence of *mental and physical health* problems were related to high levels of SFPs. Those with greater mental health symptoms and those reporting genital injuries were more likely to report SFPs. Similarly, greater *trauma, sex, and relationship* risk factors were associated with

**Table 4** Concerns affecting the decision of male military personnel with ED/SD to receive treatment

	ED (N = 122) Agree, no. (%)	SD (N = 31) Agree, no. (%)
High costs of care	42 (34.4)	9 (39)
Getting child care or time off work	48 (39.3)	12 (38.7)
Not knowing where to get help or whom to see	45 (36.9)	5 (16.1)
Difficulty scheduling an appointment	33 (27.0)	8 (25.8)
Difficulty arranging transportation	33 (27.0)	3 (9.7)
Worrying that coworkers would have less confidence if they knew I was getting treatment	61 (50.0)	12 (38.7)
Concerns about confidentiality of treatment	50 (41.0)	12 (38.7)
Worry that friends and family would respect me less if I were getting treatment	52 (42.6)	13 (41.9)
Worrying that my supervisor might respect me less	46 (37.7)	12 (38.7)
Fear that treatment could harm my career	44 (36.1)	12 (38.7)
Concern that my spouse/partner would not want me to get treatment	36 (29.5)	7 (22.6)
Fear of potential side effects of medication	64 (52.5)	18 (58.1)
Thinking that even good care is not very effective	54 (44.3)	12 (38.7)
Thinking that the treatments available are not effective	60 (49.2)	13 (41.9)

higher risk for SFPs. Those who reported experiencing MST, traumatic life events, distressed relationships, and low GSI were more likely to report SFPs. These findings were consistent with similar research showing that increased psychosocial problems were associated with greater SFP risk [2].

The relationship of ED was most pronounced on happiness and physical and psychological domains of QOL, whereas the relationship of SD was most pronounced on social and overall QOL. Although causal ordering should not be assumed, there was a clear relationship between SFPs and QOL and happiness. Although SFPs were associated with a significantly reduced QOL and reduced happiness, few affected individuals reported receiving treatment. Many of the reasons associated with not seeking treatment were related to social factors, including concerns of what others would think. Military populations have low treatment rates and high dropout rates for mental health treatment [1,21,43–45]. Stigma is often a key factor related to receiving and maintaining treatment [20,21]. The stigma associated with treatment seeking leads to an exacerbation of symptoms and remains a leading barrier for treatment [46–48]. Unfortunately, SFPs present an additional burden and when left untreated can continue to reduce QOL. To help encourage needed treatment, confidential, less stigmatizing, and flexible options need to be available [49]. Ultimately, the costs to society for leaving invisible wounds untreated are severe. Although no studies have specifically examined the impact of untreated SFPs, the costs of untreated health problems are higher compared with those without these problems and present a burden to society [50].

Limitations of the current study include that the data were self-reported and cross-sectional, requiring a couple cautionary notes. Self-reports of SD and mental health are subject to underreporting biases related to stigmatization. There may also be systematic biases related to individualized attributes of respondents that may also lead to underreporting. Additionally, the sample sizes in those with both SFPs and some moderate-severe subcategories produced large confidence intervals, which inflated ORs, and should be interpreted with caution. Specific subcategories are noted in Table 2. However, it is clear that these individuals have a much greater odds of SFPs compared with those with only mild symptoms.

## Conclusions

This report is among the first nationwide assessment of SFPs in male military personnel [6]. Results indicate that SFPs are widespread among young, male military personnel and are associated with negative physical and psychosocial factors, which influence QOL and happiness. However, there were differing patterns of SFPs across demographic characteristics, highlighting the need for further research on the etiological mechanisms. With the aging trends of veterans in the United States, SFPs in military populations will increasingly become a more important public health problem.

## Acknowledgment

This work was supported by a grant from the Iraq Afghanistan Deployment Impact Fund through the California Community Foundation.

**Corresponding Author:** Sherrie L. Wilcox, PhD, CHES, Center for Innovation and Research on Veterans & Military Families (CIR), School of Social Work, University of Southern California, 1150 S. Olive Street, Suite 1400, Los Angeles, CA 90015, USA. Tel: 213-821-3618; Fax: 213-740-7735; E-mail: SLWilcox@USC.edu

*Conflict of Interest:* The author(s) report no conflicts of interest.

## Statement of Authorship

### Category 1

#### (a) Conception and Design

Sherrie L. Wilcox; Sarah Redmond; Anthony M. Hassan

#### (b) Acquisition of Data

Sherrie L. Wilcox

#### (c) Analysis and Interpretation of Data

Sherrie L. Wilcox; Sarah Redmond

### Category 2

#### (a) Drafting the Article

Sherrie L. Wilcox; Sarah Redmond; Anthony M. Hassan

#### (b) Revising It for Intellectual Content

Sherrie L. Wilcox; Sarah Redmond; Anthony M. Hassan

### Category 3

#### (a) Final Approval of the Completed Article

Sherrie L. Wilcox; Sarah Redmond; Anthony M. Hassan

## References

- 1 Tanielian T, Jaycox LH, Schell TL, Marshall GN, Burnam MA, Eibner C, Karney BR, Meredith LS, Ringel JS, Vaiana ME, & The Invisible Wounds Study Team. Invisible wounds of war: Summary and recommendations for addressing psychological and cognitive injuries. Santa Monica, CA: RAND Corporation; 2008.
- 2 Hosain GMM, Latini DM, Kauth M, Goltz HH, Helmer DA. Sexual dysfunction among male veterans returning from Iraq and Afghanistan: Prevalence and correlates. *J Sex Med* 2013;10:516–23.
- 3 Bortolotti A, Parazzini F, Colli E, Landoni M. The epidemiology of erectile dysfunction and its risk factors. *Int J Androl* 1998;20:323–34.
- 4 Carroll EM, Rueger DB, Foy DW, Donahoe CP. Vietnam combat veterans with posttraumatic stress disorder: Analysis of marital and cohabitating adjustment. *J Abnorm Psychol* 1985;94:329–37.
- 5 Kulka RA, Schlenger WE, Fairbank JA, Hough RL, Jordan BK, Marmar CR, Weiss DS. Trauma and the Vietnam war generation. New York: Brunner/Mazel; 1990. 322pp.
- 6 Breyer BN, Cohen BE, Bertenthal D, Rosen RC, Neylan TC, Seal KH. Sexual dysfunction in male Iraq and Afghanistan war veterans: Association with posttraumatic stress disorder and other combat-related mental health disorders: A population-based cohort study. *J Sex Med* 2013;11:75–83.
- 7 Letourneau EJ, Schewe PA, Frueh BC. Preliminary evaluation of sexual problems in combat veterans with PTSD. *J Trauma Stress* 1997;10:125–32.
- 8 Cosgrove DJ, Gordon Z, Bernie JE, Hami S, Montoya D, Stein MB, Monga M. Sexual dysfunction in combat veterans with post-traumatic stress disorder. *Urology* 2002;60:881–4.
- 9 Zemishlany Z, Weizman A. The impact of mental illness on sexual dysfunction. *Adv Psychosom Med* 2008;29:89–106.
- 10 Tan HM, Tong SF, Ho CCK. Men's health: Sexual dysfunction, physical, and psychological health—Is there a link? *J Sex Med* 2012;9:663–71.
- 11 Kotler M, Cohen H, Aizenberg D, Matar M, Loewenthal U, Kaplan Z, Miodownik H, Zemishlany Z. Sexual dysfunction in male posttraumatic stress disorder patients. *Psychother Psychosom* 2000;69:309–15.
- 12 Cohen BE, Maguen S, Bertenthal D, Shi Y, Jacoby V, Seal KH. Reproductive and other health outcomes in Iraq and Afghanistan women veterans using VA health care: Association with mental health diagnoses. *Womens Health Issues* 2012;22:e461–71.
- 13 De Silva P. Impact of trauma on sexual functioning and sexual relationships. *Sex Relation Ther* 2001;16:269–78.
- 14 Helmer DA, Beaulieu GR, Houlette C, Latini D, Goltz HH, Etienne S, Kauth M. Assessment and documentation of sexual health issues of recent combat veterans seeking VHA care. *J Sex Med* 2013;10:1065–73.
- 15 Meis LA, Erbes CR, Polusny MA, Compton JS. Intimate relationships among returning soldiers: The mediating and moderating roles of negative emotionality, PTSD symptoms, and alcohol problems. *J Trauma Stress* 2010;23:564–72.
- 16 Reddy MK, Meis LA, Polusny MA, Erbes CR, Compton JS. Associations among experiential avoidance, couple adjustment, and interpersonal aggression in returning Iraqi war veterans and their partners. *J Consult Clin Psychol* 2011;79:515–20.
- 17 Satcher D, Tepper MS, Thrasher C, Rachel SA. Breaking the silence: Supporting intimate relationships for our wounded troops and their partners: A call to action. *Int J Sex Health* 2012;24:6–13.
- 18 Hazle M, Wilcox SL, Hassan AM. Helping veterans and their families fight on! *Adv Soc Work* 2012;13:229–42.
- 19 Wilcox SL, Rank MG. Transitioning through the deployment cycle. In: Moore B, Barnett J, eds. *Military psychologists' desk reference*. New York: Oxford University Press; 2013:306–11.
- 20 Dolan CA, Ender MG. The coping paradox: Work, stress, and coping in the U.S. army. *Mil Psychol* 2008;20:151–69.
- 21 Milliken CS, Auchterlone JL, Hoge CW. Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *J Am Med Assoc* 2007;298:2141–8.
- 22 Department of Defense. *Demographics 2011: Profile of the military community*. Washington, DC: Department of Defense; 2012.
- 23 Rosen R, Cappelleri J, Smith M, Lipsky J, Pena B. Development and evaluation of an abridged, 5-item version of the International Index of Erectile Function (IIEF-5) as a diagnostic tool for erectile dysfunction. *Int J Impot Res* 1999;11:319–26.
- 24 McGahuey A, Gelenberg AJ, Laukes CA, Moreno FA, Delgado PL, McKnight KM, Manber R. The Arizona Sexual Experience Scale (ASEX): Reliability and validity. *J Sex Marital Ther* 2000;26:25–40.
- 25 Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A report from the WHOQOL group. *Qual Life Res* 2004;13:299–310.
- 26 Organization WH. WHOQOL user manual: Programme on mental health. World Health Organization; 1998.
- 27 American Psychiatric Association. *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*. 4th ed, text revision. Washington, DC: American Psychiatric Association; 2000.
- 28 Weathers F, Huska J, Keane T. *The PTSD Checklist Military Version (PCL-M)*. Boston: National Center for PTSD; 1991.
- 29 Weathers FW, Keane TM, Davidson JRT. Clinician-administered PTSD scale: A review of the first ten years of research. *Depress Anxiety* 2001;13:132–56.
- 30 Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med* 2001;16:606–13.
- 31 Spitzer RL, Kroenke K, Williams JB, Lowe BA. Brief measure for assessing generalized anxiety disorder: The GAD-7. *Arch Intern Med* 2006;166:1092–7.
- 32 Gray MJ, Litz BT, Hsu JL, Lombardo TW. Psychometric properties of the life events checklist. *Assessment* 2004;11:330–41.
- 33 Eddy JM, Heyman RE, Weiss RL. An empirical evaluation of the dyadic adjustment scale: Exploring the differences between marital "satisfaction" and "adjustment". *Behav Assess* 1991;13:199–220.
- 34 Sabourin S, Valois P, Lussier Y. Development and validation of a brief version of the dyadic adjustment scale with a nonparametric item analysis model. *Psychol Assess* 2005;17:15.
- 35 Graham JM, Liu YJ, Jeziorski JL. The dyadic adjustment scale: A reliability generalization meta-analysis. *J Marriage Fam* 2006;68:701–17.
- 36 Carey MP, Spector IP, Lantinga LJ, Krauss DJ. Reliability of the dyadic adjustment scale. *Psychol Assess* 1993;5:238.
- 37 Heyman RE, Sayers SL, Bellack AS. Global marital satisfaction versus marital adjustment: An empirical comparison of three measures. *J Fam Psychol* 1994;8:432–46.
- 38 Herbenick D, Schick V, Reece M, Sanders SA, Fortenberry JD. The development and validation of the male genital self-image scale: Results from a nationally representative probability sample of men in the United States. *J Sex Med* 2013;10:1516–25.
- 39 Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: Prevalence and predictors. *J Am Med Assoc* 1999;281:537–44.

- 40 Laumann EO, West S, Glasser D, Carson C, Rosen R, Kang JH. Prevalence and correlates of erectile dysfunction by race and ethnicity among men aged 40 or older in the United States: From the male attitudes regarding sexual health survey. *J Sex Med* 2007;4:57–65.
- 41 Sorensen MD, Wessells H, Rivara FP, Zonies DH, Jurkovich GJ, Wang J, Mackenzie EJ. Prevalence and predictors of sexual dysfunction 12 months after major trauma: A national study. *J Trauma* 2008;65:1045–53.
- 42 Johannes CB, Araujo AB, Feldman HA, Derby CA, Kleinman KP, McKinlay JB. Incidence of erectile dysfunction in men 40 to 69 years old: Longitudinal results from the Massachusetts Male Aging Study. *J Urol* 2000;163:460–3.
- 43 Hoge CW. Interventions for war-related posttraumatic stress disorder. *J Am Med Assoc* 2011;306:549–51.
- 44 Elhai JD, Contractor AA, Palmieri PA, Forbes D, Richardson JD. Exploring the relationship between underlying dimensions of posttraumatic stress disorder and depression in a national, trauma-exposed military sample. *J Affect Disord* 2011;133:477–80.
- 45 Thomas JL, Wilk JE, Riviere LA, McGurk D, Castro CA, Hoge CW. Prevalence of mental health problems and functional impairment among active component and national guard soldiers 3 and 12 months following combat in Iraq. *Arch Gen Psychiatry* 2010;67:614–23.
- 46 Stecker T, Fortney J, Hamilton F, Azjen I. An assessment of beliefs about mental health care among veterans who served in Iraq. *Psychiatr Serv* 2007;58:1358–61.
- 47 Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med* 2004;351:13–22.
- 48 Gorman LA, Blow AJ, Ames BD, Reed PL. National guard families after combat: Mental health, use of mental health services, and perceived treatment barriers. *Psychiatr Serv* 2011;62:28–34.
- 49 Warner CH, Appenzeller GN, Grieger T, Belenkiy S, Breitbart J, Parker J, Warner CM, Hoge C. Importance of anonymity to encourage honest reporting in mental health screening after combat deployment. *Arch Gen Psychiatry* 2011;68:1065–71.
- 50 Goetzl RZ, Hawkins K, Ozminkowski RJ, Shaohung W. The health and productivity cost burden of the “top 10” physical and mental health conditions affecting six large U.S. employers in 1999. *J Occup Environ Med* 2003;45:5.