Sexual assault, mental health, and service use among male and female veterans seen in Veterans Affairs primary care clinics: A multi-site study

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Abstract

This study examined the nature and prevalence of sexual assault (SA), as well as its relationship to psychiatric sequelae and service use, among the veteran population. We performed a secondary data analysis of a cross-sectional dataset consisting of 643 male and 173 female veterans seen in four Veterans Affairs (VA) primary care clinics. Original data were obtained through semi-structured clinic assessments, structured telephone interviews, and medical chart reviews. Analyses included descriptive statistics, chi-square, analysis of variance (ANOVA), and logistic regression. The lifetime prevalence of SA was 38% among women and 6% among men. Of veterans reporting a history of SA, most experienced child sexual abuse and sexual revictimization. SA victims also had a more extensive trauma history and demonstrated greater psychological impairment in comparison to veterans reporting other types of trauma. However, only 25% of male SA survivors and 38% of female SA survivors used mental health services in the past year. These findings suggest that VA primary care clinics may benefit from expanding the current mandated screen for military sexual trauma to include lifetime experiences and trauma-related symptoms, thereby connecting more veterans with needed mental health services.

Keywords: Trauma; Revictimization; Sexual abuse; Child sexual abuse; Assault characteristics; Psychiatric functioning; Healthcare; PTSD

1. Introduction

There is increasing evidence to suggest that military personnel frequently experience traumatic events prior to entering the service, and that this places them at greater risk for developing psychological problems upon exposure to additional trauma in the course of their military duties (Bremner et al., 1993; Engel et al., 1993; Zaidi and Foy, 1994; Rosen and Martin, 1996a,b). In light of data suggesting a clear link between the specific trauma of sexual assault, future victimization, and impairment among civilian samples, there is strong reason to believe that veterans with a history of sexual assault may require more services within the Veterans Affairs (VA) healthcare
system. However, lifetime sexual assault histories are not routinely assessed within primary care settings, which represent the entry point for services within the VA. Furthermore, the different backgrounds and needs of male vs. female veterans are poorly understood. Thus, the purpose of this study was to: a) examine rates and characteristics of sexual assault within the veteran population, b) describe differences in sexual assault characteristics between male and female veterans, and c) determine if a history of sexual assault predicts greater trauma exposure, symptom impairment, and healthcare utilization in comparison to a history of other traumatic events.

Nationally representative civilian samples suggest that the lifetime prevalence of sexual assault ranges from 12% to 32% among women and from 3% to 16% among men (Finkelhor et al., 1990; Resnick et al., 1993; Kessler et al., 1995; Vogeltanz et al., 1999; Tjaden and Thoennes, 2000; Briere and Elliott, 2003). In addition to experiencing higher rates of sexual assault, women are also more likely to suffer physical injury at the time of an assault than men (Tjaden and Thoennes, 2000; Kimerling et al., 2002). Fewer representative studies have reported on characteristics of lifetime sexual assault among veterans, with many studies focusing exclusively on sexual harassment or assault occurring during the course of military service (e.g., Frayne et al., 1999; Sadler et al., 2003; Murdoch et al., 2006; Yaeger et al., 2006). Existing research using non-psychiatric samples suggests that rates of sexual assault among male veterans are lower than rates among male civilian samples (4%), whereas rates for female veterans are considerably higher than rates for female civilians (34% to 72%) (Coyle et al., 1996; Chang et al., 2003; Lang et al., 2003; Sadler et al., 2004; Stein et al., 2004; Suris et al., 2004; Campbell and Raja, 2005; Schultz et al., 2006). Most of the veteran studies cited above focused solely on female participants, examined child or adult experiences in isolation, and/or did not distinguish between different forms of sexual assault. Additionally, few studies have examined assault characteristics, such as physical coercion or injury, among veterans.

Studies indicate high rates of sexual revictimization within both male and female civilian populations. About one-third of child sexual abuse survivors and one-third of adult sexual assault survivors report more than one incident of the same form of victimization, while approximately two-thirds of assault survivors report either form of sexual revictimization (Briere and Elliott, 2003; Elliott et al., 2004; Classen et al., 2005). At least two studies indicate that child sexual abuse significantly predicts adult sexual revictimization among female military populations (Merrill et al., 1999; Schultz et al., 2006). While these studies highlight the need for concern regarding sexual revictimization among service members, they do not indicate whether similar patterns exist regarding adult sexual assault and other forms of victimization, or for male vs. female veterans.

Sexual assault is an important topic of study for both VA and non-VA settings because it is consistently linked to enduring psychological difficulties, including anxiety, depression, posttraumatic stress disorder (PTSD), interpersonal problems, sexual dysfunction, and somatization (for reviews, see Beitchman et al., 1992; Briere and Runtz, 1993; Koss, 1993; Resick, 1993; Neumann et al., 1996). Few studies, however, have compared sexual assault to other forms of trauma in terms of its relationship to psychiatric sequelae. Thus far, data suggest that the experience of sexual assault is associated with similar trauma-related symptoms when compared to physical assault and combat exposure, and increased risk of PTSD when compared to other forms of violence (Norris, 1992; Resnick et al., 1993; Kessler et al., 1995; Elhai et al., 2000). The majority of these studies have been conducted with female civilian populations. While there is some evidence for similar links between sexual assault and mental health problems among the military population (Martin et al., 2000; Chang et al., 2003; Lang et al., 2003; Kang et al., 2005), these studies did not compare sexual assault to other forms of trauma. In addition, more data relying on both male and female veterans and using a broader range of mental health indices are needed to better understand the healthcare needs of this population.

Given the link between sexual assault and poor mental health functioning, it seems probable that sexual assault victims would be more likely to use health services in comparison to other trauma victims. However, research remains equivocal on this point. While most studies indicate greater service use among sexual assault survivors, some studies indicate similar or less use than victims of other crimes or non-victimized individuals (Golding et al., 1988; Freedy et al., 1994; New and Berliner, 2000). Studies within the veteran population have focused on women and are similarly inconclusive (Lang et al., 2003; Stein et al., 2004; Suris et al., 2004; Sadler et al., 2004). Data indicate that crime victims are most likely to seek treatment from primary care physicians and other medical service providers (Golding et al., 1988; Koss et al., 1991; Kimerling and Calhoun, 1994; Tjaden and Thoennes, 2000). Therefore, primary care providers likely represent an important gateway for identifying sexual assault victims and connecting them with appropriate mental health services.

Based on the extant data regarding rates of sexual assault, patterns of revictimization, associated illness
burden, and concomitant service use, several hypotheses were examined in this study. First, we hypothesized that female veterans would be more likely to report histories of sexual assault in comparison to men, and that these histories would be marked by greater rates of coercion and injury. Second, we expected that a history of sexual abuse would be more strongly linked to sexual and other forms of revictimization, in comparison to veterans without sexual assault experiences. Third, we hypothesized that sexual assault victims would demonstrate greater psychological impairment and higher rates of service use, in comparison to victims of other types of trauma.

2. Method

2.1. Study procedures

Participants were primary care attendees at one of four VA Medical Centers (Charleston or Columbia, SC; Tuscaloosa or Birmingham, AL). We created a master list of eligible patients. Stratifying on hospital, we assigned each patient a random number and ordered the patient list by the random number assigned. According to this ordered list, we sent lists of blocks of 200 patients to each hospital (we sent new blocks when each list of 200 was exhausted). Research assistants then checked primary care appointment lists. When one of the randomly selected patients scheduled a primary care visit, we sent them a letter of invitation in advance of their visit to explain the study. At the time of the clinic visit, we provided further explanation of the study, and we obtained written informed consent before study participation.

Participants completed a semi-structured clinic assessment and were administered a structured telephone interview within two months by masters and doctoral level clinicians trained and supervised by a licensed clinical psychologist. All structured telephone interviews were conducted from the Charleston VA site in order to ensure consistency across sites. Additionally, a blind 12-month retrospective review of participants’ medical charts that assessed for service use was conducted. This study was conducted with Institutional Review Board approval from each of the participating medical centers. See Magruder et al. (2005) for additional study details.

2.2. Participants

Eligible patients were primary care attendees at any one of the four target hospitals. Participants over age 80 or possessing dementia-related symptoms were excluded. A total of 1198 randomly identified veterans were approached for study participation. Of this sample, 885 (74%) consented to participate; follow-up interviews were successfully completed with 747 of these veterans, resulting in a 62% completion rate. Of the 885 participants, 62 (7%) were women. In an effort to recruit a larger sample of female participants, an additional sample of female veterans was identified from the master list and approached during their visits to one of the four VA primary care clinics. This resulted in two hundred and seventy-six women who were approached, 191 (69%) who consented to participate, and 137 of whom completed telephone follow-up interviews (50% completion rate).

Within the set of participants who completed follow-up interviews, those who were missing data on key study measures were excluded, leaving a sample of 816 (92% of completers) for the analyses on which this paper is based. Comparisons were made between participants included in the analyses (n=816) and those who could not be reached for follow-up interviews (n=192) on socio-demographic variables. Completers were older [(M=59.9, S.D.=12.5) vs. (M=54.8, S.D.=13.8), F(1, 999)=20.90; P<0.01], more likely to be Caucasian than African American [(63% vs. 53%), χ²=6.84 (1, N=980), P<0.01], and less likely to be single (35% vs. 50%), [χ²=16.31 (1, N=998), P<0.01] than non-completers. Comparisons were also made between women from the primary sample and the female over-sample on socio-demographic variables, primary care visits, VA study site, presence of a psychiatric diagnosis, history of sexual assault, and number of traumatic experiences. No significant group differences emerged on these variables.

2.3. Clinic interview measures

2.3.1. Demographic information.

Participants were asked to report socio-demographic information (i.e., race, gender, relationship status, education, and employment status).

2.3.2. The short-form health survey (SF-36; Ware and Sherbourne, 1992)

This measure is a widely used 36-item self-report measure that assesses several health domains. Its psychometric properties have been well established in the literature (Ware and Sherbourne, 1992; McHorney et al., 1993). It yields composite scores reflecting global mental and physical health functioning. According to scoring guidelines, raw scores were converted to a 0–100
scale with higher scores reflecting greater functional status.

2.4. Structured telephone interview measures

2.4.1. The trauma assessment for adults—self-report version (TAA; Resnick, 1996)

This measure assesses lifetime incidence of trauma and has been widely used to screen community and medical populations for trauma history in face-to-face and telephone interviews (Resnick, 1996; Kilpatrick et al., 2000). Using a sample of 23 adults in a local mental health population, the authors of the TAA found that it was easy to administer, and that rates of trauma and crime exposure were consistent with rates previously found in the same population using a different trauma assessment tool (Resnick, 1996). Archival data from the mental health records of a subset of 15 patients revealed that the TAA detected all stressor events noted in the mental health records on these individuals, as well as others that were not. The TAA was used to determine whether participants had experienced traumatic events. The events assessed included: combat exposure, serious accidents, physical assault with a weapon, physical assault without a weapon, sexual assault, other situations involving serious injury, other situations involving feared injury or death, witnessing someone being killed or seriously injured, and friend or family member killed. The following items were used to identify victims of sexual assault: 1) “Did you ever have sexual contact with anyone who was at least five years older than you before you reached the age of thirteen?”; 2) “Before you were age 18, has anyone ever used pressure, coercion, threats, or physical force to have sexual contact with you?”; 3) “After the age of 18, has anyone used physical force or threat of force to make you have some type of unwanted sexual contact?” Sexual contact was defined as “contact between someone else and your sexual organs—(penis or genital area for men; vagina, genital area, or breasts for women)—or between you and someone else’s sexual organs.” Participants who indicated that they experienced a particular form of trauma were asked follow-up questions such as “did you ever think that you might be killed or seriously injured”; “did you suffer any degree of physical injury during this event”; “how old were you when this happened”; and “did it happen more than once.”

2.4.2. The clinician administered PTSD scale (CAPS; Blake et al., 1990)

This measure is a structured clinical interview that measures the symptoms required to meet Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition (DSM-IV; American Psychiatric Association, 1994) criteria for Posttraumatic Stress Disorder (PTSD). The CAPS has demonstrated robust psychometric properties, including diagnostic utility with reliability. It has also been used in military populations (Weathers et al., 2001), and has demonstrated comparable reliability to face-to-face interviews when administered over the telephone (Aziz and Kenford, 2004). Inter-rater reliability of PTSD diagnoses was examined in the current study for a random 8% (n = 59) of the total sample using audio-taped recordings. Raters were 100% concordant on PTSD diagnoses. In the present study, the CAPS was used to obtain both current and lifetime PTSD diagnoses.

2.4.3. The mini international neuropsychiatric interview (MINI; Sheehan et al., 1998)

This measure is a brief structured interview that assesses the criteria for DSM-IV Axis I diagnoses (e.g., mood, anxiety, substance use disorders). It was used to obtain current psychiatric diagnoses. It exhibits similar sensitivity and specificity to longer structured psychiatric interviews (e.g., SCID; Lecubrier et al., 1997; Sheehan et al., 1998).

2.5. Chart review

We conducted a blind review of the electronic medical records for the 12 months preceding each participant’s clinic interview. Chart reviewers recorded any notation of healthcare service use [primary care, PTSD, substance abuse treatment center (SATC), mental health clinic (MHC), and emergency care]. Due to the high number of “0” response values, all but the primary care service use variable (i.e., general mental health clinic, substance abuse treatment center, PTSD clinic, emergency room) were converted to “yes” or “no” dichotomous response categories. Furthermore, the three measures of mental health service use (general mental health, substance abuse, PTSD) were collapsed into a global measure of mental health service use.

2.6. Overview of analytic strategies

Descriptive analyses were conducted to examine participant characteristics, rates of sexual assault, and assault characteristics. Men and women were compared on assault characteristics using analysis of variance (ANOVA) for continuous outcomes (i.e., age) and chi-square for dichotomous outcomes (e.g., experienced adult assault). The remainder of the analyses focused on the
subset of individuals who endorsed at least one prior traumatic event (n=738). These participants were divided into sexual assault (SA) and non-sexual assault (non-SA; inclusive of all other trauma) groups based on TAA responses. ANOVAs were used to compare SA and non-SA groups on continuous outcomes (e.g., number of traumatic events, number of psychiatric diagnoses), and chi-square and logistic regression analyses were used for comparisons on dichotomous outcomes (e.g., demographic characteristics, presence of psychiatric diagnoses).

3. Results

3.1. Sample characteristics

The average age of the study sample (N=816) was 59.8 (S.D. =12.7) years; 79% were men; 61% were Caucasian and 36% were African American; 65% were currently living with someone; 19% had less than a high school education, 26% had a high school degree, 36% had some college or trade school, 18% had a college or post graduate degree; and 35% were working. Most received their healthcare exclusively at the VA (28% received outside medical or mental healthcare in addition to VA services during the six months prior to assessment). The vast majority (90%; n=738) reported at least one prior traumatic event, with 36 men and 66 women reporting a history of sexual assault (SA groups); 544 men and 91 women reported other types of traumatic experiences (non-SA groups). SA groups did not differ significantly from non-SA groups on demographic characteristics, including age, marital status, and education.

3.2. Sexual assault characteristics

Within the study sample (N=816), 12% (n=102) reported an experience of sexual assault (SA) at some point in their lives. Women were 10.9 times more likely than men to report a history of SA (P<0.001), with over one-third of female veterans (66/173; 38%) reporting a history of SA and only 6% (36/643) of male veterans reporting a history of SA. Twenty-seven percent of female veterans and 5% of male veterans reported a history of child sexual abuse (CSA; contact with someone 5 years older before age 13). Twenty-four percent of female veterans reported a history of adult sexual assault (ASA), compared to female SA survivors, in comparison to female SA survivors, endorsed sexual contact with someone five years older before age 13 (69% vs. 45%), and a greater proportion of female SA survivors, in comparison to male SA survivors, endorsed sexual contact by force or threat of force after age 18 (46% vs. 18%). Overall, the majority of SA veterans experienced some form of sexual revictimization (52% of male SA veterans; 65% of female SA veterans).

Comparisons were made between male and female veterans on sexual assault characteristics. Although they did not differ on most characteristics, a greater portion of male SA survivors, in comparison to female SA survivors, endorsed sexual contact with someone five years older before age 13 (69% vs. 45%), and a greater proportion of female SA survivors, in comparison to male SA survivors, endorsed sexual contact by force or threat of force after age 18 (67% vs. 15%; see Table 1). While not statistically significant (likely due to low power in the male cell), a larger percentage of women than men reported multiple incidents of SA, as well as injury or fear of injury during forced child sexual abuse and adult sexual assault.

3.3. Trauma history

Both male and female veterans in the SA group reported a greater variety of other traumatic events than veterans in the non-SA group [male SA: M=4.9±2.0; male non-SA: M=2.7±1.4, F(1, 560)=73.08; P<0.001; female SA: M=4.2±1.8; female non-SA: M=2.3±1.1, F(1, 151)=61.63; P<0.001]. There was not a significant difference between the average number of traumatic events reported by male vs. female veterans with a history
of SA (male: \( M = 4.9 \pm 2.0 \); female: \( M = 4.2 \pm 1.9 \)). The most frequent traumatic events reported by the male SA group were combat and witnessing serious injury or death. The most frequent events reported by the female SA group were unexpected death of a friend or family member (52%) and serious accidents (47%).

### Table 1
Sexual assault characteristics among veterans reporting prior sexual assault

<table>
<thead>
<tr>
<th>Assault characteristics</th>
<th>Total ((N=102))</th>
<th>Male ((N=36))</th>
<th>Female ((N=66))</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual contact with someone five years older before age 13</td>
<td>( n = 55 )</td>
<td>( n = 25 )</td>
<td>( n = 30 )</td>
<td>5.40**</td>
</tr>
<tr>
<td>Thought they would be killed or seriously injured</td>
<td>29.1%</td>
<td>28.0%</td>
<td>30.0%</td>
<td>0.00a</td>
</tr>
<tr>
<td>Suffered injury</td>
<td>10.9%</td>
<td>12.5%</td>
<td>10.0%</td>
<td>0.11a</td>
</tr>
<tr>
<td>Happened more than once</td>
<td>65.4%</td>
<td>58.3%</td>
<td>73.3%</td>
<td>0.95a</td>
</tr>
<tr>
<td>Age of onset (mean, S.D.)</td>
<td>10.0 (8.0)</td>
<td>11.4 (11.5)</td>
<td>8.8 (3.1)</td>
<td>1.38 (1, 54)b</td>
</tr>
<tr>
<td>Pressured or forced sexual contact before age 18</td>
<td>( n = 32 )</td>
<td>( n = 9 )</td>
<td>( n = 23 )</td>
<td>1.05a</td>
</tr>
<tr>
<td>Thought they would be killed or seriously injured</td>
<td>31.2%</td>
<td>10.0%</td>
<td>39.1%</td>
<td>2.80a</td>
</tr>
<tr>
<td>Suffered injury</td>
<td>12.5%</td>
<td>10.0%</td>
<td>13.0%</td>
<td>0.06a</td>
</tr>
<tr>
<td>Happened more than once</td>
<td>46.9%</td>
<td>44.4%</td>
<td>47.8%</td>
<td>0.03a</td>
</tr>
<tr>
<td>Age of onset (mean, S.D.)</td>
<td>13.5 (4.0)</td>
<td>15.0 (1.9)</td>
<td>13.0 (4.5)</td>
<td>1.73 (1, 30)b</td>
</tr>
<tr>
<td>Sexual contact by force or threat of force after age 18</td>
<td>( n = 47 )</td>
<td>( n = 5 )</td>
<td>( n = 42 )</td>
<td>23.20**a</td>
</tr>
<tr>
<td>Thought they would be killed or seriously injured</td>
<td>42.6%</td>
<td>20.0%</td>
<td>45.2%</td>
<td>1.26a</td>
</tr>
<tr>
<td>Suffered injury</td>
<td>14.9%</td>
<td>0.0%</td>
<td>16.7%</td>
<td>1.01a</td>
</tr>
<tr>
<td>Happened more than once</td>
<td>38.3%</td>
<td>20.0%</td>
<td>40.5%</td>
<td>0.86a</td>
</tr>
<tr>
<td>Age of onset (mean, S.D.)</td>
<td>22.5 (4.6)</td>
<td>20.8 (2.6)</td>
<td>22.7 (4.8)</td>
<td>0.74 (1, 44)b</td>
</tr>
</tbody>
</table>

\( ^a \) Chi-square statistic for comparison between male and female participants.  
\( ^{\*} \) \( P < 0.05 \).  
\( ^{\*\*} \) \( P < 0.01 \).

### Table 2
Comparisons between other trauma (non-SA) and sexual assault (SA) groups on psychiatric diagnoses

<table>
<thead>
<tr>
<th>Psychiatric diagnoses</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-SA ((N=91))</td>
<td>SA ((N=66))</td>
</tr>
<tr>
<td>Mood disorder</td>
<td>23 %</td>
<td>28 %</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>23 %</td>
<td>33 %</td>
</tr>
<tr>
<td>Suicidality</td>
<td>9 %</td>
<td>28 %</td>
</tr>
<tr>
<td>Substance abuse/dependence</td>
<td>4 %</td>
<td>6 %</td>
</tr>
<tr>
<td>Current PTSD</td>
<td>14 %</td>
<td>17 %</td>
</tr>
<tr>
<td>Lifetime PTSD</td>
<td>19 %</td>
<td>28 %</td>
</tr>
<tr>
<td>Any psychiatric diagnosis</td>
<td>34 %</td>
<td>39 %</td>
</tr>
</tbody>
</table>

\( ^{\*} \) \( P < 0.05 \).  
\( ^{\*\*} \) \( P < 0.01 \).  

\( ^{a} \) Chi-square statistic for comparison between male and female participants.

Note. All diagnoses except for PTSD were derived from the MINI. PTSD diagnoses were derived from the CAPS and global mental and physical health functioning from the SF-36.

\( ^{**} \) \( P < 0.01 \).

\( ^{*} \) \( P < 0.05 \).
3.4. Psychiatric diagnoses and global health functioning

Over one-third (39%) of male SA survivors and over one-half (65%) of female SA survivors met criteria for at least one current psychiatric diagnosis, as measured by the MINI and the CAPS. The SA groups were compared to the non-SA groups on measures of psychiatric functioning (see Table 2). For male veterans, the SA group was more likely than the non-SA group to report suicidality and to demonstrate worse global mental health functioning. For female veterans, the SA group was more likely than the non-SA group to meet criteria for any psychiatric diagnosis, to meet criteria for a greater number of psychiatric diagnoses, and to demonstrate worse global mental health functioning. Regarding specific types of diagnoses, the female SA group was more likely than the female non-SA group to meet criteria for mood and anxiety disorders and to report suicidality. The female SA group was also more likely than the female non-SA group to meet criteria for current and lifetime PTSD, and to exhibit greater PTSD symptom severity. Neither male nor female SA veterans differed from non-SA veterans on measures of physical health functioning. Female SA veterans did not significantly differ from male SA veterans on most measures of mental health functioning. However, female SA veterans were 2.9 times more likely than male SA veterans to meet criteria for any psychiatric diagnosis ($P=0.01$).

3.5. Service use

Using information from the chart review, we compared SA and non-SA groups on mental and medical service use. Approximately one quarter of male sexual assault survivors and over one-third of female sexual assault survivors sought some form of mental health treatment at the VA (see Table 3). There were no statistically significant differences in service use between male and female sexual assault survivors. Female SA survivors who met criteria for a psychiatric diagnosis were 7.0 times more likely than female SA survivors not meeting criteria for a diagnosis to use mental health services (51% vs. 13%; $P<0.01$). While similar patterns were not found among male SA veterans, 43% of those meeting criteria for a diagnosis used mental health services.

Comparisons between SA and non-SA groups indicated that male SA veterans were more than twice as likely as male non-SA veterans to use emergency room services, and female SA veterans were more than twice as likely as female non-SA veterans to use mental health services. No differences were observed between SA and non-SA groups on measures of physical health functioning. Female SA veterans were 2.9 times more likely than male SA veterans to meet criteria for any psychiatric diagnosis ($P=0.01$).

### 4. Discussion

The prevalence of lifetime sexual assault within this veteran primary care population (38% of women and 6% of men) is similar to previously reported rates among non-psychiatric military populations. The rate of adult sexual assault among women in this sample was somewhat lower than other studies of female veterans (24%, as compared to 39–49%; Campbell and Raja, 2005; Schultz et al., 2006). The reported rate of adult sexual assault among male veterans was extremely low (less than 1%); while there is no point of reference among military studies, this rate is somewhat lower than would be expected based on national samples (3–7%; Sorenson et al., 1987; Elliott et al., 2004). Rates of CSA within this sample (27% of women, 5% of men) lie within a similar range of reported rates from studies of military populations (25–49% of women, 1–15% of men; Rosen and Martin, 1996a,b; Martin et al., 1998; Sadler et al., 2004).

For the most part, assault and revictimization characteristics of this SA population were consistent with hypotheses and prior research. The high prevalence of perceived threat (one-third of CSA reports and almost half of ASA reports indicated fear of being killed or...
injured), is congruent with research performed in civilian populations (Ullman and Knight, 1991; Tjaden and Thoennes, 2000; Hanson et al., 2001; Ullman and Filipas, 2005). These findings emphasize the importance of assessing for this information among SA survivors, as perceived threat has been associated with negative outcomes such as PTSD (Resnick et al., 1993).

While few comparisons between men and women were significant, the patterns suggest that men are more likely to report abusive experiences that occurred during childhood, whereas women are more likely to report adult sexual assault. Women reported higher frequencies of perceived threat for coercive child sexual abuse and adult sexual assault. SA women were also more likely than SA men to meet criteria for a psychiatric diagnosis. Given that women relative to men are at greater risk for adult sexual assault and related psychiatric impairment, they stand to benefit the most from gender-specific prevention and intervention services.

The current study identified high rates of sexual and non-sexual revictimization among both male and female sexual assault survivors. The majority of SA veterans had experienced CSA and had been sexually revictimized at some point in their lives. As in civilian populations, the experience of CSA was associated with a greater likelihood of being sexually assaulted in adulthood, even in comparison to individuals who experienced other forms of trauma. This is particularly concerning, as sexual revictimization has consistently been associated with higher distress, interpersonal problems, and psychiatric disorders (see Classen et al., 2005). In addition to sexual revictimization, veterans reporting a history of SA had experienced a greater variety of other traumatic events in their lifetimes. While no known studies have compared trauma histories of sexually assaulted populations to other traumatized individuals, these findings are consistent with prior studies describing the co-occurrence of sexual abuse with other forms of victimization (Briere and Elliott, 2003; Elliott et al., 2004; Menard et al., 2004). Results from the current study suggest that military personnel not only enter the service with high rates of trauma, but that those who have prior sexual assault experiences are at increased risk for trauma exposure during or after their military service. This speaks to the importance of identifying individuals with premilitary sexual assault histories to reduce the risk of additional victimization and mental health problems.

Consistent with our hypotheses, SA veterans generally demonstrated worse mental health functioning than non-SA groups. While this was mostly the case for female SA veterans, the data suggest similar trends among male SA veterans. The relationships between SA and mental health functioning among male veterans may have been better detected with a larger sample size. A history of sexual assault was most strongly associated with suicidality (among both men and women) and PTSD (among women only). It is not surprising that the difference between SA and non-SA veterans on PTSD was only found among women, even though male SA veterans reported a more extensive trauma history than male non-SA veterans. This is likely due to the high rates of combat exposure in the male non-SA group. Combat exposure is an event that has been associated with similar rates of PTSD in comparison to sexual assault in prior studies (e.g., Kessler et al., 1995). The rate of current and lifetime PTSD among the SA group in this sample (15–17% and 27–28%) is comparable to studies of civilian sexual assault survivors (Kilpatrick et al., 1987; Norris, 1992). As few studies have compared sexual assault survivors to other trauma survivors on diagnoses other than PTSD, further research is necessary to determine why sexually assaulted women may be more likely to suffer from mood and anxiety disorders as compared to non-sexually traumatized women.

Hypotheses regarding the relationship between sexual assault and increased service use were only partially supported, with different patterns observed between women and men. Commensurate with greater impairment in psychological functioning, female SA veterans in this study used more mental health services in comparison to female non-SA veterans. In contrast to female veterans, male SA veterans were more likely to use emergency services than male non-SA veterans, but they did not exhibit significantly increased rates of mental health service use. While female sexual assault survivors demonstrating the greatest need (i.e., meeting criteria for a psychiatric diagnosis), were more likely to receive these mental health services, the same was not true for men. However, in both male and female SA groups, approximately half of individuals meeting criteria for a psychiatric diagnosis sought mental health treatment through the VA. These data suggest that a large portion of sexual assault survivors are not receiving treatment to address their significant mental health needs. Although the VA currently mandates that all veterans be screened for military sexual trauma, these findings highlight the potential utility of expanding the screen to include pre- and postmilitary sexual assault history, as well as trauma-related psychiatric symptoms. Implementing these procedures in primary care settings could help connect veterans with needed mental health services.

It is possible that the relationships among sexual assault, greater psychological impairment, and increased service use could be attributed to general increased
trauma exposure among SA veterans. Post hoc analyses controlling for the number of traumatic events endorsed on the TAA revealed that only the relationships between SA and emergency room treatment for men, and SA and mood disorders for women, remained significant. However, caution must be exercised in interpreting these findings for at least two reasons. First, the measure of traumatic events may be more representative of variety as opposed to actual trauma burden (repeated experiences with one traumatic event were not captured). Second, it is difficult to disentangle the effects of sexual assault from the effects of other traumatic events. For example, sexual assault may indirectly lead to greater impairment through increased risk of further trauma exposure. The experience of multiple traumatic events may be a defining quality of the sexually assaulted population.

4.1. Limitations

The current study was cross-sectional in nature and therefore, causal relationships between variables cannot be determined. For example, it is difficult to say whether traumatic events preceded the onset of psychiatric symptoms or vice versa. A second limitation of this study is that, with the exception of primary care visits, service use variables were restricted to “yes” or “no” outcomes over 12 months. An examination over a longer period, or assessing the content of the visits, would likely provide a more informative picture of veterans’ service use. Third, it is possible that rates of psychiatric illness in this sample are not representative of the larger veteran population, as prior research has suggested that primary care users tend to have high rates of psychiatric illness (Toft et al., 2005). Fourth, the small sample size for male SA veterans limited the power to detect significant differences between SA and non-SA, and male and female SA groups. Future research will be necessary to replicate these findings and to more adequately examine patterns of sexual assault among male veterans. Finally, generalizability may be limited by the fact that the sample was drawn exclusively from the southeastern United States, and by potential selection bias among veterans who consented to participate in the study (e.g., completers were older, more likely to be Caucasian, and less likely to be single than non-completers).

4.2. Conclusions

Results from the current study confirm a high rate of sexual assault among female veterans, even within a non-psychiatric population. Furthermore, sexually assaulted veterans represent a highly traumatized population who demonstrate significant mental health problems, above and beyond veterans who have experienced other forms of traumatic events. High rates of revictimization and mental illness within this population, coupled with the large portion of these veterans not receiving mental health services, indicate the need for increased access to mental healthcare targeting risk reduction and recovery. This need will only continue to grow as the number of women in the military increase, and as they play a wider range of combat-related roles. Primary care clinics represent appropriate and logical sites to address these needs by bridging the gap between medical and mental health services.

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