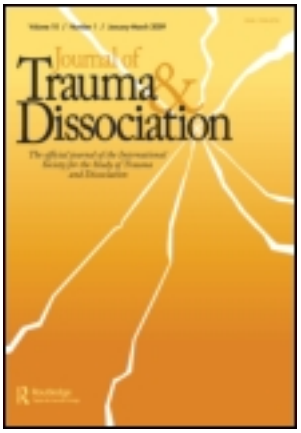

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Military Sexual Trauma Research: A Proposed Agenda

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Military Sexual Trauma Research: A Proposed Agenda

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Military sexual trauma (MST) is a widespread problem associated with negative psychological and physical health problems. This article presents the current state of MST research and highlights specific areas in need of more focused study. Areas that have produced the greatest body of knowledge include MST prevalence and psychological and physical health correlates. We propose a research agenda based on gaps noted in our research review and empirical and theoretical evidence of issues relevant to but not studied directly in MST populations. We present evidence that MST is qualitatively distinct from other forms of sexual maltreatment in terms of its relational and vocational context as well as the severity

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of associated psychological distress, examine underexplored gender and sexual issues in MST, and discuss the lack of treatment and prevention studies specific to MST. Specific recommendations are made throughout in an attempt to guide and advance the field.

KEYWORDS military sexual trauma, veterans, posttraumatic stress disorder, interpersonal trauma, gender, treatment outcome

The prevalence and correlates of sexual abuse, assault, and harassment have been studied extensively since the emergence of literature on this topic in the 1960s. Although earlier accounts of sexual abuse in the military can be found in scientific journals (e.g., Waldfogel & Mueser, 1988), scientific attention was spurred by a 1992 Congressional mandate for the Department of Veterans Affairs to treat distress related to military sexual trauma (MST). The term *military sexual trauma* was coined to capture the different forms of sexual maltreatment reported by military personnel and is defined as follows: "sexual harassment that is threatening in character, or physical assault of a sexual nature that occurred while the victim was in the military, regardless of geographic location of the trauma, gender of victim, or the relationship to the perpetrator" (Veterans' Benefits U.S. Code, Section 1720D, 1992). *MST* is used accordingly in this article, whereas *sexual assault* is used to refer specifically to unwanted physical contact involving sexual body parts, and *sexual harassment* denotes unsolicited verbal or physical contact of a sexual nature (e.g., pressure for sexual favors, unwanted touching of nonsexual body parts).

Following the mandate, 61% of Veterans Affairs medical centers had sexual trauma treatment teams by 1995 (Suris, Davis, Kashner, Gillaspy, & Petty, 1998), and MST continues to receive research attention. Yet much remains unknown. The aims of this article are to highlight gaps in research and to propose a research agenda to continue to improve MST conceptualization and intervention efforts.

To examine the available body of MST research and identify the gaps in knowledge, we conducted a systematic search and categorization of studies pertaining to MST. Using PsycINFO and MEDLINE searches for peer-reviewed journal articles published up to December 2009 (with keyword combinations including *military* or *veteran* and *sexual assault*, *sexual harassment*, or *sexual trauma*) and reviewing reference lists within the articles uncovered by this search, we identified 74 MST articles (marked with asterisks in the reference list). The main characteristics of the MST articles are presented in Table 1. Research has largely focused on identifying the prevalence and incidence of abuse and psychological and physical health correlates, which we review first, noting any remaining gaps in knowledge in these areas. We follow with a series of questions that are in need of much more research attention if experts are to have a thorough understanding of the impact of MST and how to prevent it and its aftermath.

TABLE 1 Military Sexual Trauma Articles by Type of Study and Gender Composition of Results

				Both genders	
Category	*N*	Female only	Male only	Gender-specific data reported	No gender-specific data reported
Prevalence	52	32	1	16	3
		Bostock & Daley (2007); Butterfield et al. (1998); Campbell et al. (2006); Campbell & Raja (2005); Carney et al. (2003); Castillo et al. (2002); Chang et al. (2001); Coyle et al. (1996); David et al. (2006); DeRoma et al. (2003); Dutra et al. (2001); Fontana & Rosenheck (1998); Fontana et al. (1997); Frayne et al. (1999, 2003); Hankin et al. (1999); Harned et al. (2002); Himmelfarb et al. (2006); Katz et al. (2007); McCall-Hosenfeld et al. (2009); Murdoch & Nichol (1995); Newell et al. (1995); Sadler et al. (2000, 2001, 2003, 2004); Schnurr et al. (2007); Skinner et al. (2000); Suris et al. (2004, 2007); Wolfe et al. (1998); Yaeger et al. (2006)	Smith et al. (1999)	Fitzgerald et al. (1999); Kang et al. (2004); Kimerling et al. (2007); Magley et al. (1999); Martin et al. (1998, 2000); Murdoch et al. (2003, 2004, 2006, 2007); Rosen & Martin (1998a); Shipherd et al. (2009); Stark et al. (2002); Street et al. (2007, 2008); Vogt et al. (2005)	Magley & Shupe (2005); Monson et al. (2006); Rauch et al. (2009)

Mental health correlates	37	20	1	12	4
		Butterfield et al. (1998); Campbell & Raja (2005); Castillo et al. (2002); Chang et al. (2001); DeRoma et al. (2003); Dutra et al. (2001); Fontana & Rosenheck (1998); Fontana et al. (1997); Hankin et al. (1999); Himmelfarb et al. (2006); Katz et al. (2007); McCall-Hosenfeld et al. (2009); Murdoch & Nichol (1995); Sadler et al. (2000, 2004); Skinner et al. (2000); Suris et al. (2004, 2007); Wolfe et al. (1998); Yaeger et al. (2006)	Smith et al. (1999)	Harned & Fitzgerald (2002); Kang et al. (2004); Kimerling et al. (2007); Magley et al. (1999); Martin et al. (2000); Murdoch et al. (2006, 2007); O'Brien et al. (2008); Shipherd et al. (2009); Street et al. (2007, 2008); Vogt et al. (2005)	Bergman et al. (2002); Monson et al. (2006); Murdoch et al. (2003); Rauch et al. (2009)
Physical health correlates	15	9	0	6	0
		Campbell et al. (2006); Frayne et al. (1999); Frayne et al. (2003); McCall-Hosenfeld et al. (2009); Murdoch & Nichol (1995); Sadler et al. (2000, 2004); Skinner et al. (2000); Suris et al. (2007)		Harned & Fitzgerald (2002); Kimerling et al. (2007); Martin et al. (2000); Murdoch et al. (2007); Shipherd et al. (2009); Street et al. (2008)	

(*Continued*)

TABLE 1 (Continued)

Category	*N*	Female only	Male only	Both genders: Gender-specific data reported	Both genders: No gender-specific data reported
Health care utilization	7	6	0	0	1
		Campbell & Raja (2005); Coyle et al. (1996); Murdoch & Nichol (1995); Sadler et al. (2004); Skinner et al. (2000); Suris et al. (2004)			Suris et al. (1998)
Treatment outcome	7	3	1	1	2
		David et al. (2006); Katz et al. (2008); Schnurr et al. (2007)	Waldfogel & Mueser (1988)	O'Brien et al. (2008)	Monson et al. (2006); Rauch et al. (2009)
Literature review	3	2	0	1	0
		Goldzweig et al. (2006); Zinzow et al. (2007)		Suris & Lind (2008)	
Other	12	Culbertson & Rosenfeld (2002); David et al. (2004); M. E. Hall et al. (2007); Houser (2007); Kelley et al. (2005); Leskela et al. (2001); Raiha (1983); Ritchie (1998); Rosen & Martin (1998b); Valente & Wright (2007); Vogt et al. (2007); Young (1995)			

MST PREVALENCE

Exact prevalence rates of MST have been difficult to gauge, given variation across study methodologies, including in source and characteristics of the sample, data collection strategy, and definition and assessment of MST. Consistent with prior reviews (Goldzweig, Balekian, Rolón, Yano, & Shekelle, 2006; Suris & Lind, 2008; Zinzow, Grubaugh, Monnier, Suffoletta-Maierle, & Frueh, 2007), we found that most prevalence studies are of actual or threatened sexual assault and report rates ranging from 22% to 45%. Lower prevalence rates have been reported for men and in studies only asking about rape, whereas higher rates have been found in treatment-seeking samples and when full MST definitions and/or sexual harassment experiences are included.

The prevalence of MST is notably similar to lifetime prevalence rates of sexual assault and harassment in the general population (e.g., Norris, 1992; Tjaden & Thoennes, 2000; U.S. Merit Systems Protection Board, 1995). Given that MST occurs within a restricted time period (typically 2 to 6 years of service), the incidence of sexual maltreatment appears to be higher for individuals in the military than in civilian life. Directly comparing female veteran and civilian reports of sexual victimization, Schultz, Bell, Naugle, and Polusny (2006) found significantly higher rates of rape in veterans (49%) than civilians (22%). Furthermore, sexual assaults are underreported in the general population (Friedman, Samet, Roberts, Hudlin, & Hans, 1992; Jenkins & Dambrot, 1987; Mynatt & Allgeier, 1990; Widom & Morris, 1997; Williams, 1994), and contextual factors of a military environment suggest a more profound problem of underreporting in military populations, as we discuss in a later section of this article.

MST CORRELATES

Many studies have found MST to be a strong predictor of psychological distress that manifests in various and complex ways. The most frequently measured forms of distress associated with MST are posttraumatic stress disorder (PTSD), other anxiety and depression symptoms, and poor functioning (for more detailed reviews, see Goldzweig et al., 2006; Suris & Lind, 2008; Zinzow et al., 2007). Growing evidence about the varied and complex presentations of MST-related distress and functioning difficulties suggests that more careful investigation in this area is needed.

For example, complications in sexual functioning following sexual assault are a common complaint yet are understudied as sequelae and intervention targets in MST survivors. In the civilian sexual assault literature, survivors frequently report problems with sexual dysfunction and decreased sexual satisfaction (e.g., Bartoi & Kinder, 1998; Mackey et al.,

1991), including fear, disdain or avoidance of sexual intimacy, and arousal and desire problems. Among female veterans, MST has been linked to decreased sexual satisfaction (McCall-Hosenfeld, Liebschutz, Spiro, & Seaver, 2009; Skinner et al., 2000). In one of the few studies of sexual functioning in male survivors of sexual trauma, 8% of male MST victims reported being fearful of sex, 7% reported decreased sexual interest, and 8% reported fewer pleasurable sexual relations (Siegel, Golding, Stein, Burnam, & Sorenson, 1990). O'Brien, Gaher, Pope, and Smiley (2008) found that male veterans with MST histories exhibited more persistent sexual problems than women. It is important to note that post-assault sexual problems appear to be resistant to spontaneous remission and particularly enduring (Becker, Skinner, Abel, & Cichon, 1986; Burgess & Holmstrom, 1979; Ellis, Calhoun, & Atkeson, 1980). More research is needed on the impact of MST on sexual functioning and other potentially under-detected and under-addressed difficulties faced by both men and women to improve understanding of the impact of MST and to inform intervention efforts.

Another consistent finding is the association between MST history and medical or physical health complaints. Individuals reporting MST experience a greater number of current physical symptoms, more impaired health status, and more chronic health problems than those reporting no MST experiences (see reviews by Goldzweig et al., 2006; Suris & Lind, 2008; Zinzow et al., 2007). Specifically, pelvic pain, menstrual problems, back pain, headaches, gastrointestinal symptoms, chronic fatigue, and cardiovascular risk factors (obesity, smoking, sedentary lifestyle) are more likely in individuals reporting MST than those not reporting MST (e.g., Frayne, Skinner, Sullivan, & Freund, 2003; Stein et al., 2004). Increased utilization of medical services has been found among sexual assault survivors compared to those without such histories (e.g., Kilpatrick, 1992; Stein et al., 2004). Compared to civilian sexual trauma, MST has also been associated with poor physical health and low satisfaction with one's health (Suris, Lind, Kashner, & Borman, 2007). However, controlling for childhood sexual abuse resulted in no association between MST and health care utilization (Suris, Lind, Kashner, Borman, & Petty, 2004). Continued investigation of potential modulators of MST correlates, such as prior trauma, may uncover potential prevention and treatment targets.

Although it is often assumed that the traumatic element of MST lies in actual assaults, sexual harassment does appear to be associated with deleterious mental health consequences in and of itself (Harned & Fitzgerald, 2002; Harned, Ormerod, Palmieri, Collinsworth, & Reed, 2002; Murdoch, Polusny, Hodges, & Cowper, 2006; Street, Stafford, Mahan, & Hendricks, 2008). More careful assessment of MST allowing for the distinction between assault and harassment is needed in order to contribute further to this line of research.

IS MST COMPARABLE TO OTHER SEXUAL TRAUMA?

Although the more abundant research on civilian sexual assault and harassment may be applicable to MST in many ways, it cannot be exclusively relied upon. It can be deduced from non-military-specific research that MST is likely to result in serious negative consequences. Sexual assault is one of the strongest predictors of posttraumatic distress among traumatic experiences (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), including military-related traumas like combat (Fontana & Rosenheck, 1998; Katz, Bloor, Cojucar, & Draper, 2007; Wolfe et al., 1998). However, there is also evidence that MST is even more deleterious than civilian sexual trauma in that it has been associated with increased risk for PTSD relative to civilian sexual trauma (Himmelfarb, Yaeger, & Mintz, 2006; Suris et al., 2004, 2007). Researchers have proposed individual, trauma-related, and contextual factors as contributors to MST's relatively more insidious nature compared to other sexual trauma.

One individual factor found to predict greater posttraumatic distress is having experienced multiple traumatic events (King, King, & Foy, 1996; King, King, Foy, Keane, & Fairbank, 1999; Suliman et al., 2009; Testa, VanZile-Tamsen, & Livingston, 2007). This risk appears to be especially prevalent in military personnel who report high rates of trauma before, during, and after their military involvement (e.g., Fontana & Rosenheck, 1998; King et al., 1999; Murdoch, Polusny, Hodges, & O'Brien, 2004). Also noteworthy is that military personnel are more likely than civilians to report lifetime histories of sexual trauma (Merrill et al., 1998; Sadler, Booth, Mengeling, & Doebbeling, 2004; Schultz et al., 2006).

Trauma-related factors may also explain the relatively heightened risk of posttraumatic distress related to MST. Interpersonal trauma is associated with more severe psychological presentation compared to non-interpersonal trauma (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Duncan, 2004; Gahm, Lucenko, Retzlaff, & Fukada, 2007; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). In addition, the closeness of the relationship between victim and perpetrator has been associated with increased dissociation (Chu & Dill, 1990; Plattner et al., 2003), depression (Freyd, Klest, & Allard, 2005), and PTSD symptoms (Allard, 2009), as well as impaired reasoning regarding interpersonal relationships (DePrince, 2005), disrupted memory for the abuse (Freyd, DePrince, & Zurbriggen, 2001), and nondisclosure of abuse (Foynes, Freyd, & DePrince, 2009). Freyd (1996) proposed that the impact of interpersonal trauma is greatest when the victim is dependent upon the perpetrator because this creates conflict between adaptive responses to betrayal and the need to maintain attachment to the relied-upon other. This scenario applies to MST experiences, as most MST is perpetrated by fellow service members (Department of Defense, 2009; Sadler, Booth, Cook, & Doebbeling,

2003), many of whom depend upon one another for their very survival. Further study of the role of betrayal in MST outcomes is thus warranted.

Contextual factors posited to contribute to the more deleterious impact of MST compared to nonmilitary sexual victimization include continued exposure to the perpetrator long after the sexual abuse, the power differential inherent in the military rank system, issues related to unit cohesion, and limitations in social resources and support (Kimerling, Gima, Smith, Street, & Frayne, 2007; Steury, Spencer, & Parkinson, 2004; Suris & Lind, 2008; Tarrier & Humphreys, 2003). Continued exposure to the perpetrator and the inescapable nature of enlistment may contribute to a chronic threat of abuse. The power hierarchy of the military and the pressures of unit cohesion may present obstacles to reporting abuses and pursuing and obtaining justice, as already mentioned. Awareness and discussion of MST perpetrated by a coworker or superior officer in the same or related unit may be avoided for fear of disrupting the focus on military duties, leadership, and cohesion, which could leave the unit members more vulnerable to being killed in combat. Moreover, the context of being stationed away from home or deployed results in limited access to primary support systems; many military responses to MST disclosures have been described as unsupportive at best and victim-blaming and punishing at worst (Fontana & Rosenheck, 1998). Veterans have noted more frequent discouragement from filing official reports, more frequent minimizing of the seriousness of the assault, and more frequent refusals to take reports or pursue the matter when sexual trauma was reported to military officials compared to civilian officials, and these types of responses were associated with posttraumatic distress symptoms (Campbell & Raja, 1999). Future research needs to test these proposed individual, trauma-related, and contextual mediators and moderators of MST's impact on well-being.

ARE THERE GENDER DIFFERENCES IN MST?

The risk of MST exposure differs by gender, with consistently higher rates reported in women than in men. Less than half of the MST articles we found reported gender-specific prevalence rates (see Table 1). Reported rates of MST in men range from <1% to 31%. Although research is limited, men and women appear to be differently impacted by MST. Kimerling et al. (2007) found that MST in both genders was related to dissociative and personality disorders, but it was most strongly related to PTSD and eating disorders in women and to bipolar and psychotic symptoms in men. MST has been associated with obesity, weight loss, and hypothyroidism in women, and with AIDS in men (Frayne et al., 2003). There is some evidence that men may be more negatively impacted by MST than women. Civilian

male rape victims may be at higher risk than women for problems concerning gender identity, sexual orientation ambiguity, and anger dysregulation (see review by Leskela, Diepernik, & Kok, 2001). Men with MST histories have exhibited greater levels and persistence of PTSD and other psychiatric symptoms, poorer perceived health, and poorer functioning compared to women (Murdoch, Pryor, Polusny, & Gackstetter, 2007; O'Brien et al., 2008; Shipherd, Pineles, Gradus, & Resick, 2009; Street, Gradus, Stafford, & Kelly, 2007).

Murdoch and colleagues (2007) noted that because men outnumber women in the armed forces, there may actually be more MST impacted men than women. The high value given to traditional male roles in the military is likely influential in the male experience of MST. As highlighted by Murdoch and her colleagues (2004, 2007), hyper-masculinity is common within the military and is incongruent with the stereotyped identity of a sexual assault victim (weak, feminine). The need for research that directly assesses masculine identity, powerlessness, shame, and sexual identity using psychometrically sound measures in male MST populations is ostensible.

ARE EMPIRICALLY SUPPORTED TREATMENTS EFFECTIVE IN MST POPULATIONS?

A review of studies of treatment for sexual assault related distress in women found the most empirical support for Prolonged Exposure (PE; Foa, Hembree, & Rothbaum, 2007) and Cognitive Processing Therapy (CPT; Resick & Schnicke, 1992), and some support for the efficacy of Stress Inoculation Training and Eye Movement Desensitization and Reprocessing (Vickerman & Margolin, 2009). Currently, the VA is "rolling out" (training staff in and including in their best practices guidelines) the evidence based PTSD treatments. As a result, these treatments are increasingly being offered to veterans experiencing MST related distress, although actual utilization rates are currently unknown. While many of the treatment outcome studies supporting the efficacy of PE and CPT have included sexual trauma survivors, only two have reported outcomes specific to MST survivors. The unique combination of stressors faced by MST survivors and the potential gender differences noted previously mean that treatment outcomes in other trauma populations are not necessarily applicable to MST populations. Of additional concern is that an analysis of clinical trial effect sizes revealed a less robust treatment outcome for military populations compared to nonmilitary samples (Cason, Grubaugh, & Resick, 2002).

Monson and colleagues (2006) conducted a randomized clinical trial with 60 veterans, including 10 individuals with MST related PTSD, and found

significant reductions in PTSD symptoms for those receiving cognitive processing therapy compared to those on the waitlist using intention-to-treat analyses, but results were not presented separately for the MST subsample. PE was found to be effective in reducing PTSD symptoms and diagnosis in a sample of 284 active duty and veteran women, the majority of whom (73%) endorsed MST (among the mean of 10 different trauma types reported by this sample; Schnurr et al., 2007). Findings specific to MST related distress were not reported but MST was tested and not supported as a modifier of the treatment effect. Over fifty percent of the intent-to-treat sample in this study continued to meet diagnostic criteria for PTSD at posttreatment, and at 3 and 6 month followup (60% for the intent-to-treat sample). In contrast, over one-third of participants receiving PE and CPT retained PTSD diagnosis per Vickerman and Margolin's (2009) review of treatments for sexual assault in women. Also noteworthy, the effect size obtained ($d = 0.80$) was smaller than for other PE clinical trials in non-veterans. Another Clinical trial of PE included and reported outcomes specific to the two veterans with MST histories (out of a sample of 10), both of whom experienced pre/post reductions in PTSD and depression symptoms but also continued to have scores above the cutoff for PTSD on the assessment measures (Rauch et al., 2009).

Four studies reporting outcomes of other types of treatments that included participants with MST related distress also show promising results with limited inferential value because of small sample sizes, lack of a control comparison, and/or incomplete treatment description. Both men and women ($N = 175$) showed pre/post improvements in MST related PTSD symptoms following a 7-week residential treatment including intensive exposure-based group therapy, psychoeducation, coping skills training, and recreational and wellness activities (O'Brien et al., 2008). No loss of diagnosis or remission rates were reported in this study. A feasibility study of a "reprocessing" treatment involving some cognitive restructuring and imaginal exposure reported significant pre/post reductions in negative cognitions following the intervention but did not measure PTSD symptoms and did not present outcomes specific to the 7 (out of 17) participants with MST histories (Katz, Snetter, Robinson, Hewitt, & Cojucar, 2008). David, Simpson, and Cotton (2006) found significant reductions in PTSD and depression symptoms in 10 women with MST histories up to 6 months after a self-defense training that incorporated exposure and cognitive restructuring. Finally, Waldfogel and Mueser (1988) gave a case presentation of a male veteran with MST related PTSD, auditory hallucinations, and paranoid delusions who was asymptomatic 16 months after completing psychotherapy involving imaginal exposure. These limited findings suggest that veterans who experience MST related posttraumatic distress stand to benefit from some forms of therapy, but clearly more systematic treatment outcome research in MST samples is needed.

TREATMENT ATTRITION

No investigation of treatment completion has been conducted with MST survivors. Attrition rates in PTSD treatment studies have ranged from 0% to 54% (Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008), with an average of 35.2% (Sharf, 2008). Dropout rates in non-research clinical practice can be higher than those reported in clinical trials (Persons, Burns, & Perloff, 1988; Steel et al., 2000; Waller, 1997), in part because of fewer resources for follow-up contact. Considering the highest attrition rate in PTSD studies, Zayfert and colleagues (2005) deduced an expected clinical dropout rate of 80%. It is therefore essential to identify predictors of dropout in an effort to develop interventions that address them more successfully.

Lower income and unemployment predict PTSD treatment attrition in some studies (e.g., Matthieu & Ivanoff, 2006). Compared to treatment completers, individuals who drop out of trauma-related treatment tend to be more symptomatic and/or functionally impaired at pretreatment (e.g., Bryant et al., 2007; Zayfert et al., 2005), to have higher alcohol consumption (Difede et al., 2007), and to have received more previous psychological treatment (Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Matthieu & Ivanoff, 2006). The need for additional research on treatment completion and outcomes in MST populations is evident.

WHAT ABOUT THE PREVENTION OF MST?

MST prevention research is also sparse, which is concerning given that military personnel are not only more likely to experience sexual trauma but also more likely to perpetrate sexual assaults compared to their civilian counterparts. Whereas a nationally representative survey of college students found that 4% of men reported ever having perpetrated rape (G. C. N. Hall, Hirschman, Graham, & Zaragoza, 1993), 10%–12% of male U.S. Navy recruits reported having raped a woman before entering military service (Merrill, Thomsen, Gold, & Milner, 2001).

Increasing understanding of sex offender behavior and military social climate factors that potentially contribute to MST may facilitate the development of effective prevention efforts. To this end, Vogt, Bruce, Street, and Stafford (2007) surveyed more than 2,000 reservists and national guards and found that poorer attitudes toward women predicted tolerance of sexual harassment and were more likely in men, ethnic majority members, and Marines. An earlier study revealed an association between negative attitudes toward women, including a lack of acceptance of women as equals in the Army, and tolerance of sexual harassment (Rosen & Martin, 1998b). Other

investigations of predictors of MST have been focused more on an individual level. A possible risk factor for sexual trauma is substance abuse (Shannon, Logan, Cole, & Walker, 2008). Rosen and Martin (1998a) found that childhood sexual and physical abuse predicted sexual revictimization and perpetration and that both victimization and perpetration were predictors of poor psychological well-being for both male and female Army soldiers. These predictors of MST point to promising prevention foci.

The Navy's Sexual Assault Victim Intervention program was developed to address some of the empirically identified and theorized predictors of MST and includes training programs to increase sexual assault awareness. No data are yet available on the effectiveness of this program in terms of prevention, but the program was rated by sailors as satisfactory and as contributing to increased job concentration and enhanced health and safety (Kelley, Schwerin, Farrar, & Lane, 2005). After surveying female veterans who believed that personal safety/self-defense training would increase their competence against future assaults, David, Cotton, Simpson, and Weitlauf (2004) developed and tested a self-defense program incorporating cognitive behavioral therapy interventions. Participants reported increases in self-defense self-efficacy from pre- to post-training; however, no data were collected on prevention effectiveness (David et al., 2006).

To summarize, a daunting proportion of service members experience MST at a substantial cost to public health. Our review of the research suggests that there is a need for greater breadth and precision in MST research. One first step toward this aim would be to standardize the definition of MST across research studies. Other recommendations are (a) to measure health and functioning more broadly to capture the full extent of posttraumatic distress experienced by individuals who experience MST and (b) to explore the role of potential modulators of the MST correlates, including other trauma history, gender, victim–perpetrator relationship, and characteristics of the military environment. In addition, systematic treatment effectiveness and efficacy research in MST populations is required. Researchers need to investigate whether the factors that distinguish MST from other sexual abuse play a role in treatment outcomes and whether existing empirically supported treatments adequately address the range of concerns of veterans with distress secondary to MST. Finally, what is most sorely needed is basic and intervention research aimed at primary prevention. Although efforts to raise awareness and provide resources to MST victims have increased in the military over the past 5 years, prevalence rates of MST continue to be alarmingly high. In conclusion, MST researchers are to be commended for bringing to light this prevalent public health concern. Their published findings have propelled national treatment and prevention efforts. Continued and increasingly systematic empirical investigations of the prevalence, risks, and impact of MST and of treatment and prevention efforts are encouraged to improve experts' efforts at addressing MST.

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