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Preliminary Data Suggest Rates of Male Military Sexual Trauma May Be Higher Than Previously Reported

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Stigma associated with disclosing military sexual trauma (MST) makes estimating an accurate base rate difficult. Anonymous assessment may help alleviate stigma. Although anonymous research has found higher rates of male MST, no study has evaluated whether providing anonymity sufficiently mitigates the impact of stigma on accurate reporting. This study used the unmatched count technique (UCT), a form of randomized response techniques, to gain information about the accuracy of base rate estimates of male MST derived via anonymous assessment of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) combat veterans. A cross-sectional convenience sample of 180 OEF/OIF male combat veterans, recruited via online websites for military populations, provided data about history of MST via traditional anonymous self-report and the UCT. The UCT revealed a rate of male MST more than 15 times higher than the rate derived via traditional anonymous assessment (1.1% vs. 17.2%). These data suggest that anonymity does not adequately mitigate the impact of stigma on disclosure of male MST. Results, though preliminary, suggest that published rates of male MST may substantially underestimate the true rate of this problem. The UCT has significant potential to improve base rate estimation of sensitive behaviors in the military.

Keywords: male sexual assault, military sexual trauma, stigma, unmatched count technique

Addressing military sexual trauma (MST) has recently become a focus of significant attention for military leaders, policy and law makers, and researchers. In addition to violating the public trust and harming military organizations, research suggests MST can have a range of detrimental psychological effects on both women and men (for reviews, see Peterson, Voller, Polusny, & Murdoch, 2011; Resick, 1993). Although women have historically been a focus of research in the context of sexual assault, recent work has increasingly focused on the problem of male MST.

Determining the scope of the problem has drawn considerable interest in identifying base rates of male MST (for a recent review, see Hoyt, Klosterman Rielage, & Williams, 2011). Studies conducted by the Department of Defense, military service academies, and the Department of Veterans Affairs from the 1980s to the present have found reported rates of male MST ranging from 0.02% to 12%, with an average of 1.1% (Hoyt et al., 2011). They further found that studies of formally investigated sexual assault show a significantly lower reported rate (0.6%) than anonymous

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surveys (2.8%). Finally, Hoyt and colleagues (2011) noted several limitations of this work, including a relative paucity of anonymous research and several important barriers to disclosure of male MST.

A range of barriers may discourage the reporting of sexual assault for both men and women. These include the fear of not being believed, self-blame, embarrassment and shame, and concerns about confidentiality (Turchik et al., 2013). Additional barriers to reporting sexual assault in military populations include concerns about being charged under the Uniform Code of Military Justice for behaviors associated with the assault (e.g., underage drinking) as well as fears of ostracization and retaliation (Hoyt et al., 2011). The unique military culture that promotes discipline, loyalty, and cohesion may further discourage reporting of MST (Department of the Air Force, 2003; Niebuhr, 1997). In addition to these barriers, there may be others more specific to men.

Turchik and colleagues (2013) have suggested that men may face unique barriers to disclosing MST in a military culture in which men are stereotypically expected to be hypermasculine, physically strong, and heterosexual. Hoyt and colleagues (2011) reviewed research indicating that after experiencing MST, men may feel pressure to be "stoic warriors" and may feel their "manhood" earned through service has been stripped. They further found that men may experience sexual identity confusion. Taken as a whole, the research indicates significant barriers to disclosure of male MST, the majority of which can be captured under the broad umbrella of stigma and related self-report biases.

To address issues of biased responding with respect to sensitive behaviors, researchers have developed an assessment methodology called the *unmatched count technique* (UCT; Dalton, Wimbush, & Daily, 1994). The UCT is a variant of a set of approaches called *random response techniques*, which provide complete anonymity at the individual level while allowing interpretation at the group level (Ahart & Sackett, 2004). By conferring absolute anonymity for participants' responses, the methodology employed in the UCT mitigates the confounding effects of stigma and related self-report biases, and results in more accurate endorsement of sensitive behaviors.

For the UCT to work properly, participants must be randomly assigned to one of three conditions, referred to as UCT Form A, UCT Form B, and UCT Form C for the current illustration. Participants in UCT Form A are simply asked to anonymously respond if the sensitive item (i.e., history of being sexually assaulted in the military) is true for them. This condition represents a traditional, anonymous self-report condition. Participants in UCT Form B receive a set of four innocuous items (e.g., "I wish I had more energy," "I enjoy breakfast") and are simply asked to respond with the total number of items (0 to 4) that are true for them. Thus, while indicating how many items are true, they never directly endorse any particular item. Participants in UCT Form C receive the exact same set of innocuous items as participants in UCT Form B, plus the sensitive item used for UCT Form A. They are simply asked to respond with the total number of items (0 to 5) that are true for them. As was the case for UCT Form B, participants never directly endorse any particular item.

Because the groups are randomly assigned, the difference in the mean responses of UCT Forms B and C for a given set of items can be interpreted as a function of some individuals in UCT Form C endorsing the sensitive item. The base rate estimate for the sensitive item is determined from this differential item endorsement rate. Therefore, the mean difference between UCT Forms B and C can be interpreted directly as the proportion of respondents in UCT Form C who report that the sensitive item applies to them. For example, if participants in UCT Form B endorse 2.0 items, on average, from the set of 4 items, and the participants in Group C endorse 2.5 items, on average, from a set of 5 items, one can conclude that the base rate of the sensitive item is 50% (2.5 – 2.0 = .50). Comparing this estimate with the proportion of participants who endorse the sensitive item via traditional anonymous self-report (UCT Form A) can reveal the extent of biased responding. Thus, if this 50% estimate differs significantly from the one obtained with a traditional anonymous questionnaire, a self-report bias may be considered to be the source of the difference.

Relative to traditional anonymous assessment, the UCT has revealed higher base rate estimates of a number of sensitive behaviors, including unsafe sexual behavior (LaBrie & Earleywine, 2000) and hate crime victimization (Rayburn, Earleywine, & Davison, 2003). However, two groups of researchers have identified specific cases where underreporting of target items (some counterproductive behaviors: Ahart & Sackett, 2004; and donating blood: Tsuchiya, Hirai, & Ono, 2007) was not identified using the UCT. Possible explanations for these findings include a lack of motivation to provide socially desirable answers (Ahart & Sackett, 2004), or insufficient sample size coupled with large standard errors (Tsuchiya et al., 2007). More recent work using the UCT with military populations has shown more accurate estimates of aggressive driving in combat veterans (Sheppard & Earleywine, 2013) and alcohol misuse in active duty service members (Sheppard, Forsyth, Earleywine, Hickling, & Lehrbach, 2013).

As previously discussed, identifying accurate rates of male MST is hampered by a range of barriers to disclosure, the majority of which are related to stigma and other self-report biases. Anonymity may be a useful tool to address these threats. Although anonymous research has found higher rates of male MST, no study has evaluated whether providing anonymity sufficiently mitigates the impact of stigma and biased responding on accurate reporting. Therefore, the current study used the UCT to gain information about the accuracy of base rate estimates of male MST derived via anonymous assessment in Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF) combat veterans. Given potential stigma associated with male MST, we hypothesized that the UCT would yield higher estimates of male MST relative to traditional anonymous self-report.

Method

Participants

Data from 180 OEF/OIF male combat veterans collected as part of a larger prevalence study of postdeployment experiences (with an emphasis on behavioral health) were analyzed in the current study. The study was open to any individual between the ages of 18 and 59 years with a history of OEF/OIF combat deployment, irrespective of current duty or discharge status. The only other requirement was access to a computer in order to access the study website. The statistics for demographic and military-related variables are presented in Table 1. Participants were predominantly Caucasian Army combat veterans, the majority of whom had a

Table 1
Descriptive Statistics for Demographic and Military-Related Variables

Demographic variables	Total sample (N = 180) Count (%) Traditional (n = 91)	Unmatched (n = 89)
Ethnicity		
African American	6 (6.6)	7 (7.9)
Asian	1 (1.1)	2 (2.2)
Caucasian	69 (75.8)	72 (80.9)
Hispanic	8 (8.8)	5 (5.6)
Multiple ethnicities	6 (6.6)	1 (1.1)
Native American	0 (.0)	2 (2.2)
Current duty status		
Active duty	28 (30.8)	21 (23.6)
Reserve/Guard	19 (20.9)	22 (24.7)
Veteran	44 (48.4)	46 (51.7)
Service branch		
Air Force	6 (6.6)	13 (14.6)
Army	74 (81.3)	61 (68.5)
Marine Corps	7 (7.7)	7 (7.9)
Navy	4 (4.4)	6 (6.7)
Rank/Grade		
E-1 to E-6	47 (51.6)	53 (59.6)
E-7 to O-6	43 (47.2)	36 (40.4)
Total # months deployed	19.20 (SD = 12.94)	15.99 (SD = 10.18)
# Months since deployment	52.30 (SD = 37.10)	46.07 (SD = 32.91)

Note. Participants were screened to include combat veterans between the ages of 18 and 65 years; however, age data from the study were not retrievable due to a technical error. Variable counts/percentages may not sum to 100 due to missing data (less than 5% of data missing completely at random). Chi-square and t tests revealed no significant differences on any demographic variable between conditions. Traditional = traditional anonymous condition; Unmatched = unmatched count technique condition.

cumulative deployed time of more than 1.5 years. Approximately half were in veteran status, with the remainder roughly split between service on active duty or in the National Guard or Reserves.

Measures

MST was measured by the item, "I was sexually assaulted while serving in the military." UCT Form A is a traditional anonymous true–false self-report measure comprised of the sexual assault item. UCT Form B is a set of four innocuous items. UCT Form C is a set of five items (the same four innocuous items from UCT Form B plus the sexual assault item).

Procedure

Participants were recruited via a range of print and online resources that cater to military and veteran populations (e.g., Veterans of Foreign Wars newsletters, paid ads in the *Military Times* newspaper, posts on social media platforms, direct e-mails via Listservs devoted to military and veterans issues) before being directed to a study website containing detailed information about the study. A broad range of recruitment contexts were utilized in support of the project's aim to recruit a representative sample of combat veterans (i.e., not recruiting individuals with behavioral health concerns). Military subject matter experts were consulted to ensure that marketing and study website information did not explicitly or implicitly assume positive or negative associations between combat deployment and behavioral health outcomes. After providing electronic informed consent, participants completed a brief demographic survey before being randomly assigned by computer algorithm embedded in the data collection platform to complete either the traditional anonymous self-report measure (UCT Form A) or one of the UCT forms (UCT Form B or C) via an online data collection engine. Upon completion, participants were directed to a separate website where they were eligible for a chance to win a $500 gift card.

Results

Analyses revealed no significant differences on any demographic variable between the traditional anonymous (UCT Form A) and UCT conditions (see Table 1). A chi-square test of independence was performed to compare the base rate of MST derived from the UCT conditions (UCT Forms B and C) with the rate obtained from traditional anonymous self-report (UCT Form A). Specifically, 1.1% of participants receiving the traditional survey reported a history of MST, whereas the UCT condition yielded a rate of 17.2%. This difference was statistically significant $\chi^2(1, N = 180) = 14.21$, $p < .001$. A factor score of 15.67 was calculated by dividing the proportion of individuals endorsing the item in the UCT condition by the proportion of those endorsing the item in the traditional anonymous condition. This measure of effect size can be interpreted similarly to an odds ratio. Thus, the UCT revealed a rate of MST 15.67 times greater than the rate found in the traditional anonymous condition.

Discussion

As hypothesized, the UCT revealed a significantly higher rate of male MST relative to traditional anonymous assessment (1.1% vs. 17.2%; a 15-fold increase). This finding is consistent with research (e.g., Sheppard et al., 2013) that suggests anonymity alone does not adequately mitigate the impact of stigma and social desirability when the questions are sensitive or controversial in nature. Additionally, data from this study, although preliminary, suggest that published rates of male MST may substantially underestimate the true rate of the problem. Current work is underway to replicate these findings and expand the scope of this research by assessing a broader range of behaviors that comprise sexual assault.

We recommend these findings be interpreted cautiously in the context of several important limitations. First, this study utilized a relatively small sample of participants recruited via the Internet. Although recruitment efforts were limited to military-related online contexts, there was no way to independently confirm the military status of participants. Such independent verification of military status presents a challenge when recruiting online as attempts to do so would undermine the anonymity entailed within the UCT. Having said this, we have no reason to suspect differential misclassification of military status by random assignment. Second, the nature of the convenience sample significantly limits generalization of findings to the broader military and veteran population (because of potential response biases and lack of population-based stratified random sampling procedures). Yet it should be noted that the base rate for male MST observed in the

anonymous condition is consistent with those previous reported (for a recent review, see Hoyt et al., 2011). Finally, it was impossible to capture the range of behaviors constituting sexual assault using a single item (which also was not defined for participants). Although we believe our item minimized gross inflation of sexual assault rates (e.g., by encompassing sexual harassment), future work should assess a range of behaviors comprising sexual assault in order to better understand the scope and nature of male MST.

It is important to note that the UCT is only able to provide group-level information (as opposed to individual-level data commonly assessed through traditional self-report measures). However, the present findings suggest that rates of male MST may be higher than previously reported, which in turn has several important clinical implications. The most obvious include the recommendation that health care (particularly behavioral health) providers routinely assess for history of MST. Given the impact of stigma suggested from our findings, this also warrants consideration of the manner and timing of such assessment. Considerations include asking about history of MST more than once (and in more than one way), and ensuring appropriate rapport and trust has been established before inquiring about this potentially sensitive aspect of a patient's history. Several of the authors' experiences as clinical supervisors also suggest that focused assessment and training of staff providers is warranted to ensure appropriate levels of comfort and skill in assessing for history of MST.

Beyond important clinical implications, the findings suggest that researchers should remain cognizant of potential sources of response bias when assessing base rates of sensitive behaviors. In the context of MST research, they highlight the importance of complete anonymity and other design considerations to mitigate the impact of stigma and encourage honest reporting. Finally, our findings lend further support to the UCT's utility in addressing a specific type of challenge associated with base rate estimation of sensitive behaviors. We anticipate that future work along these lines will help to improve behavioral health assessment in the military.

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