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Self-Reported STIs and Sexual Risk Behaviors in the U.S. Military: How Gender Influences Risk

Shauna Stahlman, MPH¹, Marjan Javanbakht, PhD¹, Susan Cochran, PhD, MS¹, Alison B. Hamilton, PhD, MPH², Steven Shoptaw, PhD³, and Pamina M. Gorbach, DrPH¹

¹Department of Epidemiology, Fielding School of Public Health, University of California, Los Angeles; Los Angeles CA, 90095-1772

²Department of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine, University of California, Los Angeles; Los Angeles CA, 90095-1772

³Department of Family Medicine, University of California, Los Angeles; Los Angeles CA, 90095-1772

Abstract

Background—Sexually transmitted infections (STIs) are prevalent in the U.S. military. However, there are limited data on risk-factor differences between genders.

Methods—We used data from the 2008 Department of Defense Survey of Health Related Behaviors among Active Duty Military Personnel to identify risk factors for self-reported STIs within the past 12 months and multiple sexual partners among sexually active unmarried service members.

Results—There were 10,250 active duty personnel; mostly White (59.3%) aged 21-25 years (42.6%). The prevalence of any reported STI in the past 12 months was 4.2% for men and 6.9% for women. One-fourth of men and 9.3% of women reported five or more sexual partners in the past 12 months. Binge drinking, illicit substance use, and unwanted sexual contact were associated with increased report of sexual partners among both genders. Family/personal-life stress and psychological distress influenced number of partnerships more strongly for women than for men (Adjusted Odds Ratio [AOR]=1.58, 95% Confidence Interval [CI]=1.18-2.12 and AOR=1.41, 95% CI=1.14-1.76, respectively). After adjusting for potential confounders, we found that report of multiple sexual partners was significantly associated with report of an STI among men (AOR=5.87, 95% CI=3.70, 9.31 for five or more partners; AOR=2.35, 95% CI=1.59, 3.49 for 2-4 partners) and women (AOR=4.78, 95% CI=2.12, 10.80 for five or more partners; AOR=2.35, 95% CI=1.30, 4.25 for 2-4 partners).

Conclusions—Factors associated with report of increasing sexual partnerships and with report of an STI differed by gender. Gender-specific intervention strategies may be most effective in mitigating the factors that influence risky sexual behaviors among military personnel.

Corresponding author: Shauna Stahlman, MPH, University of California Los Angeles, Department of Epidemiology, Box 951772, Los Angeles, CA 90095-1772, Phone: 310-206-3901, Fax: 310-825-7387, sstahlman@ucla.edu.

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Keywords

Military; sexual risk behaviors; gender; STIs

Introduction

Rates of sexually transmitted infections (STIs) in the U.S. military have historically been higher than those of civilians.^{1, 2} One likely contributor to high military STI rates is the high prevalence of behaviors that correspond with transmission of STIs, including binge drinking, lack of condom use, and multiple sexual partnerships.³⁻⁵ Another potential contributor is high prevalence of mental health conditions,⁶ although less is known about the relationship between mental health and STIs especially in a military setting.

In terms of risk behaviors, binge drinking is a common military phenomenon, with one survey of U.S. Army recruits (n=1,095) reporting a prevalence of 33% in the past 30 days among females and 49% among males.³ Binge drinking may, in turn, facilitate infrequent condom use. Women in the military tend to report less frequent condom use than both their male colleagues³ and their civilian women peers.^{4, 7} In a study of 1,712 women entering U.S. Marines recruit training, 71% reported using condoms inconsistently.⁴ Multiple sexual partnerships are also common, as indicated by findings from a study of male and female army recruits in which almost 60% reported more than 1 sexual partner within the past year.³ However, risk factors for multiple sexual partners within the military have yet to be identified.

Previous literature suggests that individuals with mental health conditions such as mood or anxiety disorders can have higher rates of STI/HIV risk behaviors.⁸ In a study of 400 male and female patients attending an outpatient psychiatry clinic, more than half did not use a condom at the last five sex acts and almost 25% reported binge drinking in the past 30 days.⁹ Specifically, women with chronic mental illness may be more vulnerable to coerced sex and have higher levels of sexual impulsivity.¹⁰ Deployed women may also respond differently to stress and anxiety in the workplace in comparison to men.¹¹ For example, family separations can be particularly stressful and a perceived loss of intimate relationships has been associated with an increased risk of PTSD in women but not men.¹² Mental health factors and STI risk behaviors likely differ between men and women in the military, although it is unclear as to whether this contributes to a difference in STI risk.

In order to characterize STI risk by gender among active duty service members, our objectives were to (1) compare correlates of a recently reported STI between sexually active unmarried servicemen and servicewomen, (2) describe predictors of reported number of sexual partners, and (3) assess the relationship between STI risk and mental health. We hypothesized that (1) prevalence of reported STIs, unwanted sexual contact, and sexual risk behaviors such as lack of condom use would be higher for women, that (2) alcohol/substance use, as well as younger age would be associated with higher reported numbers of sexual partners for both sexes, and (3) adverse mental health indicators such as psychological distress would be correlated with unwanted sexual contact, alcohol and

substance use, and sexual risk behaviors among men and women, thus increasing risk for STIs.

Methods

Study population and design

We used existing cross-sectional data from the 2008 Department of Defense Survey of Health Related Behaviors among Active Duty Military Personnel (HRBS) public use data file, which was obtained by study investigators in October 2012. The 2008 HRBS was a self-administered, anonymous questionnaire that consisted of a random stratified sample of all Army, Navy, Marine Corps, Air Force, and Coast Guard personnel on active duty during the time of data collection (May – July 2008).¹³ Recruits, academy cadets, and personnel who were “AWOL” or incarcerated were excluded. In the first stage of sampling, 64 military installments were selected via probability proportional to size methodology, stratified by service branch and world region.¹⁴ In the second stage, 600 personnel were randomly selected within strata of pay grade and gender in order to obtain enough completed surveys for women and officers.¹³ Data were collected in group sessions administered by RTI International and a small percentage of questionnaires were obtained by mail for those not attending the sessions. The survey took approximately 1 hour to complete and the overall response rate was 71.6%.¹³ IRB approval was obtained from RTI International and Department of Defense. We restricted our analysis to 10,250 (36%) sexually active unmarried personnel, where sexually active was defined as reporting at least one sexual partner within the past 12 months.

Key Measures

Drug and Alcohol Use—Binge drinking was defined as having four or more drinks per drinking occasion at least once in the past 30 days for women and five or more drinks for men. Illicit substance use in the past 12 months included any reported use of marijuana, cocaine, acid/LSD, angel dust/PCP, MDMA/Ecstasy, other hallucinogens, methamphetamine, heroin, GHB/GBL, or inhalants. Prescription drug use for non-medical purposes in the past 12 months included any reported use of stimulants (other than methamphetamine), tranquilizers or muscle relaxants, sedatives or barbiturates, pain relievers, or anabolic steroids. “Non-medical purposes” was defined as any use of the aforementioned drugs without a doctor’s prescription, taken in greater amounts or more often than the drug was prescribed, or for reasons such as to get “high”, or for “thrills” or “kicks”.

Sexual Risks/Risk Behaviors—Reported sexual risk behaviors included condom use at last sexual encounter, and number of sexual partners and new sexual partners in the past 12 months. In order to measure unwanted sexual contact since entering the military, respondents were asked “Has anyone ever made or pressured you into having some type of unwanted sexual contact – since entering the military? By sexual contact we mean any contact between someone else and your private parts or between you and someone else’s private parts.” Respondents were also asked, “Have you ever had a sexually transmitted disease, such as gonorrhea, syphilis, chlamydia, or genital herpes?” and responded by

indicating “Yes, within the past 12 months”, “Yes, more than 1 year ago”, or “No”. The STI outcome used in this analysis is the self-report of any STI in the past 12 months.

Mental Health—Mental health measures include stress due to military or personal life as self-perceived by the respondent; self-reported stress experienced as a result of being a woman in the military (females only); screening questions to assess the need for further mental health evaluation including psychological distress, anxiety, depression, and PTSD, which are hereafter referred to as “indicators” for mental health; and self-reported suicidal ideation and attempt since joining the military. Participants were screened for further mental health evaluation using scales that are described in detail elsewhere.^{14, 15} In particular, gender-related stress was assessed by asking, “In the past 12 months, how much stress did you experience as a woman in the military?”

Statistical analysis—Descriptive statistics such as frequencies and percentages were calculated for all variables of interest. Rao-Scott chi-square tests were used to determine crude associations between gender and various characteristics of active duty military men and women. Prevalence and 95% confidence intervals of specific characteristics were calculated separately for men and women in order to determine which gender had a higher prevalence of a given characteristic. Multivariable logistic regression was used to determine variables that were associated with the report of an STI in the past 12 months. Ordinal logistic regression was used to determine variables that were associated with the report of increasing numbers of sexual partners in the past 12 months. Ordinal logistic regression was used instead of multinomial logistic regression in order to simplify the interpretation of effect estimates. Factors were selected for inclusion in the multivariable analysis based on *a priori* knowledge of STI risk factors in the general population and the results of an initial bivariate analysis. In addition, we checked for relevant statistical interactions with gender for each of the variables in the final multivariable models. For all analyses, SAS software version 9.2® (SAS Inc., Cary, NC) survey procedures were used in order to take complex sampling design into consideration.

Results

Unweighted Sample Demographics

There were a total of 10,250 sexually active unmarried military personnel, of which 3,428 were female (Table 1). Most service members were between the ages of 21 and 25 years (42.61%), of an enlisted rank (87.2%), and more than half identified as Non-Hispanic White (59.3%). More than one-quarter (26.8%) had been deployed to a combat zone in the past 12 months.

Demographic and Behavioral Characteristics by Sex

Sexually active unmarried active duty military men and women differed significantly by a number of characteristics. In terms of alcohol and drug use, binge drinking and use of illicit substances such as heroin and “other” (including LSD, PCP, hallucinogens GHB, and inhalants) were more prevalent among male as compared with female service members (Table 2). In terms of sexual risk behaviors, men were more likely to report condom use at

last sex (43.0% vs. 32.1%, $p<0.01$), more than five sexual partners in the past 12 months (25.2% vs. 9.3%, $p<0.01$), and two or more new sexual partners in the past 12 months (51.3% vs. 30.7%, $p<0.01$). Women were more likely to report having sex with a “main” sexual partner at last intercourse (82.5% vs. 62.9%, $p<0.01$), unwanted sexual contact since entering the military (14.2% vs. 2.9%, $p<0.01$), and an STI in the past 12 months (6.9% vs. 4.2%, $p<0.01$).

Finally, there were differences between men and women in terms of mental health indicators. A higher proportion of women screened positive for depression (28.4% vs. 24.8%, $p<0.01$), anxiety (20.3% vs. 13.9%, $p<0.01$), and psychological distress (22.2% vs. 16.6%, $p<0.01$). The prevalence of reported “high” family/personal life stress as compared with no stress was also higher for women than men (22.9% vs. 19.2%, $p<0.01$).

Factors Associated with Report of an STI

Table 3 illustrates the adjusted odds ratios (AORs) and 95% confidence intervals for each characteristic associated with report of an STI. In two multivariable logistic regression models specific to each gender and controlling for age, race/ethnicity, and condom use at last sex, we found that illicit substance use (AOR=3.21) and unwanted sexual contact (AOR=2.52) were significantly associated with report of an STI in the past 12 months among males although the association was not significant among females. Furthermore, we found that screening positive for any mental health indicator (AOR, 1.50) was associated with report of a recent STI among men; however, this association were not significant among women. Reporting two to four sexual partners or five or more sexual partners in the past 12 months was a significant predictor of reported STI for both genders. Specifically, women who reported five or more sexual partners had almost five times the odds of reporting an STI in the past 12 months and men had almost six times the odds, as compared with those who reported only one sexual partner.

Factors Associated with Reported Number of Sexual Partners

In order to determine factors that were independently associated with report of increasing numbers of sexual partnerships, we performed two ordinal logistic regression models separately for male and female service members (Table 4). The reported number of sexual partnerships decreased with increasing age for both men and women. Reported binge drinking (AOR=1.84 for men; AOR=2.28 for women), illicit substance use (AOR=2.33 for men; AOR=2.41 for women), and unwanted sexual contact since entering the military (AOR=2.09 for men; AOR=1.65 for women) were associated with the report of higher numbers of sexual partners among both genders. High level of stress from intimate and family relationships was associated with reporting more sexual partners among women only (AOR=1.51).

Mental Health Indicators and STI Risk Behaviors

Many of the mental health indicators were associated with sexual risk behaviors that could potentially increase risk for STIs. In a series of multiple logistic regression models controlling for age, race/ethnicity, and gender, we found that military personnel who screened positive for depression, anxiety, PTSD, high overall stress, high military-related or

personal-life stress, high gender-related stress (among females only), psychological distress, or self-reported suicidal ideation were more likely to report binge drinking, any illicit substance use, no condom use at last sex, and higher number of sexual partnerships, as compared with those who did not screen positive for those mental health indicators (Table 5). Women who reported high family/personal life stress (AOR, 1.58) or screened positive for psychological distress (AOR=1.41) were more likely than males to report higher numbers of sexual partners. In addition, self-reported stress experienced as a woman in the military was associated with higher numbers of sexual partners (AOR=1.57), binge drinking (AOR=1.51), and illicit substance use (AOR=3.12).

Discussion

Our findings point to important public health implications of the gender-specific nature of STI risk behaviors/characteristics among military personnel. In this sample of active duty personnel, the prevalence of binge drinking, substance use, and multiple sex partners was higher among men. Women, in contrast, had higher reported prevalence of STIs, unwanted sexual contact, lack of condom use at last sex, and several mental health indicators. Our findings confirm the work of previous studies, which have indicated that multiple partnerships and other high risk sexual behaviors such as lack of condom use are associated with laboratory diagnosed STIs.¹⁶⁻¹⁸ However, we present new findings that unwanted sexual contact and mental health may be related to report of STIs, specifically among male military personnel. Perhaps there are men who have sex with men in the military who experience significant rates of unwanted sexual contact or sexual abuse, which has been found to be associated with substance use and poor mental health¹⁹ and could increase risk for STIs in this population. Because our dataset did not include gender of sexual partners, further research is required to clarify these associations. For women, being in a predominantly male occupation may cause them to face unique social stressors such as feeling stigmatized as promiscuous if they request condoms.²⁰ Intervention efforts within the military should be designed to address the gender-specific risk behaviors.

The means by which mental health influences STI risk by gender is more complicated. Many mental health indicators in our dataset were associated with sexual risk behaviors; some of which were influenced by gender. Screening positive for any mental health indicator was significantly associated with report of an STI only among men. However, screening positive for psychological distress or reporting high family/personal life stress was associated with report of higher numbers of sexual partners among women. One potential explanation is that military women face high levels of sexism or “unwanted gender-related behaviors”,²¹ which may predispose them to risky sexual behaviors such as multiple sexual partnerships. Although our data did not contain a direct measurement of sexism, the 2012 Workplace and Gender Relations Survey of Active Duty Members reported that 47% of active duty service women indicated experiencing sexist behavior in the past 12 months, which includes “verbal/nonverbal behaviors that convey insulting, offensive, and/or condescending attitudes based on the gender of the member.”²¹ Previous research suggests that sexism can create psychological distress because it is particularly personal and degrading,²² and that psychological distress is a probable link between sexism and increased sexual risk behaviors.²³ Alternatively, women who suffer from psychological distress may

seek sexual partners as a way to feel better by experiencing physical intimacy with another person – perhaps in the hope that this may lead to emotional intimacy.²⁴

In addition to psychological distress, family separation is a major stressor for deployed women⁶ and military life can be stressful on couples' relationships.²⁵ Stress associated with lengthy deployments may interfere with the ability to maintain long-lasting relationships, such as by decreasing partner intimacy.²⁵ Another possible explanation is that long-lasting relationships are harder for women to maintain due to the greater availability of potential sex partners.²⁶ Qualitative studies are needed to clarify the relationship between mental health, multiple partnerships, and STI risk specific to women in the military.

These results should be interpreted in light of several limitations. First, the data is susceptible to self-reporting bias. Active duty military personnel may be un-willing to disclose sensitive information such as mental health status or substance use out of fear of punishment or losing their job. However, this survey was conducted anonymously via a paper questionnaire and measures were taken to encourage honest reporting. For example, neutral civilian teams collected the data and assured participants of data confidentiality, which may help to facilitate truthful responses. Second, this is a cross-sectional dataset and therefore causality cannot be established due to ambiguous time-ordering of events. Because our analysis was restricted to existing data, several variables may not perfectly capture associations of interest. For example, condom use at last sex may not be perfectly representative of an individual's condom use during the past 12 months in which he/she was at risk for STI infection. Respondents were not asked to report whether or not they had each individual STI, and they were not specifically asked about other common STIs such as trichomonas or genital warts. In addition, the past 12 months may have contained some time that was not spent in active duty if the respondent was not in active duty for at least 12 months at the time of the survey. Respondents were not diagnosed for mental health outcomes but were instead screened positive for mental health indicators. Finally, military women may be more likely than men to know their STI status because women less than 26 years of age are screened for chlamydia at the female wellness encounter, which is performed prior to completion of Advanced Individual Training or Basic Officer Leader Course Phase 3.^{27, 28}

Despite limitations, our findings support the development of gender-specific STI intervention strategies among military personnel as well as the adoption of military policies to reduce stresses among women in the military. For example, gender-specific HIV/STI risk reduction programs consisting of group sessions and discussions have been shown to be successful in reducing risk behaviors among women in a family planning setting²⁹ and may also be adaptable to a military setting. In addition, one qualitative study among soldiers in the National Guard found that some naturally occurring peer networks helped soldiers to reduce the stigma of seeking mental health care.³⁰ Thus, peer-based programs to help cope with stress and increase treatment seeking for mental health care could also be beneficial, particularly if they are gender-specific. Strategies that take gender into consideration may be most effective in mitigating the factors that influence risky sexual behaviors.

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Table 1
Unweighted demographic characteristics of sexually active unmarried male and female service members, 2008 HRBS dataset (n=10,250)

<i>Demographics</i>	Men		Women		Total	
	n	%	n	%	n	%
All personnel	6822	66.6	3428	33.4	10250	100.0
<i>Age, years</i>						
17-20	1216	17.8	604	17.6	1820	17.8
21-25	2959	43.4	1409	41.1	4368	42.6
26-34	1819	26.7	935	27.3	2754	26.9
35 or older	828	12.1	480	14.0	1308	12.8
<i>Race/ethnicity</i>						
White	4385	64.3	1695	49.5	6080	59.3
African American	905	13.3	774	22.6	1679	16.4
Hispanic	948	13.9	607	17.7	1555	15.2
Other	584	8.6	352	10.3	936	9.1
<i>Pay grade</i>						
Enlisted	6045	88.6	2896	84.5	8941	87.2
Officer	777	11.4	532	15.5	1309	12.8
<i>Service</i>						
Army	1451	21.3	766	22.4	2217	21.6
Navy	1622	23.8	782	22.8	2404	23.5
Air Force	1389	20.4	855	24.9	2244	21.9
Marine Corps	1356	19.9	651	19.0	2007	19.6
Coast Guard	1004	14.7	374	10.9	1378	13.4
<i>Deployed for combat, past 12 months</i>	1973	29.5	729	21.5	2702	26.8

Table 2
Difference in behaviors of sexually active unmarried service members by gender, 2008
HRBS dataset (n=10,250)

	Men (n=6,822)			Women (n=3,428)			p-value
Characteristics	n	%	95% CI	n	%	95% CI	
Alcohol and Drug Use							
Binge drinking	4101	61.1	(57.1, 65.2) [^]	1290	38.1	(35.1, 41.2)	<.001***
Any illicit substance use, past 12 mo.	588	10.3	(8.5, 12.1)	215	6.6	(4.2, 9.1)	<.001***
Marijuana	466	8.3	(6.4, 10.1)	178	5.5	(3.1, 7.9)	0.007**
Cocaine	210	3.6	(2.6, 4.6)	66	2.0	(1.0, 3.0)	0.014*
Ecstasy	178	3.2	(2.5, 3.9)	66	2.3	(1.3, 3.3)	0.055
Methamphetamine	102	1.7	(1.2, 2.2)	30	0.9	(0.5, 1.2)	<.001***
Heroin	89	1.4	(1.0, 1.8) [^]	20	0.5	(0.1, 0.9)	0.004**
Other illicit substance	297	5.1	(4.3, 5.8) [^]	70	2.3	(1.3, 3.3)	<.001***
Any prescription drug use for non-medical purpose, past 12 mo.	1291	20.4	(18.7, 22.1)	771	23.8	(21.2, 26.3)	0.006**
Stimulants	188	3.3	(2.7, 3.9)	108	3.3	(2.4, 4.1)	0.993
Tranquilizers	416	6.8	(6.0, 7.7)	275	8.4	(6.9, 10.0)	0.032*
Sedatives	219	3.7	(3.0, 4.4)	142	4.4	(3.1, 5.7)	0.346
Painkillers	1199	18.9	(17.2, 20.5)	717	22.2	(19.6, 24.9)	0.009**
Steroids	156	2.6	(2.1, 3.0)	55	2.0	(1.3, 2.8)	0.248
Sexual Risks							
Condom use at last sex	2685	43.0	(40.9, 45.1) [^]	1005	32.1	(28.8, 35.4)	<.001***
Main partner at last sex	4404	62.9	(61.1, 64.6)	2839	82.5	(80.2, 84.8) [^]	<.001***
No. of sex partners, past 12 mo.							<.001***
5+	1654	25.2	(23.5, 26.8) [^]	339	9.3	(7.8, 10.8)	
2-4	2705	39.8	(38.4, 41.2)	1278	38.4	(35.2, 41.6)	
1	2463	35.0	(34.0, 36.1)	1811	52.3	(48.5, 56.0) [^]	
No. of NEW sex partners, past 12 mo.							<.001***
2+	3403	51.3	(50.2, 52.3) [^]	1069	30.7	(27.3, 34.1)	
1	1574	23.4	(22.5, 24.3)	965	31.3	(29.4, 33.3) [^]	
None	1799	25.3	(24.3, 26.4)	1383	37.9	(35.2, 40.7) [^]	
Unwanted sexual contact	196	2.9	(2.3, 3.6)	515	14.2	(12.0, 16.4) [^]	<.001***
STI, past 12 mo.	273	4.2	(3.5, 4.8)	217	6.9	(5.7, 8.1) [^]	<.001***
Mental Health Indicators							
Depression	1567	24.8	(23.2, 26.4)	977	28.4	(26.6, 30.2) [^]	0.002**
Anxiety	871	13.9	(12.2, 15.5)	678	20.3	(17.6, 22.9) [^]	<.001***

<i>Characteristics</i>	Men (n=6,822)			Women (n=3,428)			p-value
	n	%	95% CI	n	%	95% CI	
<i>PTSD</i>	762	12.2	(10.7, 13.7)	467	13.9	(12.4, 15.4)	0.097
<i>Overall stress</i>							<.001***
Low	3370	48.9	(46.1, 51.6) [^]	1421	40.9	(37.7, 44.1)	
Moderate	1821	27.0	(25.6, 28.4)	1079	31.6	(29.5, 33.7) [^]	
High	1571	24.1	(21.7, 26.5)	904	27.5	(25.1, 29.8)	
<i>High military-related stress</i>	1765	27.1	(25.1, 29.1)	1068	31.4	(28.6, 34.2)	<.001***
<i>High family or personal-life stress</i>	1256	19.2	(17.7, 20.6)	815	22.9	(20.9, 25.0) [^]	<.001***
<i>Any gender-Related stress</i>	--	--	--	2887	86.0	(83.9, 88.1)	--
<i>Psychological distress</i>	1053	16.6	(15.1, 18.1)	782	22.2	(19.3, 25.1) [^]	<.001***
<i>Suicide ideation</i>	341	5.7	(4.9, 6.4)	193	5.4	(3.9, 7.0)	0.797
<i>Suicide attempt</i>	85	1.4	(1.0, 1.8)	79	2.2	(1.4, 3.0)	0.048*

[^] 95% confidence intervals of the prevalence estimate do not overlap

* p<0.05;

** p<0.01;

*** p<0.001; P-values derived by Rao-Scott Chi-Square Test Percentages shown are weighted; n's are unweighted

Table 3
Multivariable logistic regression models for characteristics associated with reported STIs
among sexually active unmarried active duty personnel, 2008 HRBS dataset

<i>Characteristic</i>	Men (n=6,099)		Women (n=3,083)	
	AOR	95% CI	AOR	95% CI
<i>Age, years</i>				
17-20	1.00	Reference	1.00	Reference
21-25	1.25	0.67, 2.34	1.46	0.85, 2.53
26-34	1.32	0.87, 2.00	1.00	0.58, 1.74
35 or older	1.78	0.72, 4.41	0.52	0.21, 1.30
<i>Race/ethnicity</i>				
White	1.00	Reference	1.00	Reference
African American	2.04	1.40, 2.99*	1.63	0.92, 2.89
Hispanic	1.29	0.80, 2.09	0.92	0.47, 1.80
Other	0.74	0.37, 1.48	1.06	0.63, 1.76
<i>Illicit substance use</i>				
Yes	3.21	2.20, 4.69*	1.14	0.57, 2.28
No	1.00	Reference	1.00	Reference
<i>Condom use at last sex</i>				
Yes	0.76	0.57, 1.03	0.86	0.45, 1.62
No	1.00	Reference	1.00	Reference
<i>No. of sex partners, past 12 mo.</i>				
5+	5.87	3.70, 9.31*	4.78	2.12, 10.80*
2-4	2.35	1.59, 3.49*	2.35	1.30, 4.25*
1	1.00	Reference	1.00	Reference
<i>Unwanted sexual contact</i>				
Yes	2.52	1.58, 4.02*	0.85	0.52, 1.41
No	1.00	Reference	1.00	Reference
<i>Any mental health indicator[^]</i>				
Yes	1.50	1.05, 2.14*	1.10	0.59, 2.06
No	1.00	Reference	1.00	Reference

* p<0.05; P-values derived by multiple logistic regression

[^] includes anxiety, depression, ptsd, psychological distress, moderate or high stress, or any report of suicidal ideation or attempt

Table 4
Multivariable ordinal logistic regression models for characteristics associated with higher numbers of reported sexual partners in the past 12 months among sexually active unmarried active duty personnel, 2008 HRBS dataset

<i>Characteristics</i>	Men (n=6,046)		Women (n=3,047)	
	<u>AOR</u>	<u>95% CI</u>	<u>AOR</u>	<u>95% CI</u>
<i>Age, years</i>				
17-20	1.00	Reference	1.00	Reference
21-25	0.91	0.80, 1.04	0.52	0.39, 0.70*
26-34	0.81	0.69, 0.95*	0.38	0.27, 0.52*
35 or older	0.61	0.49, 0.75*	0.20	0.13, 0.30*
<i>Race/ethnicity</i>				
White	1.00	Reference	1.00	Reference
African American	1.87	1.53, 2.27*	0.83	0.63, 1.09
Hispanic	1.28	1.15, 1.43*	0.92	0.71, 1.19
Other	0.97	0.82, 1.15	1.12	0.83, 1.50
<i>Service</i>				
Army	1.00	Reference	1.00	Reference
Navy	1.01	0.85, 1.19	1.07	0.78, 1.48
Air Force	0.82	0.69, 0.96*	1.28	1.01, 1.63*
Marine Corps	0.98	0.81, 1.17	1.26	0.93, 1.72
Coast Guard	0.76	0.66, 0.88*	0.68	0.51, 0.91*
<i>Binge drinking</i>				
Yes	1.84	1.64, 2.06*	2.28	1.73, 2.99*
No	1.00	Reference	1.00	Reference
<i>Illicit substance use</i>				
Yes	2.33	2.00, 2.72*	2.41	1.82, 3.18*
No	1.00	Reference	1.00	Reference
<i>Condom use at last sex</i>				
Yes	1.23	1.09, 1.38*	1.01	0.79, 1.30
No	1.00	Reference	1.00	Reference
<i>Unwanted sexual contact</i>				
Yes	2.09	1.45, 3.01*	1.65	1.26, 2.18*
No	1.00	Reference	1.00	Reference
<i>Family/Personal-life stress</i>				
None	1.00	Reference	1.00	Reference
Low	0.94	0.85, 1.05	0.97	0.64, 1.48
High	0.94	0.83, 1.07	1.51	1.06, 2.17*

Reference is one sexual partner in the past 12 months

*p<0.05; P-values derived by ordinal logistic regression

Table 5
Multivariable Logistic Regression Models for the Relationships of Mental Health Indicators and Sexual Risk Behaviors Among Sexually Active Unmarried Active Duty Personnel, 2008 HRBS dataset (n=10,250)

<i>Mental Health Indicator</i>	<i>Binge drinking</i>		<i>Any illicit substance use</i>		<i>No con dom use at last sex</i>		<i>Higher number of sexual partners</i>	
	<i>AOR¹</i>	<i>95% CI</i>	<i>AOR¹</i>	<i>95% CI</i>	<i>AOR¹</i>	<i>95% CI</i>	<i>AOR²</i>	<i>95% CI</i>
Depression	1.47	1.25, 1.73*	2.26	1.74, 2.92*	1.18	1.05, 1.33*	1.30	1.16, 1.45*
Anxiety	1.66	1.41, 1.97*	2.34	1.83, 2.99*	1.29	1.09, 1.54*	1.51	1.30, 1.74*
PTSD	1.80	1.58, 2.05*	2.99	2.49, 3.59*	1.22	1.04, 1.45*	1.88	1.55, 2.28*
High (vs. low) overall stress	1.65	1.39, 1.96*	2.16	1.73, 2.70*	1.25	1.10, 1.42*	1.61	1.44, 1.81*
High (vs. none) military-related stress	1.55	1.30, 1.84*	1.63	1.21, 2.18*	1.34	1.17, 1.52*	1.15	1.01, 1.30*
High (vs. none) family/personal-life stress	1.36	1.15, 1.61*	1.95	1.45, 2.62*	1.84	1.59, 2.13*	--	--
Male	--	--	--	--	--	--	1.08	0.98, 1.19
Female	--	--	--	--	--	--	1.70	1.29, 2.25*
Female vs. male	--	--	--	--	--	--	1.58	1.18, 2.12*
Psychological Distress	1.46	1.25, 1.70*	2.42	1.96, 2.99*	1.36	1.22, 1.52*	--	--
Male	--	--	--	--	--	--	1.38	1.21, 1.59*
Female	--	--	--	--	--	--	1.96	1.65, 2.32*
Female vs. male	--	--	--	--	--	--	1.41	1.14, 1.76*
High (vs. none) gender-related stress (females only)	1.51	1.05, 2.16*	3.12	1.51, 6.43*	1.28	0.87, 1.87	1.57	1.20, 2.06*
Suicide ideation	1.62	1.26, 2.10*	3.19	2.52, 4.02*	1.50	1.19, 1.88*	1.59	1.27, 1.99*

¹ Multivariable logistic regression models control for age, race/ethnicity, and gender

² Multivariable ordinal logistic regression models control for age, race/ethnicity, and gender

* p<0.05