

# The Relationship Between US Military Officer Leadership Behaviors and Risk of Sexual Assault of Reserve, National Guard, and Active Component Servicewomen in Nondeployed Locations

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**Objectives.** To determine if military leader behaviors are associated with active component and Reserve–National Guard servicewomen's risk of sexual assault in the military (SAIM) for nondeployed locations.

**Methods.** A community sample of 1337 Operation Enduring Freedom and Operation Iraqi Freedom–era Army and Air Force servicewomen completed telephone interviews (March 2010–December 2011) querying sociodemographic and military characteristics, sexual assault histories, and leader behaviors. We created 2 factor scores (commissioned and noncommissioned) to summarize behaviors by officer rank.

**Results.** A total of 177 servicewomen (13%) experienced SAIM in nondeployed locations. Negative leader behaviors were associated with increased assault risk, at least doubling servicewomen's odds of SAIM (e.g., noncommissioned officers allowed others in unit to make sexually demeaning comments; odds ratio = 2.7; 95% confidence interval = 1.8, 4.1). Leader behavior frequencies were similar, regardless of service type. Negative leadership behavior risk factors remained significantly associated with SAIM risk even after adjustment for competing risk. Noncommissioned and commissioned officer factor scores were highly correlated ( $r = 0.849$ ).

**Conclusions.** The association between leader behaviors and SAIM indicates that US military leaders have a critical role in influencing servicewomen's risk of and safety from SAIM. (*Am J Public Health.* 2017;107:147–155. doi:10.2105/AJPH.2016.303520)

**S**exual violence remains a persistent public health concern for US military personnel. Over the past 2 decades, the media have covered sexual misconduct occurring repeatedly across all military branches. The focus has been on women, who are at higher risk for victimization than their male peers. A recent RAND study estimated that 5% ( $n = 9600$ ) of servicewomen acknowledged being sexually assaulted in the past year, almost 5 times the rate for servicemen.<sup>1</sup> Nearly all assaults of both men and women occurred within a military setting or were perpetrated by military personnel, and are therefore considered duty related.<sup>1</sup> Between 10% and 33% of servicewomen will experience

attempted or completed sexual assault during their military careers.<sup>2</sup>

US military leaders' role in sexual violence has been highlighted by recurrent officer misconduct, including the Navy and Marine Tailhook (1991), Army Aberdeen Proving

Ground (1996), and Air Force (2003) and Lackland Air Force Base (2013) incidents; the Fort Hood prostitution ring involving a sexual assault prevention officer (2015); and the courts-martial of Brigadier General Jeffrey Sinclair (2015) and Sargent Lucas Walker (2016) for sex crimes, among others. Corresponding military investigations identified leadership as both a risk of and a solution to duty-related sexual violence.<sup>3</sup>

The US military employs over 2.5 million active and Reserve–National Guard service members, vastly exceeding the numbers employed by other US public institutions, such as the Postal System (750 000 employees), law enforcement (800 000 officers), and universities and colleges (590 937 faculty members).<sup>4</sup> Consequently, “The size of the military means that leaders (even rather junior ones) often command large numbers of subordinates, and thus leadership at all levels can have a large impact in terms of personnel.”<sup>4(p659)</sup> The Department of Defense (DoD) leadership structure is uniquely empowered to promote order and discipline<sup>5</sup> and to reinforce the military ethos of honor and respect, which is incongruous with sexual violence.

Although more is known about the characteristics associated with victims' risk,<sup>2</sup> scant research has examined leaders' behaviors

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and their relationships to the prevention or perpetuation of sexual violence within the ranks. One study of Department of Veterans Affairs (VA)-enrolled women determined that leaders' behaviors (e.g., officers making or allowing others to make sexually demeaning comments or gestures) were more strongly associated with women's risk of sexual assault in the military (SAIM) than established individual risk factors, such as prior victimization.<sup>6</sup>

Leaders' behaviors shape organizational climate, defined as shared perceptions about practices, procedures, and behaviors that get supported and rewarded.<sup>7,8</sup> In civilian organizations with harassment-tolerant climates, employees perceive weak contingencies between harassment complaints and consequent perpetrator sanctions but strong backlash for the reporter.<sup>7,8</sup> Harassment-tolerant norms within troops and from active duty servicewomen's immediate supervisors are associated with women experiencing more severe sexual harassment.<sup>9</sup> Similarly, servicewomen are less likely to officially report their SAIM if they believe reporting will result in leaders treating them differently (e.g., blaming them for their assault). Their concerns have been validated by research showing that these consequences are realized by military women who do report.<sup>1,6,10</sup> Consequently, perpetrators or would-be perpetrators are not deterred when military leadership maintains a system that neither detects nor holds them accountable.

Understanding factors that influence violence are critical to informing DoD prevention strategies. Further research is needed to expand our limited understanding of the roles military leaders play in either reducing or elevating servicewomen's risk of duty-related sexual violence. We considered 2 levels of leadership rank: non-commissioned officers (NCOs) and commissioned officers (COs). As a context for distinctions in rank, NCOs interface closely with lower-ranking enlisted service members and are expected to maintain service members' well-being and oversight, whereas COs execute higher-level orders and provide role-clarifying direction.<sup>4</sup> For this report, we restricted the military environment to nondeployed (training or garrison) contexts in which service members have a greater duration of service and, by

extension, greater duration of exposure to SAIM risk. Further, requisite leaders' skills are comparatively different in deployment or war contexts compared with the garrison-related context of training and conformity.

Our objectives were to (1) determine if the leadership behaviors of NCOs and COs were associated with servicewomen's risk of SAIM in nondeployed locations; (2) examine the correlation of NCO and CO leadership behaviors; and (3) identify which NCO and CO leadership behaviors were most strongly associated with risk of nondeployed SAIM when considered in the context of competing risk factors. We focused on sexual assault as the most severe expression of sexual violence on

a continuum of harm ranging from a healthy environment to sexism, objectification, sexual harassment, inappropriate touching, and sexual assault.<sup>5</sup>

## METHODS

Eligibility criteria included Operation Enduring Freedom and Operation Iraqi Freedom (OEF-OIF) service (October 2001 to time of interview), female gender, and honorable discharge if a veteran. Exclusion criteria were disabilities that interfered with independent telephone interviews (e.g., hearing, comprehension). Consenting participants completed a computer-assisted

**TABLE 1—Sample Characteristics of Operation Enduring Freedom and Operation Iraqi Freedom Active Component (AC) and Reserve-National Guard (RNG) Servicewomen: March 2010–December 2011**

Variable	Total Sample (n = 1330)	AC (n = 672)	RNG <sup>a</sup> (n = 658)	P
<b>Sociodemographic characteristics</b>				
Age, y, <sup>b</sup> mean (SD)	34.7 (10.0)	31.9 (8.1)	37.5 (10.9)	< .001
Education, no. (%)				< .001
≤ high school	490 (37.1)	299 (44.0)	191 (30.1)	
Some college	230 (17.4)	119 (15.9)	111 (13.6)	
≥ college graduate	601 (45.5)	248 (40.1)	353 (56.4)	
Employment, no. (%)				< .001
Full-time or part-time	1128 (84.8)	606 (89.3)	522 (80.0)	
Unemployed	202 (15.2)	66 (10.7)	136 (20.0)	
Current marital status, no. (%)				.003
Single	337 (25.3)	159 (23.6)	178 (31.1)	
Married or living with partner	747 (56.2)	394 (59.4)	353 (51.0)	
Divorced or widowed	246 (18.5)	119 (17.0)	127 (17.9)	
Race, no. (%)				< .001
White	974 (73.2)	451 (68.5)	523 (79.2)	
Black	248 (18.7)	143 (20.8)	105 (17.3)	
Other	108 (8.1)	78 (10.7)	30 (3.6)	
<b>Military characteristics</b>				
Rank, no. (%) <sup>c</sup>				.032
Junior enlisted	255 (19.2)	154 (27.0)	101 (20.9)	
Noncommissioned officer	690 (51.9)	329 (42.3)	361 (45.7)	
Commissioned officer	385 (29.0)	189 (30.7)	196 (33.5)	
Service branch, no. (%)				< .001
Army	778 (58.6)	343 (49.5)	435 (68.7)	
Air Force	531 (41.4)	331 (50.5)	200 (31.3)	

*Continued*

TABLE 1—Continued

Variable	Total Sample (n = 1330)	AC (n = 672)	RNG <sup>a</sup> (n = 658)	P
Current service: actively serving, no. (%)	1049 (78.9)	579 (84.8)	470 (73.9)	<.001
Total active federal military service, mo, median (95% CI) <sup>d</sup>	54.4 (49.6, 59.2)	93.1 (82.2, 104.0)	27.7 (21.8, 33.6)	<.001
Ever deployed, no. (%)	983 (73.90)	469 (61.4)	514 (54.4)	.010
<b>Sexual assault history</b>				
Premilitary sexual assault, no. (%)	388 (29.2)	198 (29.1)	190 (29.8)	.79
SAIM, <sup>e</sup> no. (%)				
Nondeployed SAIM <sup>f</sup>	175 (13.2)	111 (16.1)	64 (8.9)	<.001
Deployed SAIM <sup>g</sup>	48 (3.6)	19 (1.9)	29 (2.5)	.47
Prior AC service SAIM <sup>h</sup>	43 (18.0)	NA	43 (13.6)	NA

Note. AC = active component; CI = confidence interval; NA = not applicable; RNG = Reserve-National Guard; SAIM = sexual assault in the military. All reported percentages are weighted; reported counts are unweighted. Means, medians, SDs, and CIs are weighted. Eligible participants were veteran servicewomen who served during Operation Enduring Freedom and Operation Iraqi Freedom any point from October 2001 to the time of the interview. Data were collected March 2010–December 2011.

<sup>a</sup>Among RNG servicewomen, 242 (40%) had prior service in the AC.

<sup>b</sup>Median ages (ranges) are as follows: total sample, 33.0 y (18–65 y); AC, 30.0 y (18–57 y); RNG, 38.0 y (19–65 y).

<sup>c</sup>Ranks were categorized by pay grades: junior enlisted (E1–E4); noncommissioned officers (E5–E9); commissioned officers (O1–O6).

<sup>d</sup>The Defense Manpower Data Center provided the number of mo of active federal military service, which includes active duty, temporary tours of active duty, active duty for training, annual training, active duty for special work, and active duty for support, inclusive of deployments.

<sup>e</sup>Subcategories are not mutually exclusive. Of women experiencing SAIM, 86% reported that the assault was perpetrated by military personnel (on base or in military housing) or by someone working in close proximity, only 2% indicated that the perpetrator was a spouse or partner, and 3% never saw their perpetrator.

<sup>f</sup>Servicewomen were asked about leadership behaviors specific to nondeployed locations and current service (i.e., AC or RNG). This includes all servicewomen who experienced SAIM in a nondeployed location (i.e., not while deployed) for their most recent service (AC or RNG).

<sup>g</sup>SAIMs that occurred during deployment. This includes all servicewomen who experienced SAIM in a deployed location for their most recent service (AC or RNG).

<sup>h</sup>RNG servicewomen who experienced SAIM during prior AC service.

telephone interview (CATI). Additional information regarding sampling and the CATI are available elsewhere.<sup>10</sup> Participants were reimbursed \$50.00 plus an additional \$10.00 call-in incentive for participation. A waiver of written consent was granted by military and local institutional review boards.

The sampling design stratified enlisted servicewomen by deployment history as follows: (1) never deployed, (2) deployed to Iraq or Afghanistan once, (3) deployed to Iraq or Afghanistan more than once, and (4) deployed somewhere other than Iraq or Afghanistan. Officers were oversampled. The Defense Manpower Data Center provided potential participants' contact information and military characteristics (e.g., branch, deployment history, service lengths).

Two parallel studies were funded (VA and DoD) and conducted by the authors from

March 2010 to December 2011. The studies sampled OEF–OIF-era US Army and Air Force female service members and veterans who had enrolled from 1 of 5 Midwestern states or who resided there at the time of study initiation.

### Theoretical Model and Measures

We used the social-ecological model as a heuristic framework for understanding the complex interplay between individual (e.g., prior victimization), relationship (e.g., rank), community (e.g., nondeployed), and societal factors (e.g., command climate).

We assessed sexual assault using questions adapted from the National Women's Study and the National Violence Against Women Survey (commonly used in sexual violence research); we were guided by the American College of Obstetricians and Gynecologists definition.<sup>11,12</sup> Study interviewers asked

respondents separate questions about attempted and completed sexual assault: "During your lifetime, has anyone, male or female, using force or threat of harm, ever attempted to sexually assault you? By attempted sexual assault, I mean that an attempt was made but penetration did not occur." And, "During your lifetime, has a man or boy, using force or threat of harm, ever made you have sex by putting his penis in your vagina; or has a male or female put their tongue, fingers or objects in your vagina or anus? By completed sexual assault I mean that penetration did occur during the assault." If a respondent self-reported attempted or completed sexual assault, interviewers asked questions about occurrences by life period, including (a) childhood, before age 18 years; (b) between age 18 years and military entrance; (c) during military service (SAIM); and (d) postmilitary service. All results for sexual assault and SAIM combine self-reports of attempted and completed assault. The outcome variable dichotomized servicewomen who had experienced SAIM in nondeployed locations (nondeployed SAIM) to align with queries about leadership in nondeployed locations.

For SAIM experiences in other contexts, we created 2 covariates: (1) servicewomen experiencing SAIM that occurred during deployment (deployed SAIM) and (2) Reserve–National Guard servicewomen who experienced SAIM while serving in the active component. Additional covariates (individual factors) included sociodemographics (age, race, education, employment, marital status) and military variables (currently serving, branch, service, deployment history). We categorized rank (relationship factor) by pay grade: COs (O1–O6), NCOs (E5–E9), and junior enlisted personnel (E1–E4).<sup>13</sup>

Ten behaviors, each regarding NCO and CO leadership in nondeployed locations, were queried (e.g., "During the time you were in the Reserve or National Guard and not deployed . . ."; Appendix A, available as a supplement to the online version of this article at <http://www.ajph.org>). Response options included a 5-point Likert scale (never to always) and "don't know." Higher scores represent undesirable leadership behaviors and lower scores reflect constructive leadership behaviors.

**TABLE 2—Leadership Behavior Frequencies Reported by Active Component (AC) and Reserve–National Guard (RNG) Servicewomen During Their Military Service: March 2010–December 2011**

Behavior	No. of Respondents	Never, %	Seldom or Sometimes, %	Often or Always, %	<i>P</i>
<b>NCOs</b>					
Were not as concerned with ethical behavior as with task or mission accomplishment <sup>a</sup>					.30
AC	671	60.2	34.4	5.5	
RNG	646	60.3	36.0	3.7	
Embarrassed service members in front of other service members					<.001
AC	668	25.1	58.2	16.7	
RNG	651	36.9	54.8	8.3	
Showed favoritism to certain members of the unit					.26
AC	670	15.3	61.2	23.5	
RNG	649	18.6	59.7	21.7	
Did not take reports of sexual assault seriously <sup>a</sup>					.09
AC	609	78.1	15.2	6.7	
RNG	510	80.3	16.0	3.8	
Did not demonstrate zero tolerance for sexual harassment within the unit <sup>a</sup>					.26
AC	657	73.5	20.6	6.0	
RNG	616	76.8	19.0	4.2	
Did not exhibit support for service members seeking mental health care, such as PTSD <sup>a</sup>					.19
AC	640	71.0	24.4	4.6	
RNG	537	73.8	20.3	5.9	
Did not curtail sexual activities taking place in living quarters that they were aware of <sup>a</sup>					.001
AC	555	59.3	27.3	13.4	
RNG	504	69.9	19.0	11.1	
Serving in your chain of command indicated that you could exchange sex for privileges or promotion					.69
AC	669	96.2	3.3	0.5	
RNG	649	96.3	2.9	0.8	
Serving in your chain of command made sexually demeaning comments to you					.60
AC	668	81.4	16.6	2.0	
RNG	651	82.3	15.1	2.6	
Serving in your chain of command allowed others in your unit to make sexually demeaning comments or behaviors in your presence					.30
AC	667	75.5	18.9	5.6	
RNG	652	74.4	21.4	4.2	

*Continued*

We reverse-scored leadership behavior questions that were phrased positively. Leadership questions were guided by our previous research, this study’s focus groups (n = 65 servicewomen), and existing surveys.<sup>6,14–16</sup>

### Statistical Analysis

Design weights were adjusted for stratification, oversampling, and nonresponse. We calculated poststratification weights by multiplying the design weights by the inverse of the sample weights and then normalizing them so that the totals in the weighted data equaled the totals in the unweighted data. Results present unweighted frequencies and weighted percentages.

We tested differences between active component and Reserve–National Guard servicewomen’s responses concerning leadership behaviors using the  $\chi^2$  test and the Fisher exact test. In subsequent analyses, we employed multiple imputation, assuming a multivariate normal distribution and that data are missing at random. We generated 10 imputed data sets via SAS procedure (SAS version 9.4; SAS Institute, Cary, NC) using sociodemographic, military, and leadership responses. We pooled results from the imputed data sets to provide parameter estimates and standard errors.<sup>17</sup> On the basis of this scaling and the 5-level categorization of leadership responses, we performed bivariate logistic regression controlling for service type to determine odds ratios for individual leadership behaviors and covariates for SAIM.

We implemented confirmatory factor analysis of officer behaviors using a polychoric correlation structure<sup>18,19</sup> to account for the categorical nature of leadership responses. Appendix B (available online as a supplement to this article at <http://www.ajph.org>) illustrates the theoretical model for the officer behavior factor scores. For each imputed data set, we used factor loadings to calculate a factor score, constructed as the sum of the score coefficient multiplied by the corresponding response to the leadership question for each participant. We calculated odds of SAIM in nondeployed settings via logistic regression using the leadership factor scores and controlling for service type for each imputed data set and then combined the

TABLE 2—Continued

Behavior	No. of Respondents	Never, %	Seldom or Sometimes, %	Often or Always, %	P
<b>COs</b>					
Were not as concerned with ethical behavior as with task or mission accomplishment					.38
AC	666	72.8	21.5	5.7	
RNG	649	75.3	20.4	4.2	
Embarrassed service members in front of other service members					.29
AC	668	50.7	45.0	4.3	
RNG	653	53.8	43.3	3.0	
Showed favoritism to certain members of the unit					.10
AC	663	31.2	55.4	13.4	
RNG	653	29.3	53.0	17.7	
Did not take reports of sexual assault seriously <sup>a</sup>					.57
AC	626	89.9	8.4	1.7	
RNG	566	88.0	9.9	2.2	
Did not demonstrate zero tolerance for sexual harassment within the unit <sup>a</sup>					.51
AC	659	86.7	11.5	1.8	
RNG	626	84.6	13.1	2.3	
Did not exhibit support for service members seeking mental health care, such as PTSD <sup>a</sup>					.03
AC	643	84.5	13.3	2.2	
RNG	557	81.0	14.3	4.8	
Did not curtail sexual activities taking place in living quarters that they were aware of <sup>a</sup>					.56
AC	556	72.3	17.3	10.4	
RNG	518	75.0	16.1	8.8	
Serving in your chain of command indicated that you could exchange sex for privileges or promotion					.47
AC	670	98.7	1.3	...	
RNG	657	98.2	1.8	...	
Serving in your chain of command made sexually demeaning comments to you					.08
AC	670	93.2	6.5	0.2	
RNG	657	90.0	8.8	1.2	

Continued

## RESULTS

A total of 1339 surveys were completed; the response rate was 57%. We excluded the data of 2 participants who refused to say if they had experienced sexual assault. We also excluded 7 warrant officers, given their unique roles. Appendix C (available online as a supplement to this article at <http://www.ajph.org>) illustrates the response rate flow chart. Comparisons between participants and non-participants have been published previously.<sup>10</sup> The average interview took 1.5 hours; most (73%) completed it in 1 call.

The median age of participants was 35 years. Nearly half had a college degree (Table 1). Most participants were White, employed, and serving in the military at time of study participation, and approximately half were currently married or living with their partner. Fewer than one third (29%) were COs, 52% were NCOs, and 19% were junior enlisted. By study design, half of participants served in the active component and half in the Reserve or National Guard. Characteristics of this sample were consistent with the overall population of deployed OEF–OIF servicewomen.<sup>20,21</sup>

Active component and Reserve–National Guard servicewomen differed on several characteristics (Table 1). Active component servicewomen were more likely than their Reserve–National Guard peers to be younger, less educated, currently married or living with a partner, non-White, junior enlisted, and actively serving.

SAIM was experienced by 16% (n = 245) of participants. Among these, 72% had experienced SAIM in a nondeployed location, 20% in a deployed location, and 18% were Reserve–National Guard who experienced SAIM during prior active component service (percentages are not mutually exclusive). Among the entire sample (n = 1330), 29% experienced sexual assault prior to being in the military (Table 1).

The reported frequencies of leaders' behaviors were similar between service types, with a few exceptions (Table 2). Participants reported that active component NCOs were more likely than Reserve–National Guard NCOs to embarrass service members in front of other service members and to curtail sexual activities taking place in living quarters. Other statistically significant

results from the imputed data sets to yield a single estimate and confidence interval.

We developed separate multivariate logistic models for NCO and CO leadership behaviors, inclusive of sociodemographic, military, and sexual assault history covariates.

The final models retained covariates associated with the outcomes at an  $\alpha$  coefficient of less than .05. We also assessed model fit, calibration, scaling, and confounding.

We performed all statistical analyses using SAS 9.4 survey procedures.

TABLE 2—Continued

Behavior	No. of Respondents	Never, %	Seldom or Sometimes, %	Often or Always, %	P
Serving in your chain of command allowed others in your unit to make sexually demeaning comments or behaviors in your presence					.002
AC	668	88.8	11.1	0.1	
RNG	653	83.4	15.2	1.4	

Note. COs = commissioned officers; NCOs = noncommissioned officers; PTSD = posttraumatic stress disorder. Analyses were run for 5 categories (never, seldom, sometimes, often, and always) but are presented as 3 categories for readability. Findings were consistent for analyses done with 3 or 5 categories. Additionally, percentages are weighted by the sampling scheme. Eligible participants were veteran servicewomen who served during Operation Enduring Freedom and Operation Iraqi Freedom any point from October 2001 to the time of the interview. Data were collected March 2010–December 2011.

<sup>a</sup>This survey question was phrased in terms of positive behavior. The phrasing of this table reflects the implemented reverse phrasing.

differences were found between active component and Reserve–National Guard CO behaviors, but they differed only by a few percentage points and therefore were

not meaningfully different. Tables 2 and 3 present collapsed results into 3 categories for readability. Results for 3 categories were consistent with those for 5 categories.

TABLE 3—Servicewomen’s Risk of Sexual Assault in the Military (SAIM) in Nondeployed Locations, by Leadership Behaviors and Adjusted for Service Type: March 2010–December 2011

Behavior	Never, %	Seldom or Sometimes		Often or Always	
		%	OR <sup>a</sup> (95% CI)	%	OR <sup>a</sup> (95% CI)
Individual NCO behaviors <sup>b</sup>					
Were not as concerned with ethical behavior as with task or mission accomplishment <sup>c</sup>	9.4	16.2	1.9 (1.3, 2.8)	23.1	2.8 (1.4, 5.6)
Embarrassed service members in front of other service members	8.0	13.3	1.7 (1.0, 2.7)	20.4	2.6 (1.4, 4.8)
Showed favoritism to certain members of the unit	7.6	11.2	1.5 (0.7, 3.0)	19.9	3.0 (1.4, 6.2)
Did not take reports of sexual assault seriously	10.1	20.9	2.2 (1.4, 3.6)	25.2	2.7 (1.4, 5.1)
Did not demonstrate zero tolerance for sexual harassment within the unit <sup>c</sup>	9.6	20.5	2.4 (1.5, 3.7)	25.0	3.0 (1.6, 5.6)
Did not exhibit support for service members seeking mental health care, such as PTSD <sup>c</sup>	9.7	18.4	2.0 (1.3, 3.0)	31.4	3.9 (1.9, 8.1)
Did not curtail sexual activities taking place in living quarters that they were aware of <sup>c</sup>	9.4	21.8	2.5 (1.6, 4.0)	15.4	1.8 (1.0, 3.1)
Serving your chain of command indicated that you could exchange sex for privileges or promotion	11.6	29.1	3.1 (1.1, 8.5)	59.1	12.6 (1.3, 117.8)
Serving in your chain of command made sexually demeaning comments to you	9.6	22.6	2.8 (1.8, 4.1)	42.0	7.1 (2.2, 22.8)
Serving in your chain of command allowed others in your unit to make sexually demeaning comments or behaviors in your presence	9.5	19.5	2.4 (1.6, 3.6)	29.2	3.8 (1.6, 9.0)

Continued

Across all 20 leadership behaviors queried, a mean of 10.8 behaviors were reported by servicewomen as ever occurring (95% confidence interval [CI] = 10.6, 11.0; median = 10.5; range = 1–20), with similar means for NCOs (mean = 5.8; 95% CI = 5.6, 5.9) and COs (mean = 5.1; 95% CI = 5.0, 5.2). Confirmatory factor analysis (Appendix B) demonstrated that NCO and CO behavior factor scores were highly correlated ( $r = 0.810$ ).

Nearly all officer leadership behaviors were significantly associated with risk of SAIM (Table 3). Logistic regression models, adjusted for service type, produced odds ratios demonstrating that the odds of SAIM were almost doubled when either NCOs or COs exhibited negative leadership behaviors. Although most servicewomen indicated that many of the negative officer leadership behaviors “never” occurred, behaviors that occurred even “seldom” or “sometimes” resulted in odds ratios of 2.0 or greater. Negative leadership behaviors that servicewomen reported as occurring “often” or “always” produced odds ratios that were 3.0 or higher, depending on the behavior.

Although servicewomen indicated that NCOs demonstrated higher frequencies for all negative behaviors relative to COs (Table 3), the behaviors most often reported for both ranks were consistent and included “showing favoritism to certain unit members,” “embarrassing soldiers in front of other soldiers,” and “not as concerned with ethical behavior as with the task/mission accomplishment.” The NCO and CO leadership behavior reported as occurring least frequently, but which most elevated the odds of SAIM, was “exchanging sex for privileges or promotions.”

CO behaviors reported by servicewomen that had the highest odds of SAIM included “not taking reports of SAIM seriously,” “not demonstrating zero tolerance for sexual harassment within the unit,” and “not exhibiting support for service members seeking mental health care” (Table 3). These 3 behaviors, along with “making sexually demeaning comments to you,” were reported to occur even more often among NCOs and were associated with some of the highest odds of SAIM.

Lastly, we created separate models for NCO and CO leadership behavior factor scores to determine the independent association of leadership behaviors with risk of SAIM, adjusting for sociodemographic

TABLE 3—Continued

Behavior	Never, %	Seldom or Sometimes		Often or Always	
		%	OR <sup>a</sup> (95% CI)	%	OR <sup>a</sup> (95% CI)
<b>Individual CO behaviors<sup>b</sup></b>					
Not as concerned with ethical behavior as with task or mission accomplishment <sup>c</sup>	10.6	17.2	1.7 (1.1, 2.6)	18.0	1.8 (0.7, 4.6)
Embarrassed service members in front of other service members	9.2	16.0	1.8 (1.2, 2.7)	17.2	1.9 (0.8, 4.1)
Showed favoritism to certain members of the unit	8.7	12.0	1.4 (0.9, 2.2)	21.2	3.0 (1.6, 5.3)
Did not take reports of sexual assault seriously	11.3	23.9	2.4 (1.3, 4.2)	37.1	4.8 (1.6, 14.6)
Did not demonstrate zero tolerance for sexual harassment within the unit <sup>c</sup>	10.6	20.9	2.3 (1.4, 3.9)	36.4	5.1 (2.1, 12.5)
Did not exhibit support for service members seeking mental health care, such as PTSD <sup>c</sup>	10.9	18.1	1.8 (1.0, 3.0)	37.1	4.7 (2.0, 11.2)
Did not curtail sexual activities taking place in living quarters that they were aware of <sup>c</sup>	10.3	22.1	2.2 (1.3, 3.7)	17.6	1.7 (0.9, 3.1)
Serving in your chain of command indicated that you could exchange sex for privileges or promotion	11.8	49.5	8.0 (2.3, 28.6)	...	...
Serving in your chain of command made sexually demeaning comments to you	11.0	29.4	3.6 (2.0, 6.7)	12.4	1.6 (0.2, 13.9)
Serving in your chain of command allowed others in your unit to make sexually demeaning comments or behaviors in your presence	10.4	26.4	3.4 (2.1, 5.4)	4.3	0.6 (0.1, 4.1)

Note. CI = confidence interval; CO = commissioned officer; NCO = noncommissioned officer; OR = odds ratio; PTSD = posttraumatic stress disorder. All reported percentages are weighted by the sampling scheme. The sample size was n = 1330. Eligible participants were veteran servicewomen who served during Operation Enduring Freedom and Operation Iraqi Freedom any point from October 2001 to the time of the interview. Data were collected March 2010–December 2011.

<sup>a</sup>Never was the reference value.

<sup>b</sup>The mean number of NCO behaviors reported (had to answer seldom, sometimes, often, and always) was 5.8 (95% confidence interval [CI] = 5.6, 5.9; median = 5.4; range = 0–10). The mean number of CO behaviors reported (had to answer seldom, sometimes, often, and always) was 5.1 (95% CI = 5.0, 5.2; median = 4.5; range = 0–10). The mean number of NCO and CO behaviors reported (had to answer seldom, sometimes, often, and always) was 10.8 (95% CI = 10.6, 11.0; median = 10.5; range = 1–20).

<sup>c</sup>This survey question was phrased in terms of positive behavior. The phrasing in this table reflects the implemented reverse phrasing.

and military characteristics and for sexual assault history (Table 4). The NCO and CO parsimonious models demonstrate that negative leader behaviors were significantly associated with servicewomen’s SAIM risk while not deployed, even when considered within the context of other significant risks factors (NCO OR = 1.9; 95% CI = 1.4, 2.4; CO OR = 1.8; 95% CI = 1.4, 2.4). Other significant risk factors for SAIM in the multivariate models included active component service, NCO rank (relative to lower enlisted rank), premilitary sexual assault, and SAIM while deployed. Being married or living with a partner was associated with lower odds of experiencing SAIM.

## DISCUSSION

Our findings indicate that negative behaviors by military leaders, as recounted by servicewomen, are strongly associated with OEF–OIF servicewomen’s risk of, or protection from, SAIM in nondeployed settings. Both NCO and CO behaviors remained significantly associated with SAIM even when other significant and well-established risk factors were considered, such as servicewoman’s age, lower rank, and prior victimization. SAIM during deployment was also identified as a significant risk factor for SAIM while not deployed, likely reflecting risk of sexual

assault in both environments and repeated victimization.

Although individual leader behaviors doubled (or more) servicewomen’s SAIM odds, we recognize that these behaviors are not isolated, as servicewomen report experiencing on average half of the negative behaviors, and that they co-occur with a cumulative effect.<sup>22,23</sup> Behaviors that servicewomen reported as occurring more frequently in our study (e.g., leaders not behaving ethically, putting their own needs ahead of the units, not creating a positive environment) are consistent with behaviors the Center for Army Leadership considers “toxic leadership.”<sup>22</sup> Army researchers found that 50% of toxic leaders achieve higher promotions and are emulated by 18% of their subordinates.<sup>22</sup> Leaders serve as role models guiding their subordinate leaders.<sup>24</sup> Military researchers speculate that service members in environments that they perceive as permissive for criminal behaviors, such as sexual assault, may be more likely to engage in such conduct.<sup>25</sup>

We found expected differences in active component and Reserve–National Guard servicewomen’s sociodemographic and military characteristics.<sup>21</sup> However, both reported experiencing similar frequencies of leaders’ behaviors. Although study NCO and CO behaviors were highly correlated, NCO negative behaviors occurred more frequently, including perpetration of sexual harassment and quid pro quo conduct. NCOs interface daily with service members; thus, they have the power and opportunity for perpetration or protection. Research investigating sexual offenders’ explanation for their perpetration found that a need for respect or control are dynamic risk factors for sexual offending.<sup>26</sup> Negative NCO behaviors may reflect a variant of this need.

Conversely, relative to the same NCO behaviors, negative CO behaviors were found to be associated with even higher odds of SAIM. This suggests that norms promulgated from COs can diffuse to all levels of the military, even when there is limited interface between COs and enlisted ranks. The high correlation between NCO and CO behaviors found in our data illustrates this and affirms the top-down influence of CO leadership on NCOs. Our results are consistent with recent research finding that two thirds of military perpetrators who sexually harass or offend are of a higher rank

**TABLE 4—Multivariate Logistic Regressions Associated With Servicewomen Experiencing Sexual Assault in the Military (SAIM) While Not Deployed: March 2010–December 2011**

Variable	NCO Leadership Behaviors Factor Score Model, OR (95% CI)	CO Leadership Behaviors Factor Score Model, OR (95% CI)
Behavior factor scores	2.0 (1.6, 2.6)	2.0 (1.5, 2.5)
<b>Sociodemographic characteristics</b>		
Current marital status		
Single (Ref)	1	1
Married or living with partner	0.6 (0.4, 0.9)	0.6 (0.4, 1.0)
Divorced or widowed	1.4 (0.8, 2.5)	1.5 (0.9, 2.6)
<b>Military characteristics</b>		
Service component		
RNG (Ref)	1	1
AC	2.3 (1.6, 3.4)	2.5 (1.7, 3.7)
Rank		
Junior enlisted (Ref)	1	1
NCO	2.3 (1.4, 3.8)	2.1 (1.3, 3.5)
CO	1.3 (0.8, 2.3)	1.2 (0.7, 2.1)
<b>Sexual assault history</b>		
Premilitary sexual assault	2.1 (1.4, 3.1)	2.1 (1.4, 3.2)
Deployed SAIM <sup>a</sup>	2.8 (1.2, 6.4)	3.5 (1.6, 7.7)
<b>Leadership factor scores</b>		
Factor 1: negative NCO behaviors	1.9 (1.4, 2.4)	...
Factor 2: negative CO behaviors	...	1.8 (1.4, 2.4)

*Note.* AC = active component; CI = confidence interval; CO = commissioned officer; NCO = noncommissioned officer; OR = odds ratio; RNG = Reserve–National Guard. The sample size was n = 1330. Eligible participants were veteran servicewomen who served during Operation Enduring Freedom and Operation Iraqi Freedom any point from October 2001 to the time of the interview. Data were collected March 2010–December 2011.

<sup>a</sup>Servicewomen were asked about leadership behaviors specific to nondeployed locations and current service (i.e., AC or RNG). This includes all servicewomen who experienced SAIM in a nondeployed location (i.e., not while deployed) for their most recent service (AC or RNG).

than their target, with more than half being the servicewoman’s supervisor or unit leader.<sup>1</sup> Currently, relatively little training is devoted to NCO leaders regarding how their behaviors influence the well-being of their subordinates,<sup>27</sup> and gender relations topics are not integrated in leader development programs.<sup>24</sup>

Military leaders are responsible for modeling an environment in which sexual misconduct is not tolerated.<sup>5</sup> Although participants reported that most of their leaders fulfilled this responsibility, some leaders disregarded DoD zero tolerance policies and did not take SAIM reports seriously. This key finding may speak to the presence of “hidden curricula.”<sup>28,29</sup> Although a “formal curriculum” covers the policies and regulations of a profession or organization, leaders or teachers also indirectly communicate

through their actions what a profession actually does.<sup>28</sup> Values endorsed by an organization may differ from those enacted in practice.<sup>30</sup> In some settings (e.g., police academies), hidden curricula include endorsing masculinity that devalues women into a group considered “outside of a culture.”<sup>31</sup> Leaders need to know the social climate in their units, including how servicewomen are treated.<sup>24</sup> Understanding norms that guide service members’ beliefs about how they behave toward servicewomen, including how such norms are communicated among unit members and the overall military, is critical when considering servicewomen’s safety.<sup>32</sup> Military leaders should not be evaluated solely on the occurrence of sexual violence but on how they manage it and consequently address prevention efforts.<sup>25</sup>

## Limitations

Limitations of this study include possible participant response bias. Servicewomen who experienced SAIM may have gravitated to or avoided the study because of their experiences. Servicewomen experiencing SAIM may have more negative views of leader behaviors. However, previous research has shown that sexually harassed civilian workers have perceptions similar to those of nonharassed coworkers regarding their organizations’ tolerance of sexual harassment.<sup>33,34</sup> Results may have limited generalizability to those dishonorably discharged. Although this research is specific to servicewomen, our results may have implications for servicemen’s safety as leadership affects the well-being, retention, and mission accomplishment of all service members.<sup>22</sup>

For this study, consistent with other military leadership research,<sup>35</sup> we did not analyze leadership behaviors by participant rank, but our findings suggest that this could be a productive avenue for further research. We did not ask when SAIM occurred in participants’ military careers; therefore, the length of time between SAIM and their responses to leadership behaviors cannot be determined. Servicewomen were asked about leadership behaviors in nondeployed environments over the course of their service; therefore, a specific leader or command microclimate might not be reflected. However, opportunities to study face-to-face leadership are limited and aggregate data are not uncommon.<sup>4</sup> Furthermore, the military environment is inherently unstable, with redeployments and reassignments occurring at a moment’s notice.<sup>9</sup> Additionally, the longer continuous service of active component relative to Reserve–National Guard peers may be a risk that was not part of this study. We studied Army and Air Force servicewomen, and findings may not be generalizable to all branches. There may be generalizability concerns given that participants enrolled from or resided in Midwestern states at study initiation. This is less of a concern given that most participants were still in active service.

This was a retrospective study; consequently, we cannot determine the causality of SAIM, but we can provide important descriptive information and associations to guide future research, risk appraisal, and management. These studies were completed in 2011, but the findings have current implications for

the health and safety of servicewomen, considering the persistence of sexual violence in the military and our nuanced analysis of leadership as an understudied risk or protective factor for SAIM.

## Conclusions

Our novel empirical evidence associating US military leader behavior and servicewomen's sexual assault risk provides clear implications for prevention and education. The social-ecological model guided our consideration of leadership behaviors simultaneously with individual, relational, and community risk factors, finding that leadership remains a powerful sexual violence risk factor. Our findings indicate that enhanced training and mentoring across military leadership levels must directly acknowledge and address the responsibility that leaders have in sexual violence prevention through role modeling and the consequent emulation of behaviors by subordinates. Education should include how servicewomen are viewed and treated.<sup>27</sup> Our work supports DoD's strategic plan to engage leaders in effective prevention and response to SAIM.<sup>5</sup> Leaders must be supported and held accountable, so that their actions consistently reinforce<sup>36</sup> the message that sexual violence is not tolerated in the US military, that it is safe to come forward when it does occur, and that reports are taken seriously. **AJPH**

## CONTRIBUTORS

A. G. Sadler, principal investigator of the grant from which the data were derived, made a substantial contribution to the conceptualization and design, input into the analysis and interpretation of the data, and drafting and revisions of the content, and approved the final version to be published. M. A. Mengeling, B. M. Booth, and J. C. Tomer, coinvestigators of the grant from which the data were derived, made a substantial contribution to the conceptualization and design as well as the analysis and interpretation of data. They also assisted with drafting and revisions of content, and approved the final version to be published. A. M. J. O'Shea made a substantial contribution to the conceptualization, analysis, and interpretation of data and the drafting and revision of content, and approved the final version to be published.

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## HUMAN PARTICIPANT PROTECTION

Approval for this research was received from the University of Iowa institutional review board (IRB-03), which approves research in compliance with the Department of Veterans Affairs, and from the US Army Human Subject Research Protection Office.

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