



***Ethnic Differences in Sexual
Victimization and Revictimization
among Female U.S. Navy Recruits:
A Prospective Study***

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**Ethnic Differences in Sexual Victimization and Revictimization
Among Female U.S. Navy Recruits: A Prospective Study**

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Abstract

Prospective survey methods were used to investigate the effects of child sexual abuse (CSA) and premilitary rape on the likelihood that female U.S. Navy recruits ($N = 465$) would experience rape during their first year of military service and to examine ethnic differences in sexual victimization and revictimization. Rape during the first year of military service was 2.5 times more likely among women with (versus without) a history of CSA, 3.5 times more likely among women with (versus without) a history of premilitary rape, and 6.0 times more likely among women with a history of both CSA and premilitary rape (versus neither). CSA predicted rape during the first year of military service for African American and Hispanic women, but not for White women. Although premilitary rape predicted rape during the first year of military service for all three ethnic groups, the revictimization effects were strongest for African American women. These results highlight the need for additional research examining ethnic differences in patterns of interpersonal violence.

Ethnic Differences in Sexual Victimization and Revictimization among Female U.S. Navy Recruits: A Prospective Study

A history of sexual victimization has been demonstrated to increase the likelihood of future sexual victimization (Fergusson, Horwood, & Lynskey, 1997; Merrill et al., 1999; Wyatt, Guthrie, & Notgrass, 1992). Compared with women without a history of childhood sexual abuse (CSA), women who were sexually abused in childhood are at increased risk of being revictimized by experiencing adult sexual assault (ASA). In a meta-analysis of the long-term effects of CSA, Neumann, Houskamp, Pollock, and Briere (1996) found a moderate to large revictimization effect ($d = .67$). Notably, among all the long-term effects of CSA examined, the revictimization effect (i.e., previous sexual victimization predicting subsequent sexual victimization) was the largest (cf. Roodman & Clum, 2001). Although odds ratios vary widely across studies, prior research suggests that the likelihood of rape or ASA among CSA victims is at least twice as high as among nonvictims (Briere & Runtz, 1987; Gidycz, Coble, Latham, & Layman, 1993) and may be as much as 10 times higher (Fergusson et al., 1997). Similarly, previous ASA is a significant predictor of subsequent ASA (Collins, 1998; Gidycz et al., 1993; Hanson & Gidycz, 1993). In fact, evidence suggests that the revictimization effect may be stronger when the prior sexual victimization is more recent (Collins, 1998; Gidycz et al., 1993).

Sexual revictimization effects have been documented in diverse samples of women, including community samples (Wyatt et al., 1992), clinical samples (Briere & Runtz, 1987), college students (Gidycz et al., 1993; Urquiza & Goodlin-Jones, 1994), adolescent mothers (Collins, 1998), and U.S. Navy recruits (Merrill et al., 1999). In addition, revictimization effects have been observed using both cross-sectional/retrospective (e.g., Wyatt et al., 1992) and longitudinal/prospective (e.g., Gidycz et al., 1993) research designs. Although the existence of a

significant relationship between previous and subsequent sexual victimization is no longer debated, the factors that contribute to or influence this relationship merit continued study. In particular, there has been relatively little attention to the issue of whether sexual victimization and revictimization differ across ethnic groups. Moreover, the evidence that does exist on these issues has been mixed.

Some studies have found that African American women report significantly higher rates of CSA compared with White, Hispanic, or Asian-American women (Scott, Lefley, & Hicks, 1993; Urquiza & Goodlin-Jones, 1994), and that White women report CSA at significantly higher rates than Hispanic or Asian-American women (Urquiza & Goodlin-Jones, 1994). However, other studies have found no difference in the prevalence of CSA by ethnicity (Finkelhor, Moore, Hamby, & Straus, 1997; Merrill et al., 1999). With regard to adult rape, some studies have found that African American women are more likely than White, Hispanic, or Asian-American women to report adult rape (Scott et al., 1993; Urquiza & Goodlin-Jones, 1994), and White women are more likely than Hispanic women to report adult rape (Sorenson & Siegel, 1992). However, other studies have found higher rates of adult rape among White women than among African American women (Koss, Gidycz, Wisniewski, 1987; Merrill et al., 1999), and still others have found no relationship between ethnicity and likelihood of reporting adult rape (George, Winfield, & Blazer, 1992; Kalof, 2000).

Beyond the inconsistent evidence for ethnic differences in CSA and adult rape prevalence rates, there is even less information available regarding how sexual revictimization may differ across ethnic groups. Although studies of revictimization frequently include ethnically diverse samples, researchers often fail to examine differences in revictimization by ethnicity (e.g., Wyatt et al., 1992). One study that did address this issue found that the sexual revictimization effect

(i.e., CSA predicting adult rape) was significant for African American, White, and Hispanic women, but not for Asian-American women. However, the revictimization effect was strongest for African American women in that, among CSA victims, African American women reported adult rape at higher rates than White, Hispanic, or Asian-American women (Urquiza & Goodlin-Jones, 1994).

Given the lack of research in the area of sexual revictimization and ethnicity, the current study used a longitudinal/prospective design to examine the independent and combined effects of CSA and premilitary rape on the likelihood that female U.S. Navy recruits would experience rape within their first year of military service. Beyond attempting to replicate the sexual revictimization effect, we examined whether the likelihood of CSA, premilitary rape, or rape during the first year of military service varied across ethnic groups. In addition, we examined whether the likelihood of sexual revictimization varied as a function of ethnicity. Because ethnicity may covary with other variables, we controlled for several demographic variables (family income, education, marital status, and age) in these analyses.

Method

Participants

During their first week of basic training at the Recruit Training Command (RTC) at Great Lakes, Illinois, U.S. Navy recruits were invited to complete a battery of self-report questionnaires. Most (93.4%) of the women invited to participate did so. The initial study sample in the longitudinal component of the project included 2,573 women. Participants were asked to complete assessments again after 6 and 12 months of military service. From the initial study sample, approximately 40% completed follow-up surveys after 6 months and approximately 30% completed follow-up surveys after 12 months. The current study focused on 465 participants who

provided complete data regarding sexual victimization at all time points (i.e., the initial, 6-, and 12-month surveys) and who identified their ethnicity as White, African American, or Hispanic (regrettably, small numbers of respondents in other ethnic groups precluded their inclusion). Participants in the final sample were compared with excluded participants in terms of ethnicity, marital status, education, family income, age, CSA, premilitary rape, and rape within the first year of military service. The only significant difference was for education level, with excluded participants ($M = 12.4$) reporting fewer years of education than those in the final sample ($M = 12.5$), $F(1, 2480) = 9.10, p < .01$. This effect was small, $\eta = .06$.

At the initial assessment, participants in the study sample ranged in age from 17 to 35 years ($M = 19.8, SD = 2.8$), with nearly three fourths (74%) being 20 years of age or younger. Participants identified their ethnicity as White (66%), African American (24%), or Hispanic (10%). Most participants (88%) were single; the others were married (6%), cohabiting (4%), or divorced/separated/widowed (2%). Regarding income in their family of origin, 39% reported incomes less than \$25,000, 42% reported incomes between \$25,000 and \$50,000, and 19% reported incomes greater than \$50,000 per year.

Materials

At the initial assessment, participants provided information about their demographic characteristics and history of sexual victimization. On the Childhood Sexual Experience Checklist, a behavioral measure of childhood sexual experiences developed for this survey, each participant was asked to indicate whether, before the age of 18, she had experienced sexual contact with a family member, or with someone outside the family who was at least 5 years older than she was, and to indicate her age when it first happened. A participant was classified as having experienced CSA if she reported at least one sexual contact before the age of 14, and if

the perpetrator was at least 5 years older than she was. Adult rape was assessed at each time point using the Sexual Experiences Survey (SES; Koss, 1993; Koss et al., 1987). The SES assesses for rape (3 items) as well as less severe forms of unwanted sexual experiences (7 items). At each assessment, women were classified as having experienced rape if they endorsed any of the 3 rape items. The initial survey assessed premilitary rape since the age of 14. The 6- and 12-month follow-up surveys assessed rapes that had occurred during the previous 6 months; thus, these two assessments together assessed rape during the first year of military service. Women who reported no unwanted sexual experiences and those with unwanted sexual experiences less severe than rape were included in the comparison (no rape) group.

Procedure

Initial questionnaires were completed as part of a more extensive survey package offered to U.S. Navy recruits during their first week at the RTC between June 1996 and June 1997. Female civilians administered the survey package to groups of female recruits in a classroom setting. Participation was voluntary. Participants provided their names and other identifying information to allow for tracking in the longitudinal study. Approximately 6 and 12 months after completing the initial set of surveys, recruits were invited by mail to complete follow-up surveys.

Data Analysis

Data were analyzed using logistic regression. Results are presented in terms of odds ratios (ORs) and associated 95% confidence intervals (CIs). Odds ratios indicate the magnitude by which an outcome is more likely for members of one group versus members of another group. Confidence intervals that do not include the value of 1.0 are statistically significant ($p < .05$), and nonoverlapping confidence intervals indicate that the magnitude of relationships between variables significantly differs for different groups.

Results

Approximately 1 in 4 participants (24.9%) reported CSA, 23.2% reported premilitary rape (Rape1), and 18.5% reported rape within the first year of military service (Rape2). Table 1 provides rates of sexual victimization separately for White, African American, and Hispanic women. Rates of CSA and Rape2 did not significantly differ as a function of ethnicity. However, White and African American women were more likely than Hispanic women to report premilitary rape (see Table 1). This pattern of effects was equivalent when hierarchical logistic regressions were used to predict sexual victimization from ethnicity while controlling for family income, marital status, age, and years of education. Specifically, ethnic differences in rates of CSA and Rape2 remained nonsignificant (p 's > .29), while ethnic differences in rates of Rape1 remained significant (p < .05).

Table 2 shows the percentage of women reporting Rape2 based on their history of premilitary sexual victimization. Women who had experienced either CSA or premilitary rape were at increased risk of experiencing rape within the first year of military service. Overall, women who had experienced CSA, compared with those who had not, were 2.5 times more likely to experience Rape2 (95% CI = 1.5 to 4.1). Similarly, women who had been raped prior to entering the military, compared with those who had not, were 3.5 times more likely to experience Rape2 (95% CI = 2.1 to 5.8). The fact that the confidence intervals for these odds ratios overlap indicates that the impact of CSA and premilitary rape on the likelihood of Rape2 did not significantly differ.

When the effects of CSA and premilitary rape on Rape2 were considered simultaneously (i.e., controlling for the other type of premilitary sexual victimization), the effects of both factors remained significant, with women who experienced CSA being 2.2 times more likely to

experience Rape2 ($CI_{95\%} = 1.3 - 3.7$) than those with no history of CSA, and women with a history of premilitary rape being 3.2 times more likely to experience Rape2 ($CI_{95\%} = 1.9 - 5.3$) than those with no premilitary rape.

An additional hierarchical logistic regression analysis estimated the independent contributions of premilitary sexual victimization to rape within the first year of military service after controlling for demographic variables. Ethnicity (comparison category = White) and marital status (comparison category = single) were dummy-coded and entered along with age, family income, and years of education on the first step of the analysis. The demographic variables failed to account for a significant proportion of variance in Rape2, $\chi^2(6, N = 465) = 8.88, p > .10$. The addition of CSA on the second step significantly increased the proportion of variance accounted for, Nagelkerke $R^2_{\Delta} = .05, \chi^2(1, N = 465) = 14.80, p < .001$. After controlling for the demographic variables, women with a history of CSA, compared to those without, were 2.8 times more likely experience Rape2 ($CI_{95\%} = 1.7 - 4.7$). Premilitary rape, entered on the third step, also significantly increased the variance accounted for, Nagelkerke $R^2_{\Delta} = .08, \chi^2(1, N = 465) = 22.68, p < .001$. After controlling for demographic variables and CSA, women with a history of premilitary rape, compared to those without, were 3.7 times more likely to experience Rape2 ($CI_{95\%} = 2.2 - 6.4$). Overall, this regression model accounted for approximately 16% of the variance in rape within the first year of military service.

We also tested a regression model in which the interaction of CSA and premilitary rape was entered on the fourth step (demographic variables, CSA, and premilitary rape were entered on the first three steps); the interaction failed to significantly increase the explained variance in Rape2, $\chi^2_{\Delta}(1, N = 465) = 1.48, n.s.$ This indicates that the effects of CSA and premilitary rape on the likelihood of rape within the first year of military service are additive, with each form of

previous sexual victimization independently increasing the risk of later rape. Thus, women with a history of both CSA and premilitary rape, compared with women with neither, were 6.0 times more likely to report Rape2 ($CI_{95\%} = 2.9 - 12.7$).

Next, we used hierarchical logistic regression to examine whether the strength of sexual revictimization effects varied across ethnicity. After entering demographics, CSA, and premilitary rape as predictors of rape within the first year of military service, terms representing the interaction of ethnicity with both CSA and premilitary rape were entered. As a group, the interaction terms significantly increased the proportion of variance accounted for, Nagelkerke $R^2_{\Delta} = .03$, $\chi^2(4, N = 465) = 9.70$, $p < .05$. Even though none of the individual interaction terms attained traditional levels of statistical significance, 3 of the 4 approached significance ($p < .10$). Two of these interactions indicated trends such that the impact of CSA on likelihood of Rape2 was different for African American and Hispanic women than for White women, (African American*CSA: $b(SE) = 1.29(0.75)$, $p < .10$; Hispanic*CSA: $b(SE) = 1.66(0.92)$, $p < .10$); the third indicated a trend such that the impact of Rape1 on the likelihood of Rape2 differed for African American versus White women (African American*premilitary rape: $b(SE) = 1.23(0.74)$, $p < .10$).

To illuminate the nature of these marginally significant interactions, we plotted the predicted probabilities of rape within the first year of military service for women in each ethnic group, controlling for demographics and the other form of previous victimization, separately as a function of CSA status and premilitary rape status. Figure 1 shows the effect of CSA on the predicted probability of Rape2 as a function of ethnicity. Odds ratios based on these predicted probabilities were substantially larger for African American (OR = 5.0) and Hispanic (OR = 8.2) women than for White (OR = 1.5) women. Figure 2 shows the effect of premilitary rape on the

predicted probability of Rape2 as a function of ethnicity; although rape revictimization effects were evident for all three groups, odds ratios based on the predicted probabilities revealed stronger effects for African American (OR = 9.0) women than for Hispanic (OR = 2.0) or White (OR = 2.6) women.

Finally, to explore the combined effects of CSA and premilitary rape in predicting Rape2 for women in each ethnic group, we computed the predicted probabilities of rape within the first year of military service as a function of both CSA and premilitary rape. As can be seen in Table 3, across all three ethnic groups, the likelihood of rape within the first year of military service was highest for women who experienced both CSA and prior rape and lowest for women who experienced neither, with the other two victimization groups being intermediate. However, the magnitude of the difference between the multiple victimization and no victimization groups was greater for African American and Hispanic women than for White women. Another interesting pattern that emerges from the data in Table 3 is that the relative impact of CSA and premilitary rape appears to differ for Hispanic women versus African American and White women. Specifically, CSA seemed to be a stronger predictor of revictimization for Hispanic women than for the other two groups. In fact, contrary to the usual finding that a prior victimization predicts subsequent revictimization more strongly to the extent that the victimization was recent (e.g., Collins, 1998; Gidycz et al., 1993), among Hispanic women, CSA appeared to be a stronger predictor of revictimization than was previous rape.

Discussion

Sexual Victimization and Revictimization

In a sample of U.S. Navy recruits, approximately 1 in 4 women (24.9%) reported CSA, and a similar proportion (23.2%) reported premilitary rape. In addition, within the first year of

entering the military, nearly 1 in 5 women (18.5%) reported rape. This rate is substantially higher than the rate of rape (6.5%) reported by a national sample of college women during a 1-year period (Koss et al., 1987). The fact that large numbers of women serving in the Navy have experienced sexual victimization should be a matter of concern. Sexual victimization is associated with a host of negative physical and psychological outcomes including depression and posttraumatic stress disorder (Resick, 1993), and an increase in the long-term reporting of health problems (Golding, 1996). These negative effects not only affect victims of sexual assault on an individual level, but have the potential for broader impact given their financial costs (e.g., increased cost of medical care provision), as well as possible effects on military performance and “readiness” (e.g., through increasing the likelihood of military attrition; Merrill, Stander, Thomsen, Crouch, & Milner, 2006).

Most relevant to the present study, previous research has demonstrated that sexual victimization increases the risk of subsequent rape (e.g., Briere & Runtz, 1987; Fergusson et al., 1997; Merrill et al., 1999; Urquiza & Goodlin-Jones, 1994; Wyatt et al., 1992). The current results confirm that female U.S. Navy recruits who had experienced CSA or rape before entering the military, in comparison with female recruits who had not, were at significantly greater risk of being raped during their first year of military service. Controlling for demographics, women who had experienced CSA, compared with those who had not, were 2.8 times more likely to report Rape2. Similarly, controlling for both demographics and CSA, women who had experienced premilitary rape, compared with those who had not, were 3.7 times more likely to report Rape2. The effects of CSA and premilitary rape on Rape2 were additive; women with both types of premilitary victimization vs. those with neither, were 6.0 times more likely to experience Rape2. Thus, the relatively high rates of rape occurring during the first year of military duty may be at

least in part explained by the high levels of premilitary victimization reported by incoming female recruits (cf. Rozee & Koss, 2001).

Our sample was large and diverse in some respects (e.g., ethnicity, SES), although not in others (e.g., age, marital status). A strength of the current study is its prospective, longitudinal design, which allows for stronger causal inferences than do retrospective and cross-sectional designs. Inherent in the collection of longitudinal data is the loss of participants over time. However, given that we found almost no differences between excluded and retained respondents, differential withdrawal from the study appears unlikely to have affected our findings. A limitation of the present study is our use of self-report measures, which are subject to distortion due to social desirability and other reporting biases. In addition, we used dichotomous measures of CSA and adult rape; observed revictimization effects might have been even stronger if the severity and number of sexual assault experiences had been taken into account, and if women with less-severe sexual victimization experiences had been excluded, rather than included in the no-rape group. Nonetheless, despite these limitations, we obtained strong evidence of revictimization effects.

Ethnic Differences in Sexual Victimization and Revictimization

Another goal of the current study was to examine ethnic differences in sexual victimization and revictimization. We found little evidence of ethnic differences in rates of sexual victimization. Similar to the findings of Finkelhor et al. (1997) and Merrill et al. (1999), in the present sample White, African American, and Hispanic women reported similar rates of CSA. With respect to adult rape, although there were no significant ethnic differences in rates of rape during the first year of military service, there were significant differences in rates of premilitary rape. Specifically, premilitary rape was more common among White and African

American women than among Hispanic women. This is consistent with some previous research (Scott et al., 1993; Sorenson & Siegel, 1992; Urquiza & Goodlin-Jones, 1994), but not with other research reporting no ethnic differences in rates of adult rape (George et al., 1992; Kalof, 2000).

Although we found few ethnic differences in rates of victimization, our results provide greater evidence of ethnic differences in the strength of revictimization effects. More specifically, our results suggest that the impact of both CSA and prior rape on the likelihood of future sexual victimization might vary across ethnic groups. With respect to CSA, revictimization effects tended to be stronger for African American and Hispanic women than for White women. This finding is partially consistent with previous research showing that, among CSA victims, African American women were sexually revictimized at higher rates than White or Hispanic women (Urquiza & Goodlin-Jones, 1994). However, we are unaware of previous research showing stronger CSA–Rape revictimization effects for Hispanic than for White women. We also found a trend reflecting a stronger association between Rape1 and Rape2 for African American women than for White or Hispanic women. To our knowledge, no previous study has compared the strength of adult rape revictimization effects across ethnic groups. In the aggregate, our findings suggest that sexual revictimization effects—whether considered in terms of CSA or previous adult rape—may be strongest for African American women and weakest for White women.

Given the paucity of research on ethnic differences in revictimization effects, replication is necessary to establish the generalizability of the present results. Because the current sample is not a random sample from the U.S. population, it may not be representative of women in nonmilitary settings. Ethnic minorities are overrepresented in our sample relative to the general population (34.4% in the current study vs. 24.9% in the general population, U.S. Census Bureau, 2000). There may also be self-selection factors in entering the military and these may vary

somewhat by service branch. Furthermore, there may be socialization forces within the military that are different for women in different ethnic groups.

One possible explanation for the observed ethnic differences in revictimization effects implicates other demographic factors such as socioeconomic status that may differentiate women in varying ethnic groups. In an attempt to rule out this explanation, we controlled for several demographic factors when examining the impact of ethnicity on revictimization. Nonetheless, it remains possible that other demographic or cultural differences, not measured in the present study, might have mitigated the impact of CSA and rape on White women and/or exacerbated the impact of CSA on African American and Hispanic women, and the impact of rape on African American women.

Previous research has identified a number of variables (e.g., dissociation, method of coping with the assault, disclosure, social support) that may mediate or moderate the effects of sexual assault on women's later functioning (e.g., Himelein & McElrath, 1996; Sandberg, Matorin, & Lynn, 1999; Sinclair & Gold, 1997; Tremblay, Hébert, & Piché, 1999). If ethnic differences in any of these factors exist, they may help to explain ethnic differences in the long-term consequences of sexual assault for women (e.g., likelihood of revictimization). Another possibility is that the nature of the CSA or rape experiences themselves (e.g., severity of abuse/assault, relationship to perpetrator) differs across ethnic groups. For example, if the CSA experiences of White women were typically less severe than those of African American and Hispanic women, this disparity could account for the observed ethnic difference in the impact of CSA on the likelihood of subsequent revictimization. In support of this hypothesis, Gross, Winslett, Roberts, and Gohm (2006) found that compared with White women, African American women reported higher rates of adult rape involving the use of physical force by the perpetrator.

Additional research is currently under way in our laboratory to examine the possibility of ethnic differences in the characteristics of rape.

The American Psychological Association (2002) recently called for increased research focusing on ethnicity. Despite a professional culture that is committed to an understanding of human experiences through a multicultural lens, in general there has been a dearth of research focused on sexual violence among ethnic minorities. Moreover, evidence from the related domain of child maltreatment suggests that significant effects of ethnicity are likely to be observed when such comparisons are undertaken (Behl, Crouch, May, Valente, & Conyngham, 2001; Miller & Cross, 2006). In future research, it would be desirable to use samples large enough to afford the opportunity of examining victimization and revictimization in ethnic groups beyond Whites, African Americans, and Hispanics, and of exploring the variability of effects within ethnic groups. For instance, among individuals not native to the United States, rates of sexual victimization/revictimization may vary as a function of acculturation and recency of immigration (see Romero, Wyatt, Loeb, Carmona, & Solis, 1999). Although researchers may be reluctant to undertake the complex task of disaggregating the correlates of ethnicity, such efforts are essential if we are to gain a more complete understanding of the causes and consequences of interpersonal violence.

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Author Notes

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MEMORANDUM

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From: Valerie A. Stander, Ph.D.  
To: Code 24, SD, XO, CO

**1. Background.** The Survey of Recruits' Behaviors Project began in 1993 and has been continuously funded. Data related to childhood sexual abuse, adult sexual assault, intimate partner violence, trauma symptomatology, PTSD, alcohol and drug use, and associated variables were collected from 11,195 Navy recruits during their first week of training. Subsequently, follow-up data were collected at 6, 12, and 24 months from about 50% of the initial participants. These data were combined with career outcomes to allow for comprehensive data analyses. The data were collected to aid in the development of interpersonal violence prevention, treatment, and intervention programs and to allow for the examination of potential correlates of premilitary maltreatment histories and attrition.

**2.** The following have used the results of the analyses or have been briefed on the project: DoD Task Force on Care for Victims of Sexual Assault, DoD Task Force on Domestic Violence Report, Sexual Assault Victim Intervention (SAVI) program, Family Advocacy Program staff training, Shore Station PCO/PXO leadership training, CACE Conference, CDC, Navy IG Sexual Assault Study Team, Recruit Training Command, CNET, Fleet Commanders, Fleet/Command Master Chiefs, U.S. Air Force study of sexual assault, DoD SAPRO Office, and congressional subcommittees and two members of congress.

**3.** Data from the Recruit Survey project have previously been published in numerous peer-reviewed journals, including Child Abuse & Neglect, Military Psychology, Military Medicine, Journal of Traumatic Stress, Journal of Interpersonal Violence, Journal of Clinical and Consulting Psychology, and Journal of Social and Clinical Psychology.

**4.** NHRC publications from the Survey project have themselves been cited in more than 50 peer reviewed journal articles.

**5.** The present study is an extension of our previous working related to exploring correlates of adult sexual assault. These data are of high value to civilian and military agencies that develop prevention and intervention programs.

VALERIE A. STANDER



## References

- American Psychological Association (2002). *Guidelines on multicultural education, training, research, practice, and organizational change for psychologists*. Retrieved February 17, 2006, from <http://www.apa.org/pi/multiculturalguidelines.pdf>
- Behl, L. E., Crouch, J. L., May, P. F., Valente, A. L., & Conyngham, H. A. (2001). Ethnicity in child maltreatment research: A content analysis. *Child Maltreatment, 6*, 143-147.
- Briere, J., & Runtz, M. (1987). Post sexual abuse trauma: Data and implications for clinical practice. *Journal of Interpersonal Violence, 2*, 367-379.
- Collins, M. E. (1998). Factors influencing sexual victimization and revictimization in a sample of adolescent mothers. *Journal of Interpersonal Violence, 13*, 3-24.
- Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1997). Childhood sexual abuse, adolescent sexual behaviors and sexual revictimization. *Child Abuse & Neglect, 21*, 789-803.
- Finkelhor, D., Moore, D., Hamby, S. L., & Straus, M. A. (1997). Sexually abused children in a national survey of parents: Methodological issues. *Child Abuse & Neglect, 21*, 1-9.
- George, L. K., Winfield, I., & Blazer, D. G. (1992). Sociocultural factors in sexual assault: Comparison of two representative samples of women. *Journal of Social Issues, 48*, 105-125.
- Gidycz, C. A., Coble, C. N., Latham, L., & Layman, M. J. (1993). Sexual assault experience in adulthood and prior victimization experiences: A prospective analysis. *Psychology of Women Quarterly, 17*, 151-168.
- Golding, J. M. (1996). Sexual assault history and limitations in physical functioning in two general population samples. *Research in Nursing & Health, 19*, 33-44.

- Gross, A. M., Winslett, A., Roberts, M., & Gohm, C. L. (2006). An examination of sexual violence against college women. *Violence Against Women, 12*, 288-300.
- Hanson, K. A., & Gidycz, C. A. (1993). Evaluation of a sexual assault prevention program. *Journal of Consulting and Clinical Psychology, 61*, 1046-1052.
- Himelein, M. J., & McElrath, J. V. (1996). Resilient child sexual abuse survivors: Cognitive coping and illusion. *Child Abuse & Neglect, 20*, 747-758.
- Kalof, L. (2000). Ethnic differences in female sexual victimization. *Sexuality & Culture: An Interdisciplinary Quarterly, 4*, 75-97.
- Koss, M. P. (1993). Detecting the scope of rape: A review of prevalence research methods. *Journal of Interpersonal Violence, 8*, 198-222.
- Koss, M. P., Gidycz, C. A., & Wisniewski, N. (1987). The scope of rape: Incidence and prevalence of sexual aggression and victimization in a national sample of higher education students. *Journal of Consulting and Clinical Psychology, 55*, 162-170.
- Miller, A. B., & Cross, T. (2006). Ethnicity in child maltreatment research: A replication of Behl et al.'s content analysis. *Child Maltreatment, 11*, 16-26.
- Merrill, L. L., Newell, C. E., Thomsen, C. J., Gold, S. R., Milner, J. S., Koss, M. P., & Rosswork, S. G. (1999). Childhood abuse and sexual revictimization in a female Navy recruit sample. *Journal of Traumatic Stress, 12*, 211-225.
- Merrill, L. L., Stander, V. A., Thomsen, C. J., Crouch, J. L., & Milner, J. S. (2006). *Premilitary sexual assault and attrition in the U.S. Navy*. Manuscript submitted for publication.
- Neumann, D. A., Houskamp, B. M., Pollock, V. E., & Briere, J. (1996). The long-term sequelae of childhood sexual abuse in women: A meta-analytic review. *Child Maltreatment, 1*, 6-16.

- Resick, P. A. (1993). The psychological impact of rape. *Journal of Interpersonal Violence, 8*, 223-255.
- Romero, G. J., Wyatt, G. E., Loeb, T. B., Carmona, J. V., & Solis B. M. (1999). Prevalence and circumstances of child sexual abuse among Latina women. *Hispanic Journal of Behavioral Sciences, 21*, 351-365.
- Roodman, A. A., & Clum, G. A. (2001). Revictimization rates and method variance: A meta-analysis. *Clinical Psychology Review, 21*, 183-204.
- Rozee, P. D., & Koss, M. P. (2001). Rape: A century of resistance. *Psychology of Women Quarterly, 25*, 295-311.
- Sandberg, D. A., Matorin, A. I., & Lynn, S. J. (1999). Dissociation, posttraumatic symptomatology, and sexual revictimization: A prospective examination of mediator and moderator effects. *Journal of Traumatic Stress, 12*, 127-138.
- Scott, C. S., Lefley, H. P., & Hicks, D. (1993). Potential risk factors for rape in three ethnic groups. *Community Mental Health Journal, 29*, 133-141.
- Sinclair, B. B., & Gold, S. R. (1997). The psychological impact of withholding disclosure of child sexual abuse. *Violence and Victims, 12*, 137-145.
- Sorenson, S. B., & Siegel, J. M. (1992). Gender, ethnicity, and sexual assault: Findings from a Los Angeles study. *Journal of Social Issues, 48*, 93-104.
- Tremblay, C., Hébert, M., & Piché, C. (1999). Coping strategies and social support as mediators of consequences in child sexual abuse victims. *Child Abuse & Neglect, 23*, 929-945.
- Urquiza, A. J., & Goodlin-Jones, B. L. (1994). Child sexual abuse and adult revictimization with women of color. *Violence and Victims, 9*, 223-232.

U.S. Census Bureau. (2000). *Overview of race and Hispanic origin: Census 2000 brief*.

Washington, DC: U.S. Department of Commerce.

Wyatt, G. E., Guthrie, D., & Notgrass, C. M. (1992). Differential effects of women's child sexual abuse and subsequent sexual revictimization. *Journal of Consulting and Clinical Psychology, 60*, 167-173.

Table 1

*Percentage of White, African American, and Hispanic Women Reporting Sexual Victimization*

|                                | CSA  | Rape1 | Rape2 |
|--------------------------------|------|-------|-------|
| White ( $n = 305$ )            | 23.9 | 26.2  | 20.7  |
| African American ( $n = 111$ ) | 27.9 | 21.6  | 13.5  |
| Hispanic ( $n = 49$ )          | 24.5 | 8.2   | 16.3  |
| $\chi^2 (2, N = 465)$          | 0.71 | 7.94* | 0.23  |

*Note.* CSA = child sexual abuse, Rape1 = premilitary rape, Rape2 = rape within the first year of military service. Chi-square analyses were conducted within each column.

\*  $p < .05$



Table 2

*Percentage of Women Reporting Rape Within the First Year of Military Service (Rape2) as a Function of CSA and Premilitary Rape (Rape1)*

|          | No CSA | CSA  | Overall |
|----------|--------|------|---------|
| No Rape1 | 10.4   | 24.7 | 13.4    |
| Rape1    | 31.9   | 41.0 | 35.2    |
| Overall  | 14.6   | 30.2 | 18.5    |

*Note.* CSA = child sexual abuse.

Table 3

*Predicted Probability of Rape Within the First Year of Military Service by Ethnicity and History of Sexual Victimization*

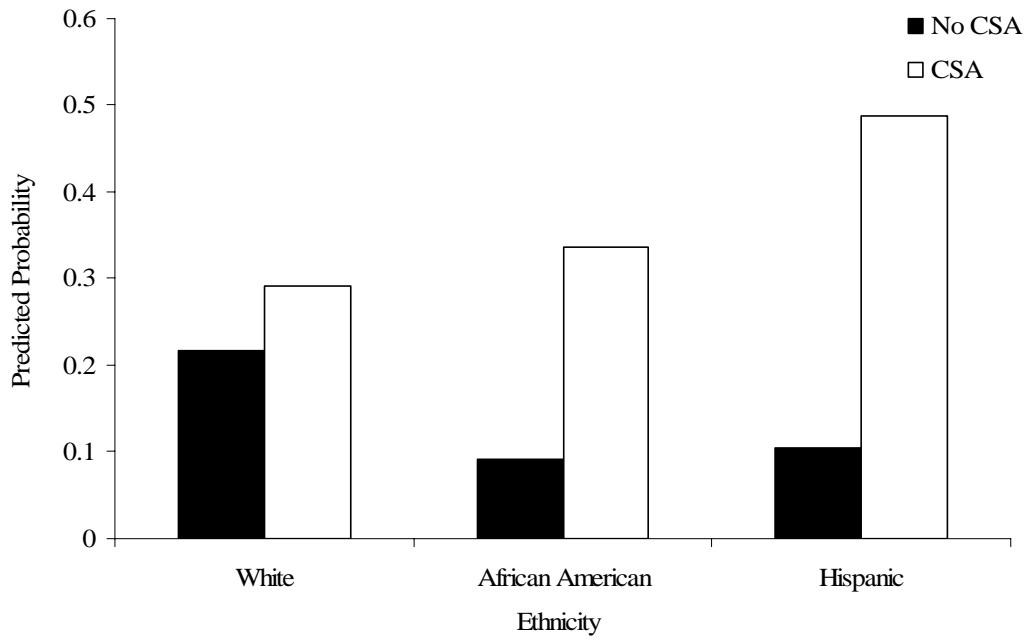
|                  | Premilitary sexual victimization |          |            |                       |
|------------------|----------------------------------|----------|------------|-----------------------|
|                  | No sexual<br>victimization       | CSA only | Rape1 only | Both CSA and<br>Rape1 |
| White            | 0.15                             | 0.21     | 0.31       | 0.40                  |
| African American | 0.03                             | 0.15     | 0.23       | 0.60                  |
| Hispanic         | 0.08                             | 0.40     | 0.14       | 0.58                  |

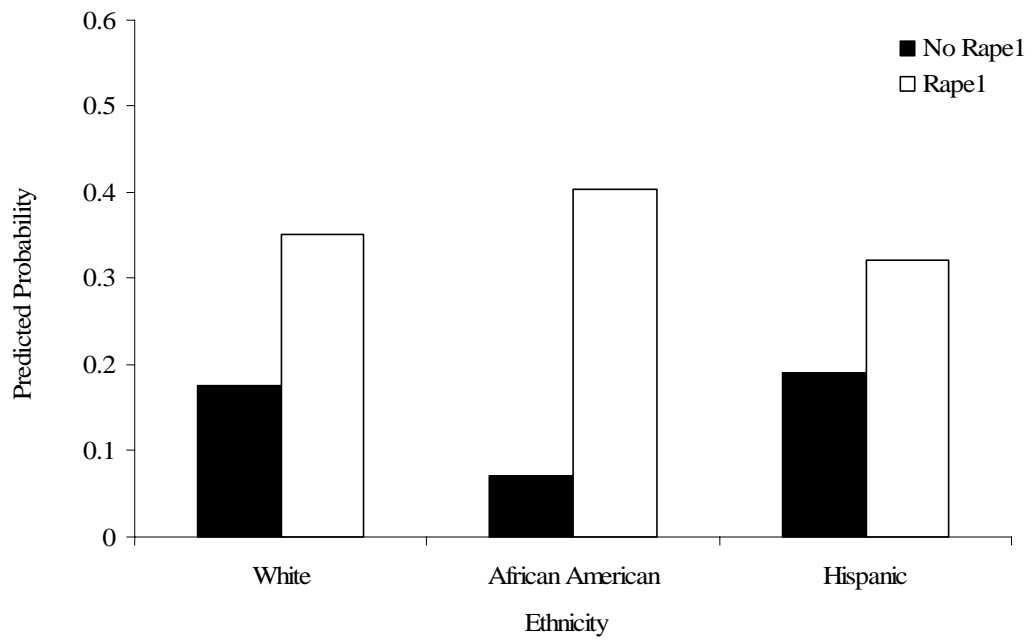
*Note.* CSA = child sexual abuse, Rape1 = premilitary rape.

## Figure Captions

*Figure 1.* Predicted probability of rape within the first year of military service for White, African American, and Hispanic women as a function of CSA history. CSA = child sexual abuse.

*Figure 2.* Predicted probability of rape within the first year of military service for White, African American, and Hispanic women as a function of premilitary rape history. Rape1 = premilitary rape.





## REPORT DOCUMENTATION PAGE

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| <b>1. Report Date (DD MM YY)</b><br>April 21, 2006                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                            | <b>2. Report Type</b><br>Final |                                           | <b>3. DATES COVERED (from - to)</b><br>1996 - 1999                  |                                                                                |
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| <b>13. SUPPLEMENTARY NOTES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                                |                                           |                                                                     |                                                                                |
| <b>14. ABSTRACT (maximum 200 words)</b><br>Prospective survey methods were used to investigate the effects of child sexual abuse (CSA) and premilitary rape on the likelihood that female U.S. Navy recruits ( $N = 465$ ) would experience rape during their first year of military service and to examine ethnic differences in sexual victimization and revictimization. Rape during the first year of military service was 2.5 times more likely among women with (versus without) a history of CSA, 3.5 times more likely among women with (versus without) a history of premilitary rape, and 6.0 times more likely among women with a history of both CSA and premilitary rape (versus neither). CSA predicted rape during the first year of military service for African American and Hispanic women, but not for White women. Although premilitary rape predicted rape during the first year of military service for all three ethnic groups, the revictimization effects were strongest for African American women. These results highlight the need for additional research examining ethnic differences in patterns of interpersonal violence. |                            |                                |                                           |                                                                     |                                                                                |
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