

Risk Factors for Misconduct in a Navy Sample

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Understanding antisocial behavior and organizational misconduct is an important objective, because these maladaptive behaviors are disruptive and costly to organizations and to society as a whole. The objective of this study was to identify psychosocial risk factors for misconduct and antisocial behavior in a sample of Navy personnel. A group of sailors ($n = 158$) who had engaged in significant misconduct were compared with a demographically similar group of sailors ($n = 288$) who had not engaged in misconduct and who were in good standing with the Navy. The psychosocial variables that emerged as the most important risk factors for antisocial behavior were alcohol use (odds ratio [OR] = 2.42), high impulsivity (OR = 2.20), high trait hostility (OR = 1.79), and antisocial behavior of friends (OR = 1.65). The implications of these results for the military and for research on antisocial behavior are discussed.

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Interventions to reduce military misconduct are an important goal, but a strategic approach to misconduct reduction presents a variety of challenges in a military environment. First, there are numerous potential risk factors that have not been jointly examined in a single research study, making it difficult for policy makers to prioritize possible interventions. Furthermore, the nature of interventions to reduce misconduct might vary widely, depending on whether the risk factors were somewhat stable personality traits, malleable behaviors that could be programmatically discouraged, or some combination of both. Below we describe a number of candidate risk factors for problem behavior.

PERSONALITY VARIABLES

It has long been recognized that personality traits play a role in military performance when outcomes such as job performance and career advancement are the central focus (Campbell, 1990). Few studies have examined the influence of personality on antisocial behavior and misconduct in the military. Based strictly on the military job performance literature, the justification for routine personality testing of military applicants is not compelling. However, we do not know how the costs and benefits of personality testing might shift when misconduct is considered as an outcome in a military context.

An important personality variable that may have a strong influence on the development of antisocial behavior and misconduct is self-control (Block, Block, & Keyes, 1988; Grasmick, Tittle, Bursik, & Arneklev, 1993; Henry, Caspi, Moffitt, Harrington, & Silva, 1999; Henry, Caspi, Moffitt, & Silva, 1996; Unnever, Cullen, & Pratt, 2003). According to the general theory of crime proposed by Gottfredson and Hirschi (1990), low self-control is a stable personality disposition that is of prime importance in the development of juvenile delinquency, adult crime, and “analogous” deviant behaviors (e.g., substance use, problem gambling). A meta-analysis by Pratt and Cullen (2000) based on 21 studies found that self-control was one of the strongest correlates of deviant behavior. Outcomes associated with low self-control include academic dishonesty (Cochran, Wood, Sellers, Wilkerson, & Chamlin, 1988), driving under the influence (Keane, Maxim, & Teevan, 1993), overall delinquency (Grasmick et al., 1993; Unnever et al., 2003), workplace deviance (Marcus & Shuler, 2004), and gang and relationship violence (Chapple & Hope, 2003). Based on this evidence, low self-control may be significantly associated with misconduct in Navy personnel.

Although impulsivity can be viewed as an element of self-control, impulsivity is a narrower facet that is often examined independently. A substantial number of studies have found that individuals with a high level of impulsivity are more likely to engage in delinquent, deviant, or criminal behaviors compared with individuals who are not impulsive (Babinski, Hartsough, & Lambert, 1999; Cooper, Wood,

Orcutt, & Albino, 2003; Farrington, 2000). Impulsivity has also been linked with other maladaptive behaviors, such as problem gambling (Vitaro, Arseneault, & Tremblay, 1999), substance use (Grano, Virtanen, Vahtera, Elovainio, & Kivimaki, 2004), and risky sex (Cooper et al., 2003). Moreover, it is easy to envision how individuals with behavioral self-management problems (spanning both self-control and impulsivity) might be unsuitable for a structured environment such as the military.

Overall mood is also associated with critical aspects of behavior. Trait negative affectivity (being prone to emotions such as fear, sadness, hostility, and self-dissatisfaction; Clark, Watson, & Mineka, 1994) has been identified as a contributor to multiple forms of problem behavior, such as truancy and property crimes (Krueger et al., 1994; Shiner, Masten, & Tellegen, 2002) and alcohol and substance use (Krueger, 1999; Myers, Aarons, Tomlinson, & Stein, 2003) and has also been identified as a risk factor for the development of antisocial personality disorder (Krueger, 1999). Another aspect of negative affect is trait hostility, which has been linked to delinquent or antisocial behavior (Maiuro, Cahn, Vitaliano, Wagner, & Zegree, 1988; Quinsey, Book, & Lalumiere, 2001) and intimate partner violence (see meta-analysis by Norlander & Eckhardt, 2005). In addition, studies have linked trait hostility with aggressive behavior and fire setting among children (Kolko & Kazdin, 1991) and with heavy alcohol use and drug use in adults (Colder & Stice, 1998).

In contrast to negative affectivity and hostility, trait positive affectivity (being prone to emotions such as interest, joy, and determination) may be a significant protective factor for delinquency and misconduct (Giancola, 2000; Windle, 2000) and for adolescent substance use (e.g., Colder & Chassin, 1997). Evidence from the organizational behavior literature indicates that high positive affectivity predicts positive organizational behaviors, such as organizational citizenship (Brief & Weiss, 2002). Based on this research, broad trait negative affectivity and trait hostility may be associated with misconduct in Navy personnel, whereas trait positive affectivity may be protective.

All of the personality factors described above can be assessed through standardized self-report instruments and, hypothetically, integrated into the recruit assessment process if evidence warrants. However, sufficient evidence does not presently exist.

PEER AFFILIATION

In both cross-sectional and longitudinal studies, consistent relationships have been found between deviant peer affiliations and delinquent behavior (e.g., Scaramella, Conger, Spoth, & Simons, 2002; Shortt, Capaldi, Dishion, Bank, & Owen, 2003). Deviant peer associations in adolescence have been prospectively linked with both

violent and property crimes (Farrington & Loeber, 2000; Fergusson, Swain-Campbell, & Horwood, 2002). There is evidence that deviant peer affiliations are linked with a range of other problem behaviors, including adolescent conduct problems (Scaramella et al., 2002), substance use (Dishion, Capaldi, Spracklen, & Li, 1995; Marshal, Molina, & Pelham, 2003), and alcohol misuse (Fergusson et al., 2002; Marshal et al., 2003). Though some of these findings could be a reflection of gang membership and associated problems, gang activities do not entirely explain these findings. Interestingly, to our knowledge, the military currently has no programs in place to discourage friendships with wayward peers. Whether such an intervention might be warranted has not been a focus of prior research.

FAMILY BACKGROUND

A growing body of literature indicates that adverse family variables and childhood adversity are risk factors for the development of adolescent delinquency and antisocial behavior. Childhood adversity variables that seem to have an important impact on the development of antisocial behavior include parental substance use, parental mental illness, sibling delinquency, family instability, parental divorce, and parental criminality (Farrington, 1995; Henry et al., 1996). Henry and colleagues (1996) found that family instability and other adverse family background factors significantly increased an individual's risk for having a criminal conviction by age 18. Similarly, longitudinal data from the Cambridge Study in Delinquent Development revealed that having a criminal parent and having a delinquent sibling were consistently among the best predictors of criminal convictions in adulthood (Farrington, 2000). If adverse family variables and childhood adversity are significant risk factors for misconduct, policy-makers would have difficulty developing a response that is not stigmatizing to the entire population of those with adverse childhoods. Nevertheless, we chose to examine the role of family variables to determine their relative contribution to Navy misconduct.

HEAVY ALCOHOL USE

A substantial amount of research supports the idea that heavy alcohol use is associated with delinquency and antisocial behavior. Alcohol use in adolescence appears to be part of a constellation of problem behaviors that include delinquency, substance use, aggression, and unsafe sex (Donovan & Jessor, 1985). One cross-sectional study of a general adolescent sample found that alcohol consumption was the single best predictor of deviance (Barnes, 1984). Moreover, there is evidence from longitudinal studies that alcohol consumption predicts later delinquency (e.g., Newcomb & McGee, 1989). Heavy alcohol use has also been linked with

criminal and disorderly behavior in adolescent and young adult populations (Fergusson, Lynskey, & Horwood, 1996; Richardson & Budd, 2003). Based on this evidence and the fact that heavy alcohol use is fairly common in the Navy (Bray et al., 2006), we hypothesized that heavy alcohol use would be associated with misconduct in our sample. If this hypothesis is correct, then the Navy might consider a vigorous revamp of its alcohol abuse prevention programs.

OBJECTIVE

Although many studies have been performed on predictors of antisocial behavior and misconduct in civilian populations, almost no previous research has been performed on military populations. The purpose of this study was to determine the key risk factors for misconduct in a sample of active duty Navy personnel. Military members who had engaged in misconduct while in the Navy (disciplinary group) were compared with a comparable group of military members who were in good standing with the Navy (administrative group).

Method

Overview

Active duty enlisted Navy men and women served as respondents. All study participants were drawn from the Navy Region Southwest Transient Personnel Unit (TPU), located at Naval Station San Diego. The TPU's mission is to provide administrative and legal processing of Navy service members for both nonadverse and adverse reasons. The TPU is made up of two branches, administrative and disciplinary.

Individuals assigned to the administrative branch of the TPU are in good standing with the Navy. Most of these military members are either being processed out of the Navy on an honorable basis (e.g., completion of enlistment term) or are waiting for their next duty assignment (e.g., waiting for their ship to come into port). A small percentage of individuals in the administrative TPU are undergoing processing for limited duty status due to pregnancy or a medical problem. In contrast, individuals in the disciplinary branch of the TPU have engaged in significant antisocial behavior or misconduct, which has caused them to be removed from their duty station and to be sent to the TPU for legal processing and/or separation. Most, but not all, individuals who are sent to the disciplinary TPU will not return to their prior duty station but will be discharged from the Navy under "other than honorable" conditions.

The most common reasons that service members are sent to the disciplinary TPU are multiple unauthorized absences (UAs), desertion from the military, delib-

erately missing their ship's departure, drug use, drug possession, drug smuggling, drug sales, or a persistent pattern of misconduct. A pattern of misconduct can include multiple incidents of insubordination or disrespect, inappropriate on-the-job behavior (e.g., fights, illegal use of government computers), one or more UAs, and other types of antisocial behavior. In addition, some individuals in the disciplinary TPU have committed a single but serious criminal offense, such as assault, theft, or illegal immigrant smuggling. Service members are not sent to the disciplinary TPU for minor offenses. Because it is conventional for Navy supervisors to give their subordinates multiple chances to improve their performance and to refrain from future misconduct, assignment to the disciplinary TPU is typically a last-resort option.

The existence of two TPU branches housing employed individuals with qualitatively different performance histories created an opportunity to compare the characteristics of individuals exhibiting antisocial behavior with those who remained in good standing in the Navy.

Sample

The sample consisted of 446 participants: 288 in the administrative group and 158 in the disciplinary group. The sample was 86% male and 14% female. The vast majority of the participants (78%) were between ages 19 and 26 years, $M = 23.5$. The average tenure in the Navy was 3.5 years. Pay grades ranged from E-1 through E-7, but most respondents (79%) were in pay grades E-4 and below. All participants had high school diplomas or general equivalency diplomas; 49% had also completed some college. Sixty-one percent of the sample had never been married, 36% were married, and 3% were divorced. Fifty-one percent of the sample were White, 16% were Black, 12% were Hispanic, 10% were Asian/Pacific Islander, and 11% indicated "Other" or multiple races. In terms of demographics, this sample is very similar to the overall population of junior enlisted Navy personnel.

Measures

All participants completed a set of self-report instruments measuring psychosocial constructs (e.g., impulsivity, positive and negative affectivity, alcohol use) hypothesized to play a role in antisocial behavior.

Positive and negative affectivity. Dispositional positive and negative affectivity were measured using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). In the present study, participants were asked to respond to the PANAS in terms of how they "generally feel." Coefficient alphas for the present data were .90 for positive affect and .87 for negative affect.

Hostility. The Resentment and Suspicion scales of the Buss-Durkee Hostility Inventory (BDHI; Buss & Durkee, 1957) were used to assess trait hostility. The BDHI is probably the best known and most frequently used hostility inventory. Due to time constraints, we used only two of the eight BDHI scales. In the present sample, coefficient alphas were .77 for resentment and .81 for suspicion. Scores on the Resentment and Suspicion scales were summed to form a Hostility index ($\alpha = .86$).

Self-control. Self-control was measured using the Self-Control Scale developed by Grasmick and his colleagues (1993). A higher score on this scale indicates lower self-control. The Grasmick Self-Control Scale contains six subscales (Impulsivity, Risk-Seeking, Self-Centeredness, Temper, Physical Activities, and Simple Tasks). Scores on this scale have been linked with many different types of delinquency, antisocial behavior, and crime (Longshore, Turner, & Stein, 1996; Pratt & Cullen, 2000). Coefficient alpha for the overall scale was .79 in the present sample; alphas for the subscales ranged from .51 (Physical Activities) to .75 for (Temper).

Impulsivity. Impulsivity was measured using the 6-item Impulsivity Scale developed by Smith and McVie (2003) for use in the Edinburgh Study of Youth Transitions and Crime. Smith and McVie found that this scale was predictive of delinquent behavior in an adolescent population. Coefficient alpha for the present sample was .83.

Misconduct in the Navy. A series of questions asked respondents to report previous disciplinary problems and disciplinary actions brought against them since entering the Navy. Specifically, respondents were asked to indicate how many of the following eight disciplinary actions they had received: UAs, “negative counseling” (counseling by a supervisor regarding performance problems), “page 13 entries” (negative remarks recorded in the official personnel file), nonjudicial punishments,¹ and the number of times they had been sent to a disciplinary review board, Executive Officer inquiry, Captain’s Mast, or court martial.

Home background. A scale reflecting adverse home and family background was formed using five yes/no items. These items asked whether anyone living in the respondent’s home had committed crimes for which they were arrested, used illegal drugs, drank heavily, suffered from mental illness (including depression), or hit someone during an argument. The home background items were prefaced with the following stem: “Between your birth and the time you were 17 years old, did

¹Nonjudicial punishment refers to certain limited punishments that can be awarded for minor disciplinary offenses by a commanding officer or officer in charge of members of his or her command.

anyone living with you in your home (not necessarily a relative) do any of the following?" These five yes/no items were combined to form a scale ($\alpha = .81$), which we labeled the Adverse Home Background Scale.

In addition to the Adverse Home Background Scale, respondents were asked whether their biological parents were still together, had never married, or were divorced. If divorced, they were asked how old they were when the divorce occurred. Respondents were considered to have divorced parents if their parents were divorced before the respondent turned 17 or if their parents had never been married. This variable was coded dichotomously (parents divorced vs. stayed together). Respondents were also asked to rate the safety of the neighborhood in which they grew up on a 4-point scale, with response options ranging from 1 (*very safe, no crime*) to 4 (*a dangerous place where violence was common*). Responses were dichotomized by combining responses of 1 and 2 (safe neighborhood) and responses of 3 and 4 (unsafe neighborhood).

Antisocial behavior of friends. For the purposes of the present study, a 6-item scale reflecting antisocial behavior of friends was developed by the authors. This scale was adapted from a similar scale used in the Connecticut Substance Abuse Prevention Student Survey (Delaronde, Cook, Ungemack, & Stanger, 1999). The stem prefacing the items was "In the past year, has a close friend ..." The items were "Been in trouble at work for breaking rules," "Carried an unauthorized weapon," "Stolen or tried to steal a motor vehicle," "Sold illegal drugs," "Been involved in gang activities," and "Gotten arrested." These six yes/no items were summed to form a scale ($\alpha = .80$), which we labeled the Antisocial Behavior of Friends Scale.

Alcohol use. Alcohol use was assessed using two questions. One question asked about typical monthly drinking; the other question asked about binge drinking. For typical monthly drinking, response options ranged from 1 (*zero drinks*) to 10 (*100 or more drinks*). For frequency of binge drinking (5 or more drinks on the same occasion), response options ranged from 1 (*never in the past year*) to 8 (*every day*). Because typical monthly drinking and binge drinking were highly correlated, we formed an alcohol use index by standardizing and summing these two items ($\alpha = .92$).

Demographic and background variables. A set of items assessed gender, age, marital status, race/ethnicity, education level, pay grade, and tenure in the military.

Procedure

Participants were asked to complete an anonymous questionnaire lasting approximately 30 minutes. The questionnaires were administered in groups ranging in

size from 5 to 60 people. Because they are housed in different locations, separate sessions were held to collect questionnaire data from administrative and disciplinary TPU participants. Participation was voluntary; the overall response rate was 87%.

RESULTS

To determine whether there were any differences between the disciplinary and administrative groups, statistical comparisons were conducted on the demographic variables (see Table 1). For the categorical variables (e.g., gender), chi-square tests were performed; for the continuous variables (e.g., age), one-way analyses of variance were performed. No significant differences between the groups were found. The disciplinary and administrative participants were similar on gender, age, education level, race/ethnicity, tenure in the Navy, and marital status.

TABLE 1
Comparison of Disciplinary and Administrative Groups on Demographics

	<i>Disciplinary</i> (<i>n</i> = 158)	<i>Administrative</i> (<i>n</i> = 288)	<i>X</i> ² or <i>F</i>	<i>p</i>
Characteristic				
Gender				
Male	88%	85%	$X^2 = 0.89$	ns
Female	12%	15%		
Age (years)				
Mean	23.3	23.5	$F = 0.31$	ns
Range	18–35	18–35		
Education				
GED	9%	10%	$X^2 = 3.45$	ns
High school graduate	47%	38%		
Some college	44%	52%		
Race/ethnicity				
White/Caucasian	50%	51%	$X^2 = 0.25$	ns
Black	17%	16%		
Asian/Pacific Islander	9%	10%		
Hispanic	12%	12%		
Other/multiple races	12%	11%		
Tenure in the Navy (in months)				
Mean	39.9	42.2	$F = 0.50$	ns
Range	5–153	3–198		
Marital status				
Single	65%	59%	$X^2 = 4.31$	ns
Married	30%	38%		
Divorced	5%	3%		

Note. GED = general equivalency diploma; ns = nonsignificant ($p > .05$).

To determine if the two groups differed on self-reported misconduct in the Navy, the disciplinary and administrative groups were compared on a number of variables reflecting disciplinary actions brought against them. These eight variables ranged in severity from relatively mild actions, such as receiving a negative “page 13 entry” in their official service record, to relatively serious actions, such as nonjudicial punishment and court martial. Because few respondents had more than one instance of any one category of disciplinary action (they were asked to indicate the number of actions received for each disciplinary category), we coded the disciplinary action data dichotomously and then compared the groups on these dichotomous variables. The disciplinary and administrative groups differed significantly on all eight of the disciplinary action variables (data not shown). The percentages of respondents indicating that they had received a court martial were 14.0% for the disciplinary respondents compared with 0.0% of the administrative respondents. In addition, 60.3% of the disciplinary group reported at least one UA, compared with only 6.6% of the administrative group. Similarly, 65.4% of the disciplinary group had received a nonjudicial punishment compared with 11.2% of the administrative group. Differences also emerged on the “milder” misconduct categories: 52.9% of the disciplinary group reported receiving a negative page 13 entry compared with only 16.6% of the administrative group. These results provide strong evidence that the two groups differed substantially on variables reflecting misconduct, disciplinary problems, and antisocial behavior.

We were interested in determining whether the disciplinary and administrative groups differed significantly on home and family background variables thought to play a role in antisocial behavior. As shown in Table 2, respondents in the disciplinary group were somewhat more likely than those in the administrative group to have divorced parents, but this difference failed to attain statistical significance (60.1% vs. 51.2%; $p = .06$). Disciplinary and administrative respondents did not differ on likelihood of having grown up in an unsafe neighborhood, $\chi^2(1, N = 444) = 1.31, p > .10$. However, a significant difference between the groups was found on the Adverse Home Background Scale, $F(1, 441) = 7.39, p < .01$. Disciplinary respondents scored significantly higher than administrative respondents on this scale, indicating that they had more adverse home and childhood experiences. Inspection of the individual items revealed that the home background variables with the largest differences were related to heavy drinking and violence (hitting someone during an argument) in the home.

To explore the possibility that disciplinary respondents would be more likely than administrative respondents to associate with deviant peers, the two groups were compared on the Antisocial Behavior of Friends Scale (Table 2). As expected, disciplinary respondents were more likely than administrative respondents to have antisocial friends, $F(1, 442) = 19.82, p < .01$. An examination of the individual scale items revealed, for example, that disciplinary respondents were significantly more likely than administrative respondents to have close friends

TABLE 2
 Comparison of Disciplinary and Administrative Groups on Family
 Background and Antisocial Behavior of Friends Variables

	<i>Disciplinary</i>	<i>Administrative</i>	<i>X² or F</i>	<i>p</i>
Family Background				
Parents divorced	60.1%	51.2%	$X^2 = 3.26$	ns
Unsafe childhood neighborhood	41.4%	35.9%	$X^2 = 1.31$	ns
While you were growing up, did anyone living in your home ...				
Commit crimes for which they were arrested?	24.7%	19.2%	$X^2 = 1.81$	ns
Hit someone during an argument?	41.1%	30.2%	$X^2 = 5.43$	<.05
Suffer from mental illness (including depression)	23.4%	16.5%	$X^2 = 3.17$	ns
Use illegal drugs?	38.6%	31.5%	$X^2 = 2.31$	ns
Drink heavily?	43.0%	29.0%	$X^2 = 8.91$	<.01
Adverse Home Background Scale (mean)	6.71	6.26	$F = 7.39$	<.01
Antisocial Behavior of Friends				
In the past year, has a close friend ...				
Been in serious trouble at work for breaking rules?	39.2%	21.7%	$X^2 = 15.59$	<.01
Carried an unauthorized weapon?	20.3%	11.5%	$X^2 = 6.19$	<.05
Stolen or tried to steal a motor vehicle?	10.8%	2.4%	$X^2 = 13.75$	<.01
Sold illegal drugs?	24.1%	14.0%	$X^2 = 7.12$	<.01
Been involved in gang activities?	15.2%	6.6%	$X^2 = 8.50$	<.01
Gotten arrested?	38.0%	24.5%	$X^2 = 8.96$	<.01
Antisocial Behavior of Friends Scale (mean)	7.47	6.81	$F = 19.82$	<.01

Note. ns = nonsignificant ($p > .05$).

who had been in serious trouble at work for breaking rules (39.2% vs. 21.7%), carried an unauthorized weapon (20.3% vs. 11.5%), or sold illegal drugs (24.1% vs. 14.0%).

The disciplinary and administrative groups were compared on the alcohol use index (data not shown). This index is the sum of two alcohol items (one assessing typical monthly drinking and one assessing binge drinking), after they were standardized. Binge drinking was defined as consuming five or more drinks on the same occasion. As expected, disciplinary respondents had a significantly higher level of alcohol use overall compared with administrative respondents, $F(1, 434) = 51.45, p < .01$.

An examination of the descriptive statistics for the alcohol questions revealed that the median response to the typical monthly drinking question (multiple choice options) was 30–44 drinks per month for the disciplinary group and 9–12 drinks per month for the administrative group. The median response to the binge drinking question (multiple choice options) was 1–2 times per week for the disciplinary re-

spondents and 7–12 times in the past year for the administrative respondents. Thus, alcohol use was fairly heavy in the disciplinary group.

To test our hypotheses regarding the personality variables thought to play a role in misconduct, the two groups were compared on the personality variables of interest (see Table 3). As predicted, disciplinary respondents scored significantly higher than administrative respondents on negative affectivity, impulsivity, and hostility, and significantly lower on self-control. Disciplinary respondents also scored lower than administrative respondents on positive affectivity, but this difference failed to reach significance ($p = .08$).

Disciplinary respondents scored significantly higher than administrative respondents on the total Grasmick Self-Control Scale, indicating that they had lower self-control. Significant differences between the two groups were also found on three of the Grasmick Self-Control subscales: Impulsivity, Risk-Taking, and Temper. Individuals in the disciplinary group were more impulsive, more likely to take risks, and had more problems with their temper than those in the administrative group.

Logistic regression was used to identify significant risk factors for group membership (disciplinary vs. administrative). All independent variables were dichotomized before entry into the models. We first conducted univariate logistic regressions to determine the effects of each risk factor by itself. Seven variables had significant unadjusted associations with disciplinary status ($p < .05$; data not shown). The variables that were significant univariate predictors of disciplinary status were impulsivity, alcohol use, hostility, antisocial behavior of friends, low self-control, negative affectivity, and adverse home background. Each of these variables was associated with a greater risk of being in the disciplinary group.

TABLE 3
Comparison of Disciplinary and Administrative Groups
on Personality Scales

	<i>Disciplinary</i>	<i>Administrative</i>	<i>F</i>	<i>p</i>
Positive Affectivity	32.64	34.09	3.08	ns
Negative Affectivity	23.94	20.18	24.11	<.01
Edinburgh Impulsivity	17.03	13.81	42.37	<.01
Hostility	54.94	48.96	29.12	<.01
Grasmick Self-Control (Total)	58.60	54.90	22.06	<.01
Impulsivity	10.08	8.80	31.55	<.01
Risk-Taking	10.80	9.69	23.23	<.01
Self-Centeredness	8.18	8.15	0.02	ns
Temper	9.86	8.81	15.37	<.01
Physical Activities	10.75	10.63	0.32	ns
Simple Tasks	8.92	8.81	0.22	ns

Note. ns = nonsignificant ($p > .05$).

A multivariate logistic regression model was used to determine the key independent risk factors associated with disciplinary status. The seven variables that were significant in the univariate analysis were entered as candidate variables into the model, using a forward stepwise procedure ($p < .05$). The final multivariate logistic model for predicting disciplinary status is shown in Table 4. In the final, fully adjusted model, four variables were significant predictors of disciplinary status. With all other variables in the model controlled, alcohol use had the strongest association with disciplinary status (odds ratio [OR] = 2.42), followed by impulsivity (OR = 2.20), hostility (OR = 1.79), and antisocial behavior of friends (OR = 1.65).

DISCUSSION

The objective of this study was to identify psychosocial risk factors that differentiate Navy service members who engage in significant antisocial behavior from those who do not. The variables that emerged as significant risk factors for antisocial behavior in the multivariate logistic regression model were heavy alcohol use, impulsivity, hostility, and antisocial behavior of friends.

One of the most striking findings of this study was the robust association between heavy alcohol use and disciplinary status. Even with all other factors taken into account, Navy members who engaged in greater alcohol use were about 2.4 times more likely to be in the disciplinary group than those who were light drinkers. This finding is consistent with a substantial amount of past research that has linked alcohol use with delinquency and misconduct (e.g., Newcomb & McGee,

TABLE 4
Final Multivariate Logistic Regression Model Comparing Disciplinary
and Administrative Groups

	OR	95% CI	<i>p</i>
Antisocial Behavior of Friends			
Low antisocial behavior (reference)	1.00		
High antisocial behavior	1.65	1.02–2.65	<.05
Alcohol Use			
Low (reference)	1.00		
High	2.42	1.50–3.90	<.01
Edinburgh Impulsivity			
Low (reference)	1.00		
High	2.20	1.32–3.65	<.01
Hostility			
Low (reference)	1.00		
High	1.79	1.11–2.91	<.05

Note. OR = odds ratio; CI = 95% confidence interval.

1989). It is also consistent with research on problem behavior theory, which has found that alcohol use in adolescence is part of a constellation of problem behaviors that includes delinquency, substance use, and other maladaptive behaviors (Cooper et al., 2003; Donovan & Jessor, 1985). Although it is primarily applied to adolescent samples, problem behavior theory may apply equally well to some adult populations, such as our military sample.

Researchers have not yet fully clarified the specific nature of the association between heavy alcohol use and antisocial behavior. There are studies that have found that delinquency predicts later alcohol use (e.g., Zimmerman, Ramirez-Valles, Zapert, & Maron, 2000) as well as studies that have found that alcohol use predicts later delinquency (e.g., Ellickson, Tucker, & Klein, 2003). Further research should explore the hypothesis that a common underlying psychological construct, which includes impulsivity and low self-control, may predispose individuals toward alcohol misuse, misconduct, and other problem behaviors.

Previous large-scale research has found that heavy drinking and alcohol misuse are common among enlisted military personnel (Bray et al., 2006). It has been estimated that about 19% of Navy personnel engage in heavy alcohol use, defined as consuming five or more drinks on the same occasion at least once a week in the past 30 days (Bray et al., 2006). Overall alcohol consumption and rates of heavy drinking in the Navy have declined somewhat over the past 25 years. Nevertheless, rates of heavy drinking are still high and heavy alcohol use remains one of the Navy's greatest public health concerns. Viewed from a military context, our finding that alcohol use was strongly associated with misconduct in the Navy suggests that military efforts to reduce heavy alcohol use may have the secondary benefit of reducing disciplinary problems among Navy personnel. This finding also implies that any Navy efforts and programs that are developed to reduce misconduct should include a component that specifically focuses on heavy drinking.

Certain personality traits were risk factors for antisocial behavior in our sample of active duty military personnel. Impulsivity was one of the strongest correlates of antisocial behavior. Even with all other variables in the model statistically controlled, impulsive individuals were more than twice as likely to be in the disciplinary group than their less impulsive peers. This finding is consistent with numerous studies indicating that impulsive individuals are significantly more likely than were their less impulsive peers to engage in crime and misconduct (Babinski et al., 1999; Cooper et al., 2003). A number of other personality constructs that seem conceptually similar to impulsivity (e.g., low behavioral regulation and high sensation-seeking) have also been linked with delinquency and misconduct, adding further support to the theoretical association between impulsivity and delinquent behavior (Giancola, 2000; Simo & Perez, 1991).

Another personality variable that significantly differentiated the disciplinary and administrative groups was trait hostility. With all other variables in the model

controlled, the odds ratio for trait hostility was 1.79, indicating that individuals who scored high on hostility were nearly twice as likely to be in the disciplinary group than those who scored low. This finding is consistent with past research that has found an association between trait hostility and delinquent or antisocial behavior (Maiuro et al., 1988; Quinsey et al., 2001).

Consistent with previous research, antisocial behavior of friends was a significant correlate of misconduct in the final multivariate model. Although antisocial behavior of friends has been associated with delinquency in many studies using child and adolescent samples (e.g., Scaramella et al., 2002), the present study appears to be one of the few studies that have examined this construct as a correlate of misconduct in an employed, adult sample. Future studies of organizational misconduct and adult deviant behavior are needed to assess the impact of adult peer affiliations as a potentially important influence on behavior.

The present study has several limitations that should be noted. Foremost is the use of a convenience sample ($N = 446$) rather than a larger probability sample. The results may not generalize to the Navy population as a whole or to other branches of the military. Also, the sample included only a small number of women and was limited to enlisted personnel only, again limiting the generalizability of the results. An additional limitation relates to the composition of the disciplinary group. Although all individuals in the disciplinary group had engaged in misconduct, this group was probably somewhat heterogeneous in terms of the offenses or pattern of offenses that caused them to be sent to the TPU disciplinary branch. Additional research on this topic will be needed to determine the robustness of the current findings.

The strengths of the present study should also be noted. Few previous studies have examined antisocial behavior in an occupational setting or in a sample of fully employed adults. This study was also somewhat unique in its examination of two distinct groups, a group who had clearly engaged in antisocial behavior and a group who had remained in good standing with the Navy. An additional strength of the study was its inclusion of a wide array of psychosocial constructs thought to be related to misconduct. To our knowledge, this effort represents one of the broadest studies of its kind, incorporating many of the key variables that have been linked to misconduct in previous research.

In conclusion, the findings of the present study add to the existing literature showing the importance of personality and other psychosocial factors in antisocial behavior and misconduct. Of particular importance is the finding that a potentially modifiable variable, heavy alcohol use, was the strongest predictor of disciplinary problems in a military sample. This suggests that strategies to reduce misconduct might need to place an emphasis on alcohol abuse prevention; it also suggests that military alcohol abuse prevention programs might be improved by addressing antisocial behaviors that are often linked with heavy alcohol use as well.

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