Examining the Association Between Binge Drinking and Propensity to Join the Military

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Abstract

It is unclear to what degree previous and/or current alcohol consumption predicts enlistment into the military. The current investigation explored the extent to which binge drinking was related to propensity to Join the military among a national sample of high school seniors ($n = 14,577$) responding to the 2008 Monitoring the Future survey. Independent sample t-tests and logistic regression analyses were employed to explore the research question. Results indicated that twelfth grade students who intended to join the military after graduating from high school binge drank a significantly greater number of days ($p < 0.001$, Cohen's $d = -0.22$) than those not intending to enlist. Even after controlling for various sociodemographic and lifetime drinking characteristics, binge drinkers had a higher propensity to Join the military (odds ratio = 1.079, Wald = 5.53, $df = 1$, $p < 0.05$) than those who did not binge. Moreover, as binge drinking increased, so did one's propensity to Join the military. Our findings lend credence to the notion that high school binge drinkers may be self-selecting into military service. These findings underscore the importance of adequately assessing the frequency of high-risk alcohol consumption and their associated correlates among potential military recruits before accession.

INTRODUCTION

Alcohol use and misuse have been present in the U.S. military's culture, rituals, and practices throughout its long and storied history. Although the military's zero-tolerance policy toward drug use has effectively lowered illicit drug use over the past 30 years,[1] excessive alcohol use in the military continues to be a problem.[2] The use of alcohol to "cope with stress, boredom, loneliness" has been pervasive within military culture as a result of norms associated with heavy drinking and easy access to beer and liquor.[3] In the last decade, binge drinking (i.e., consuming five or more drinks on the same occasion at least once a week in the past 30 days) has increased significantly among military personnel.[4] In fact, compared to a number of other factors derived from the Health Risk Appraisal (e.g., driven a motorcycle, driven after drinking, work stress, and life satisfaction), consuming five or more drinks contributed to the most excess deaths (i.e., difference between observed and expected deaths) among males serving in the U.S. Army who died from unintentional injuries while on active duty.[5] The recently released Army 2020; Generating Health & Discipline in the Force Ahead of the Strategic Reset (also known as the Gold Book) documents an extremely high prevalence of high-risk behaviors (e.g., criminal activities, suicide attempts) among active soldiers, one of the more salient being drug and alcohol offenses.[6]

Similar to the alcohol-related consequences documented in the civilian realm,[7] excessive drinking among military personnel can (1) increase the likelihood of injuries and health problems, (2) contribute to decreased productivity and lack of deployment readiness, and (3) deteriorate personal and social relationships potentially leading to domestic violence.[8–11] Approximately, 23% of all military-affiliated heavy drinkers suffer one or more serious life consequences (e.g., time away from work, arrest for driving under the influence, engaging in physical altercations, suffering from work-related accident, low job performance rating) as a result of their alcohol use.[2]

Although excessive alcohol use is clearly prevalent among military personnel, it is unclear if the military experience and/or environment is causing personnel to drink in greater quantities or if these behaviors are already established before military enlistment and/or service. Among the few studies examining drinking behaviors of personnel before enlistment, both Naval[12] and Air Force[13] recruits had consumed alcohol within the year before enlistment (between 75% and 78%) despite the vast majority being under the minimum legal drinking age. Moreover, many engaged in binge drinking[12] and experienced both first- and second-hand alcohol-related consequences.[13]

Self-Selecting into High-Risk Drinking Environments

Recent research suggests persons self-select into risky drinking environments that support their personal drinking behaviors.[14] Self-selection refers to the influence of individual characteristics in guiding an individual toward certain experiences, organizations, or environments, whereas socialization refers to the influence of experiences, norms, organizations, or environments on individual behavior.[15] Thus, the question remains whether the military environment truly fosters a culture supportive of heavy drinking through socialization of enlistees or whether heavy drinkers themselves self-select into the military environment and continue previous alcohol consumption patterns in their new military environment. Furthermore, it is unclear to what degree previous and/or current alcohol consumption behaviors influence desire to enlist into the military.

Personality studies have found that individuals actively choose environments similar to their own disposition even if that means selecting into a high-risk environment.[16] With regard to high-risk drinking, research has shown that "selection effects are substantially and consistently stronger than the social influence effects (p 196)."[17] Young adults who engage in high-risk drinking seek out participation in groups who drink more heavily, and occupations and environments where binge drinking is customary.[12,16] For instance, research indicates that college students who join Greek organizations known for the customary practice of high-risk drinking exhibit preinduction characteristics of heavy substance use and "partying" well before joining.[18,19] At the same time, research has also found evidence of socialization effects on heavy drinking among emerging adults.[15] A recent study noted that patterns of heavy drinking among college students increased after they became associated with heavy-drinking groups and then decreased after becoming disassociated with such groups.[14]

Current Investigation

Considering the aforementioned culture of alcohol use present among military personnel in combination with the penchant for heavy drinkers to purposefully enter into situations in which alcohol use/misuse is the norm, it is reasonable to ask: Are heavy drinkers self-selecting into the military? Consequently, the purpose of this investigation was to explore the extent to which binge drinking was related to the propensity to join the military after graduating high school among a national sample of high school seniors responding to the

2008 Monitoring the Future (MTE) survey. Based upon previous examinations examining propensity to join the military,[20–22] MTE was deemed an appropriate data source.

METHODS

Participants

For the purpose of this study, responses from twelfth grade students (n = 14,577) participating in MTE were analyzed (because of interest in examining intent for future plans after high school). The overall student response rate for 2008 was approximately 79%. The, majority of respondents were Caucasian (57%) females (52%) with no intent to join the military (90%). The vast majority of the students reported having consumed alcohol in their lifetime (73%), and 26% reported binge drinking within the past 2 weeks. See Table I for descriptive statistics on the sample reported herein.

Procedures

The University of Michigan's Institute for Social Research has conducted the MTE project since 1975. Funded by a series of research grants from the National Institute of Drug Abuse, MTF methods are vetted not only by funding agents but also on an annual basis by the University of Michigan's Institutional Review Board. The twelfth grade surveys are confidential and completely voluntary. Although the project includes a nationally representative multistage area probability sample of eighth-, tenth-, and twelfth-grade students in 130 public and private secondary schools throughout the United States, the current investigation limited analysis to only those respondents in twelfth grade. Stage 1 involves selecting geographic areas to be included in the sample, and then stage 2 proceeds by selecting high schools from these geographical areas. Stage 3 involves select students attending the high schools identified in stage 2. Confidential questionnaires are administered (typically during class time) to students by local field representatives, who follow standard procedures. Respondents who are high school seniors are asked to provide their name and mailing address following survey administration to provide opportunities for longitudinal follow-up surveys. For more information regarding the MTF design, sampling methods, and missing data imputation codes, readers can consult www.monitoringthefuture.org.

Measures

Content areas within the MTF survey address demographic variables, lifestyle beliefs, satisfaction with academic performance, interpersonal attitudes, and beliefs related to use of alcohol and drugs. One-third of each instrument contains "core" variables that assess demographic variables and measures of drug and alcohol use. In this particular study, we were interested in items which assessed alcohol-related behavior (independent variables) and intent to join the military (dependent variable).

Lifetime Alcohol Use—Lifetime alcohol use was measured using the item: "On how many occasions (if any) have you had alcoholic beverages to drink—more than just a few sips—in your lifetime?" Response scale options included: 0 occasions (0), 1 to 2 occasions (1), 3 to 5 occasions (2), 6 to 9 occasions (3), 10 to 19 occasions (4), 20 to 39 occasions (5), and 40 or more (6).

Binge Drinking—Binge drinking was measured using the item: "Think back over the LAST TWO WEEKS. How many times have you had five or more drinks in a row? (A "drink" is a bottle of beer, a glass of wine, a wine cooler, a shot glass of liquor, a mixed drink, etc.)." Response categories included: none (0), once (1), twice (2), three to five times (3), six to nine times (4), and ten or more times (5). Higher scores indicated a greater frequency of binge drinking across the 2 weeks before the survey.

Propensity to Join the Military—Propensity to join the military was evaluated utilizing the following item: "How likely is it that you will serve in the Armed Forces after high school?" The response scale consisted of the following categories: Definitely Won't, Probably Won't, Probably Will, and Definitely Will. Responses were dummy coded as "0" for both "definitely won't" and "probably won't," indicating no intent to join and as "1" for both "probably will" and "definitely will," indicating an expressed intent to join. Previous examinations into propensity to enlist and actual enlistment behaviors reveal propensity to be highly predictive of enlistment within the next 6 years following high school.[20]

Data Analysis

Using Statistical Package for Social Sciences (PASW, Version 20; SPSS, Chicago, Illinois), independent sample t-tests were first conducted to compare mean alcohol consumption (lifetime and binge) rates among those who did and did not intend to join the military. To account for this investigation's large sample size, effect sizes (Cohen's d) are reported for all significant mean differences. To determine the impact of high-risk drinking behaviors on intent to join the military, we ran a logistic regression model testing whether propensity to join the military was associated with one's binge drinking. Several demographic variables (e.g., race, parents' education level) and academic (i.e., self-rated intelligence) covariates were selected as control variables based on previous investigations examining propensity to enlist in the U.S. military.[22,23] Specifically, the regression model controlled for the covariates sex, race (White, Hispanic, and Black), political beliefs (conservative, moderate, and liberal), their mother's and father's education level, self-reported level of intelligence, and lifetime drinking status. For the logistic regression, lifetime drinking was dummy coded as "0" for those who had never consumed alcohol in their life and as "1" for those who had consumed alcohol more than once in their life. In all of the aforementioned analyses, 2-tailed p-values of 0.05 were deemed statistically significant.

RESULTS

An independent samples t-test compared alcohol consumption rates for those intending to join the military versus those who did not intend to join the military. Respondents intending to join the military reported significantly greater levels of alcohol consumption ($M = 3.18$, SD = 2.33) from those not intending to join the military ($M = 2.84$, SD = 2.30) with regard to lifetime drinking ($t(12,578) = -4.89$, $p < 0.001$). Those with a propensity to join the military also binge drank ($M = 0.68$, SD = 1.23) more days within the past 2 weeks than those not intending to join ($M = 0.53$, SD = 1.05; $t(1378.08) = -4.07$, $p < 0.001$). However, the magnitude of the differences in group means for lifetime (mean difference = -0.340, 95% confidence interval [CI]: -0.476 to -0.204) and binge drinking (mean difference = -0.151, 95% CI: -0.223 to -0.078) was relatively small ($d = -0.09$, -0.22, respectively).

Before the logistic regression analysis examining the impact of one's binge drinking behaviors on propensity to join the military, correlations across independent variables were assessed to determine if multicollinearity would influence the models. None of the variables were highly correlated (e.g., Pearson correlations were all less than 0.70). To further ensure our models would not be influenced, collinearity diagnostics between the alcohol consumption variables indicated collinearity was not present. Both the variance inflation factors (1.485) and tolerance statistics (0.673) met their respective suggested cutoffs of less than 10^{24} and greater than 0.2.[25]

Overall, the full model was statistically significant (χ^2 [$df = 11$] = 433.53, $p < 0.0001$), indicating the model was able to distinguish between those who did and did not Intend to join the military after high school. That said, the model only accounted for a small amount of the variance (Nagelkerke $R^2 = 9.8\%$). As shown in Table II, binge drinking (odds ratio

[OR] = 1.079, Wald = 5.53, df = 1, p < 0.05) exhibited a strong association with propensity to join the military above and beyond our numerous controls. Specifically, the more respondents binge drank (B = 0.08), the more likely it was that they would report a propensity to join the military. It is also noteworthy that those who had drunk alcohol in their lifetime (OR = 1.27, Wald = 6.52, df = 1, p < 0.011) were more likely to indicate intent to join the military. Males (B = 1.31) were significantly more likely to join the military than their female counterparts (OR = 3.69, Wald = 244.55, df = 1, p < 0.001), as well as those indicating a conservative political affiliation (OR = 1.42, Wald = 11.85, df = 1, p < 0.001). Students identifying themselves as being liberals were far less likely (B = −0.38) to indicate an intent to join the military (OR = 0.57, Wald = 29.06, df = 1, p < 0.001). Both father's (B = −0.12) and mother's (B = −0.09) education level were also negatively associated with propensity to join the military.

DISCUSSION

Overall, the general rates of binge drinking documented among the current sample (26%) are identical to those of previous investigations specifically examining substance use among military recruits.[12] Recent results associated with the Recruit Assessment Program[26] closely resemble our findings as well, documenting 32.6% Marine Corps recruits to be high-risk, potentially problematic drinkers.[27] As is the case previously, alcohol use remains a prevalent behavior before accession into the military. Respondents in our sample who had engaged in binge drinking were significantly more likely than their peers to demonstrate a propensity to join the military postgraduation, even when controlling for lifetime drinking status, sex, race, political affiliation, mother and father's education level, and self-reported level of intelligence. Moreover, as binge drinking increased, so did one's propensity to join the military. Therefore, our findings lend credence to the notion of self-selection; in other words, it appears binge drinkers may be self-selecting into the military. It is important to note, however, that the documented effect size was small.

These findings underscore the importance of enforcing civilian programs and policies, such as the minimum legal drinking age. It is noteworthy to highlight that the current investigation reports on the alcohol use of U.S. high school students in twelfth grade, an underage group for which consuming alcohol is illegal. Investigations of Marine Corps recruits document approximately 59.8% of those aged 18 to 21 as current, underage, illegal drinkers.[28] Age of first alcohol use among military recruits has been identified as a strong correlate of clinical (AUDIT-C) cutoff scores for problematic drinking.[28] Investigations of the civilian population mirror these findings, documenting age of first alcohol use as a significant predictor of adult alcohol diagnoses,[29] disorders,[30] and unintentional injury.[31]

In addition to civilian policies and programs, these findings highlight the necessity of the military to thoroughly assess alcohol-related behaviors and associated correlates before accession. Compared to their light-drinking peers, heavy drinkers responding to the Department of Defense Worldwide Survey exhibited a greater relative risk for exhibiting several work-related productivity losses (i.e., self-reported lateness, leaving early, low performance, and on-the-job injury).[32] Hunter et al[33] contend that high-risk drinking falls into a broader risk behavior category for military personnel. Specifically, among a sample (n = 32,144) of Air Force recruits entering basic training, the frequency of consuming eight or more drinks per occasion, frequency of fighting while drinking, and typical frequency of drinking were linked to positive rebellious and risk-taking attitudes and increased likelihood of engaging in risky behaviors such as decreased seat belt use.

Considering the costs associated with physically training and mentally preparing an enlistee, it would be prudent for the military to account for one's alcohol-related behaviors (e.g., age

of initiation, binge drinking) and associated correlates (e.g., other deviant behaviors, adverse childhood experiences) before accession. Although the military currently maintains enlistment standards relating to alcohol use, with small variations between service branches, only a history of severe alcohol dependence is disqualifying.[34] As the aforementioned literature makes clear, however, there are considerable factors that impact alcohol abuse, which may also require inspection. As the Army's Gold Book[6] enunciates, the health-related factors and behaviors of military personnel "are interrelated and will require interdisciplinary solutions."

Limitations

It is important that readers consider the aforementioned findings within the context of several limitations. Most notably, this investigation inherits the limitations associated with the original MTE study design. As outlined in the "MTE National Survey Results," this includes the "exclusion of [the] young men and women who drop out of high school before graduation – between 13% and 20% of each age cohort nationally … (p 62)."[35]

Like all secondary data analyses, the selection of independent, dependent, and control variables is restricted to those available within the original dataset. Moreover, the operationalization of these variables is also limited to the manner in which MTE initially assessed them. Although the available data preclude inclusion, future research should assess (or at least control for) family structure and history, as well as prior traumatic experiences/exposure. High-risk Marine Corps drinkers have been identified as more likely to be smokers, grown up with an alcoholic, problem drinker or mentally ill person, and to have experienced a sexual or emotional childhood abuse.[28] Adverse childhood experiences (e.g., physical or sexual abuse, substance abuse in the home, and parental discord or divorce) have been significantly associated with initiating alcohol use at, or before, the age of 14.[36] Systematic literature reviews document parental and peer approval and behavioral modeling of drinking as well as previous involvement in delinquent behavior as the strongest predictors of imitating alcohol use in adolescence.[37] It should be noted, however, that the literature base examining propensity to join the military is primarily based upon the MTE-dependent variable examined herein.[20,22,23]

Last, the self-reported nature of the MTE data is also a limitation; however, there exist substantial "inferential evidence [to] strongly suggest that the self-report questions used in the MTE produce largely valid data."[35]

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TABLE I

Demographic Characteristics

Demographic Item	Percent
Intend to Join the Military	
No	90.0
Yes	10.0
Sex	
Male	48.5
Female	51.5
Race	
Black	14.6
White	67.8
Hispanic	17.5
Political Affiliation	
Conservative	17.1
Moderate	24.9
Liberal	22.1
Father's (F) and Mother's (M) Education Level	
Grade School	4.0 (F), 3.4 (M)
Some High School	11.8 (F), 8.7 (M)
High School Graduate	28.1 (F), 25.2 (M)
Some College	17.7 (F), 21.7 (M)
College Graduate	24.0 (F), 27.9 (M)
Graduate School	14.3 (F), 13.0 (M)
Self-Rated Intelligence	
Far Below Average	0.9
Below Average	1.4
Slightly Below Average	3.6
Average	29.4
Slightly Above Average	25.5
Above Average	30.3
Far Above Average	8.9
Lifetime Drinking (Occasions)	
None	27.1
1–2	8.6
3–5	11.1
6–9	9.4
10–19	11.9
20–39	10.5
40+	21.4
Heavy Episodic Drinking (i.e., Binge Drinking)	
None	74.0

Demographic Item	Percent
Once	9.8
Twice	7.1
3–5 Times	6.5
6–9 Times	1.6
10+Times	1.1

TABLE II

Logistic Regression Predicting Intent to Join Military

	B(SE)	Lower CI	Exp(B)	Upper CI
Constant	−1.768 (0.203) [**]		0.171	
Sex	1.305 (0.083) [**]	3.130	3.686	4.341
Race				
White	−0.303 (0.104) [*]	0.602	0.739	0.906
Black	0.236 (0.131)	0.979	1.266	1.636
Political Belief				
Conservative	0.349 (0.101) [**]	1.162	1.418	1.729
Moderate	0.045 (0.096)	0.867	1.046	1.262
Liberal	−0.380 (0.115) [**]	0.546	0.684	0.857
Father's Education Level	−0.115 (0.033) [**]	0.835	0.891	0.951
Mother's Education Level	−0.088 (0.034) [*]	0.856	0.916	0.979
Self-Rated Intelligence	−0.120 (0.033) [**]	0.831	0.877	0.946
Lifetime Drinking Status	0.237 (0.093) [*]	1.057	1.268	1.521
Binge Drinking	0.076 (0.032) [*]	1.013	1.079	1.149

[*]
$p < 0.05$

[**]
$p < 0.001$.