Analyzing Greek Members Alcohol Consumption by Gender and the Impact of Alcohol Education Interventions

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ABSTRACT

Members of the Greek community have been found to engage in riskier alcohol drinking behaviors and have higher alcohol-related negative consequences. A sample of Greek members were surveyed in Spring of 2013 (n = 372). It was found that The Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) scores were significantly higher for male respondents than female respondents. During the fall semester, alcohol education sessions were offered to all members of the Greek community. Of the respondents who attended alcohol education sessions (n = 334), 55% reported these sessions changed their perception of high risk drinking. Implications for alcohol education programming are discussed.

Key words: Greek members, gender, risky drinking, alcohol education

College drinking has been identified as a serious health problem on college campuses (Capone, Wood, Borsari, & Laird, 2007). Alcohol use disorders are the most prevalent but the least treated mental health problems on campus. Roughly 20% of college students meet the DSM-IV criteria for a substance use disorder and only 5% receive treatment (Blanco et al., 2008). A population that is especially at risk is the Greek community. In a review of 69 studies (Borsari, Hustad, & Capone, 2009), results have consistently found that students who are members of fraternities and sororities consume more alcohol than students not in Greek organizations and experience more alcohol-related problems. In addition to drinking greater quantities of alcohol, Greek students also drink more frequently than their non-Greek counterparts (Barry, 2007). Besides being more likely to drink, students in Greek organizations are more likely to engage in binge drinking (62.9% versus 40.5%) than non-Greek students (Chauvin, 2012). Ragsdale et al. (2012) found sorority members who binge drank were significantly more likely to be injured, be victimized sexually, drive while under the influence of alcohol, and engage in unwanted sex more often than females in sororities who did not binge drink. Fraternity members who binge drink were significantly more likely to engage in physical fights than male students not in fraternities, drive while under the influence, and engage in unprotected sex than those who binged less frequently.

Socialization and Selection

Socialization appears to be related to the use of alcohol in the college environment, and students are immersed in an environment where alcohol use and misuse are "accepted, prevalent, and normative" (Capone et al., 2007, p. 316). Ashmore, Del Boca, and Beebe (2002) stated "students expect that alcohol will enhance their sociability" (p. 905). In fact, students may choose to increase their own alcohol use in order to fit into the Greek system. Park, Sher, and Krull (2008) found students who joined fraternities after their first year reported significant increases in drinking and alcohol related consequences compared to those who did not join. Paschall and Saltz (2007) found more *pre-drinking* prior to events occurred at fraternity houses, and Glindemann and Geller (2003) discovered measured blood alcohol levels were higher at fraternity parties than private parties. These findings support the idea that Greek housing may create an enabling environment for heavy drinking.

The concept of socialization contributing to levels of college drinking is supported by Borsani and Carey (2001) who have cited the role of peer influence on college drinking. They concluded peer pressure is a result of three influences. The first of these is direct peer influence through direct offers of alcohol. The second is indirect influence, which is related to modeling. The third influence is the creation of social norms around alcohol use. All three of these influences are found in the social atmosphere of the Greek system.

But students also enter college with their own histories of alcohol use, and this previous level of use can influence choices made once they arrive on campus. Borsari and Carey (1999) concluded students who are heavy drinkers prior to college will seek out environments that will support their drinking behaviors and found fraternities provide such an environment. Thus, the concept of selection also plays a role in alcohol use on campus. Larimer, Anderson, Baer, and Marlatt (2000) discovered heavier drinkers in high school were more likely to join fraternities and sororities. Thombs and Briddick (2000) observed drinking patterns were established by age 16 among 60% of fraternity members.

A reciprocal relationship between selection and socialization has been proposed by Capone et al. (2007) acknowledging students who are heavy drinkers in high school seek out others who also drink heavily (selection). Once in this environment, students will be encouraged to maintain and even escalate their drinking (socialization). Research supports this interaction in that heavier drinkers in high school were more likely to join fraternities, and these students were also more likely to increase their drinking behavior if they became members of the Greek system (Larimer et al., 2000). Capone et al. (2007) concluded male students who join fraternities may represent an at-risk group based on past drinking behaviors and intervention should begin early in the process of pledging.

Misperceptions about Drinking

One part of the socialization process is related to student perceptions about alcohol consumption levels among other students. The belief is students will adjust their drinking to meet these perceived norms. Page and O'Hegarty (2006) found students living in Greek housing and in residence halls overestimated the amount

of drinking among their peers. The importance of these norms cannot be underestimated. Perkins, Haines, and Rice (2005) discovered student perception of drinking norms was the strongest predictor of how much alcohol they consumed.

The power of social norms has been shown cross-culturally as well. Black college students perceived all other students (typical college student, White college students, and students of their same race) drink more than they do (Martin, Groth, Buckner, Gale, & Kramer, 2013). Woodyard, Hallam, and Bentley (2013) recommended that health promotion programs should work toward correcting misperceptions about how much students drink, especially around celebratory events which often are accompanied by increased drinking.

Interventions

Numerous approaches to addressing drinking in the Greek system have been proposed. Caron, Moskey, and Hovey (2004) compared alcohol consumptions among fraternity and sorority members in 1994 and again in 2000 and found fewer surveyed students in 2000 experienced alcohol-related consequences. They concluded students in the later study appeared to be more responsible in their use of alcohol; they hypothesized the change was related to the increase in targeted programming. Although data is limited, there is empirical support that single session educational programming results in drinking reduction in the general college populations (Lau-Barraco & Dunn, 2008) and in the Greek system (Fried & Dunn, 2012).

Another proposed intervention has been to delay entry in to the Greek System. However, research has shown that late joiners tend to catch up with regular members in their substance use suggesting this approach may have little utility as a protective factor (Park, Sher, & Krull, 2008). Another approach has been to challenge the social norms that perpetuate peers drink more than they actually do (Page & O'Hegarty, 2006), which had some success in reducing student drinking among the general population (Haines & Spear, 1996) but not within the fraternity system (Carter & Kahnweiler, 2000).

A more promising framework for intervention centers on developing interventions that address positive consequences of

alcohol use (Capron & Schmidt, 2012). Based on the principles of Motivational Interviewing (Miller & Rollnick, 2013), discussing the positive consequences that are experienced from drinking would be an important component of a decisional balance model (Corbin, Morean, & Benedict, 2008; Park, Kim, & Sori, 2013). Students would need to balance the perceived positive outcomes of their drinking behavior with the negative outcomes from continuing the behavior. There is a need to acknowledge the positive consequences of drinking and provide safer alternatives to achieve these same goals (Patrick & Maggs, 2008).

Researchers have given substantial attention to the risky drinking behaviors of Greek members (Barry, 2007; Borsari et al., 2009; Page & O'Hegarty, 2006) and implementing preventative strategies (Fried & Dunn, 2012; Lau-Barraco, & Dunn, 2008; Paschall, Antin, Ringwalt, & Saltz, 2011); however, binge drinking behaviors continue to be a problem in many fraternity and sorority houses (Chauvin, 2012; Ragsdale et al., 2012). Given the continuation of this problematic trend, the purpose of this current study was to compare the alcohol consumption of a Greek population that received Greek sponsored educational sessions regarding risky substance use. Specifically, the following research questions were addressed: (a) Does alcohol consumption differ by gender among Greek members? (b) What are the differences in alcohol consumption by year in school and gender for Greek members? (c) Does attending Greek Life sponsored alcohol education sessions change Greek members' perception of engaging in binge drinking behaviors and what is the role of gender on these perceptions?

METHODOLOGY

Participants and Procedures

The population for this study included members of the Greek community at a rural midsized university during the 2013 spring semester ($N = 766$). Recruitment of participants from the Greek community was conducted through the university's student life office and announcements at fraternity and sorority chapter meetings. This process occurred in April after the Greek community had the opportunity to attend up to three of the following alcohol education sessions sponsored by university's student life office: (a) A national speaker providing a lecture regarding the harm-

ful effects of binge drinking; (b) the first author discussing *The Good, The Bad, & The Ugly* of using alcohol which provided information as to how to drink safely and how to identify how the brain is impacted by alcohol use and the corresponding physiological signs and symptoms; and (c) an acute alcohol intoxication training.

A total of 379 sorority and fraternity members took part in this study, resulting in a response rate of 49.5%. Respondents with missing or invalid data ($n = 7$, less than 2%) were eliminated via listwise deletion, leaving a total number of 372 participants. Prior to the survey, the purposes and procedures of the study, confidentiality of data, and participants' rights were explained to respondents. All participants gave informed consent prior to completing the survey. All procedures were approved by first author's Institutional Review Board, and participants were not offered any incentive for completing the survey.

The demographic information indicated participants were predominantly female (62.9%, $n = 234$) and Caucasian (94.4%, $n = 351$) with 77.2% ($n = 287$) of students being under the age of 21. The participants were classified as freshmen (28.8%, $n = 107$), sophomores (37.1%, $n = 138$), juniors (19.9%, $n = 74$), seniors (13.6%, $n = 51$), and graduate students (0.5%, $n = 2$). In addition to demographic information, participants were asked to complete the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) to obtain participant's alcohol use (Babor, Higgings-Biddle, Saunders, & Monteiro, 2001; Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). These three questions assess frequency of drinking: (a) How often do you have a drink containing alcohol? (Never – 0 points, Monthly or less - 1 point, 2 to 4 times a month – 2 points, 2 to 3 times a week - 3 points, 4 or more times a week – 4 points); (b) How many drinks containing alcohol do you have on a typical day when you are drinking? (1 or 2 - 0 points, 3 or 4 – 1 point, 5 or 6 – 2 points, 7 or 9 – 3 points, 10 or more – 4 points); and c) How often do you have six or more drinks on one occasion? (Never – 0 points, Less than monthly – 1 point, Monthly – 2 points, Weekly – 3 points, Daily or almost daily – 4 points). Responses to each item are scored from 0 to 4, generating a maximum possible score on the AUDIT-C of 12. Higher scores reflect higher intensity of drinking. For men a score of 4 or above and for women a score of 3 or above indicates hazardous drinking or an active alcohol use disorder (Bush et al., 1998). The partici-

pants were also asked how many educational programs regarding alcohol use they attended that year (0, 1, 2, 3 or more) and did the alcohol awareness programs attended sponsor change in their perceptions of high risk drinking (yes, no). An open-ended question then asked the participants to state why or why not the programs changed their perceptions.

DATA ANALYSIS

The Statistical Package for Social Sciences (SPSS) software (version 21) was utilized to screen and analyze the data. To answer Research Question 1, data were analyzed by creating tables to determine frequencies and percentages and conducting a t-test analysis to determine any significant difference between respondents' AUDIT-C scores and gender. In addition, the nonparametric Mann-Whitney U test analysis of variables was used to rank order the three AUDIT-C questions. The level of significance was set at $p < 0.05$. To address Research Question 2, an independent samples t-test was performed to determine mean differences in AUDIT-C scores for the year in school variable and a general linear univariate analysis was completed to determine differences in gender. Cross-tabulation tables were created for each of the independent variable of gender to answer Research Question 3, and a Chi-square test for independence with an alpha level of .05 was used to determine if there was a relationship between respondents' gender and binge drinking perceptions. Further, a one-way analysis of the variance (ANOVA) was used to test for AUDIT-C score differences related to participants' attendance at the alcohol education session(s) and an independent samples t-test was conducted to analyze if there was a difference in AUDIT-C scores and whether participants thought the education sessions were beneficial.

RESULTS

Research Question One: Does alcohol consumption differ by gender among Greek members?

Table 1 provides a breakdown of participants' scores for the AUDIT-C by gender. Male respondents ($M = 6.07$, $SD = 2.78$) AUDIT-C scores differed significantly from female participants ($M = 4.74$, $SD = 2.67$), $t(370) = -4.541$, $p = 0.000$. Male Greek members' scores were also found to be significantly different

from female participants for all three questions of the AUDIT-C. Regarding how often participants consume a drink containing alcohol, male respondents (M = 2.14, SD = .96) scores were significantly higher than female participants (M = 1.76, SD = .92), $t(370)$ = -3.787, p = 0.000. Male participants (M = 2.36, SD = 1.12) reported consuming more drinks containing alcohol in a typical day when they are drinking than female participants (M = 1.91, SD = 1.12), $t(370)$ = -3.643, p = 0.000. Male respondents (M = 1.54, SD = 1.02) also reported more often drinking six or more drinks on one occasion than female respondents (M = 1.07, SD = .93), $t(370)$ = -4.459, p = 0.000. The ranking of the three questions in order of importance for gender are presented in Table 2. Significant differences between the male and female participants were found for all three questions.

Research Question Two: What are the differences in alcohol consumption by year in school and gender for the Greek members?

Mean scores on the AUDIT-C were compared according to year in college and according to gender. For males, significant differences were found for year in college (F (3, 351) = 3.98, p = .008). Post hoc comparisons using the Scheffe indicated a significant difference (p < .02) between freshmen and senior males with seniors having significantly higher AUDIT-C scores. For females, there was also a significant difference found for year in college (F (3, 382) = 4.32, p = .005). Post hoc comparisons using the Scheffe indicated a significant difference (p<.008) between freshmen and senior females with seniors having significantly higher AUDIT-C scores.

Research Question Three: Does attending Greek Life sponsored alcohol education sessions change Greek members' perception of engaging in binge drinking behaviors and what is the role of gender on these perceptions?

Of the 336 participants who attended any of the above-referenced three alcohol education sessions sponsored by the Greek Life office, 56.5% (n = 172) attended one session, 33.1% (n = 123) attended two sessions, and 10.5% (n = 39) attended three sessions. The participants who attended at least one alcohol education session (n = 336), 55.4% (n = 185) reported the alcohol

awareness programs they attended changed their perception of high risk drinking. The results of the cross-tabulation regarding participants' gender and perception of high risk drinking, the Chi-square test yielded p = .000, which was statistically different. Table 3 provides the results of the cross-tabulation regarding participants' gender and changed perception of drinking. When a one-way ANOVA was used to test for AUDIT-C score differences related to participants' attendance at Greek Life sponsored alcohol education session(s), no significant differences were found. AUDIT-C scores were not significantly different across the four categories (0, 1, 2, or 3 programs), $F (3, 368)$ =.143, p = .934. It was also found there was no significant difference in the AUDIT-C scores of the participants who reported attending the session(s) were helpful (M = 5.08, SD = 2.57) compared to the scores of those who did not feel the session(s) were beneficial (M = 5.36, SD = 2.89), $t(334)$ =-.968, p = 0.334.

Eighty-six percent (n = 286) of participants who attended at least one of the alcohol education sessions provided answers to the open-ended questions as to why or why not their perceptions of high risk drinking changed. A major strength of open-ended questions is they allow participants to share unique experiences of the phenomenon under investigation (Dillman, Smyth, & Christian, 2009). The results of the open-ended questions used in this study gave deeper meaning to how participants' perceptions of drinking did or did not change as a result of attending alcohol awareness program(s). The data were coded and common meanings were collapsed in to themes of: (a) content of presentations, (b) previous education experiences, and (c) personal beliefs and practices around alcohol. The theme of content of presentations was described by a female Greek member: "I learned more facts that I never knew about alcohol awareness, so it was very knowledgeable." The theme of previous education experiences was described by a male Greek member: "I have been to 7 since at college—worthless after the second". The theme of personal beliefs and practices around alcohol was described by a female participant: "I already had a strong anti-drinking feeling before attending college".

LIMITATIONS

This study has three main limitations. First, this study used a convenience sample of Greek members from one rural univer-

sity that is not likely to be representative of the population of all Greek members. Second, volunteers may have answered the survey questions differently than those members of the population who did not agree to participate. The final limitation is related to the survey being a self-report measure; hence, participants may have provided answers non-representative of their true behaviors or feelings. However, previous research has found a statistically significant correlation between college-age participants' self-reported alcohol use when compared to a collateral informant (Hagman, Cohn, Noel, & Clifford, 2010; Laforge, Borsari, & Baer, 2005).

DISCUSSION AND IMPLICATIONS

As found in other studies (Glindermann & Geller, 2003; Ragsdale et al. 2012), alcohol consumption did vary significantly by gender with males being more likely to binge drink. Although fraternity males consume more drinks on average than sorority females (Page & O'Hegarty, 2006), the results of this study demonstrated both males and females had scores on the AUDIT-C indicating risky drinking when using. DeMartini and Carey (2012) recommends cut-off scores of 7 for males and 5 for females when measuring risky drinking. These scores would place 46% of the males and 57% of the females in this study at risk. Overall, there were significant differences on all three questions on the AUDIT-C between the male and female participants. The attempt to *flood* the population with education about risky drinking does appear to have impacted the Greek community as indicated by half (55%) of the participants reporting the alcohol awareness programs changed their perception of high risk drinking and the open-ended comments made by respondents. A study in which the same students are surveyed prior to and after educational programming would help establish the effectiveness of such programming.

While a number of studies examined drinking patterns of students entering college (Capone et al., 2007; Lee, Maggs, Neighbors, & Patrick, 2011), only a few have examined differences among class year. One study demonstrated non-significant differences (Pederson, Neighbors, & LaBrie, 2010) while another found significantly higher alcohol use in senior year (Corbin, Iwamoto, & Fromme, 2011). In this study, a difference between

freshmen and seniors was found and raises questions about the cumulative impact of living in Greek housing. Given the perceptions that members of the Greek community drink more alcohol than other students (Ashmore et al., 2002; Borsari et al., 2009; Page & O'Hegarty, 2006), this environment may perpetuate heavy drinking where students believe their status is enhanced by continued increases in drinking. The fact that older students continue to drink heavily supports the need for education for all students, not just students entering college. Of the participants in this study, 82% of seniors attended alcohol education programs versus 91% of freshmen, 91.3% of sophomores, and 90.5% of juniors. Although the proportion of students attending programs was excellent, it may be important to emphasize the Greek focus on leadership that seniors provide for the chapter. Getting older students to support responsible drinking may be even more impactful than programming aimed at changing the environment of the Greek system. While programming may help students develop alternative perspectives, behavior change may only occur when drinking norms are revised and modeled by the leaders.

CONCLUSION

The results of this study were mixed in regards to consistency with other studies, which may suggest each campus has unique qualities that need to be identified in order for effective interventions to be implemented. For example, few studies have found single session programming effective (Fried & Dunn, 2012; Lau-Barraco & Dunn, 2008), but students in this study reported perspectives on risky drinking changed from attending a single program. More research is needed into whether actual behavior change occurs from educational programming or is the effect lost over time when the overall environment does not change. College students are going to use and often abuse alcohol. Approaches that acknowledge both the positive and negative consequences associated with heavy drinking are more likely to be heard by students as opposed to programs that only disparage drinking. Students enter college with expectations about drinking that may not be accurate in the general college population, yet the Greek system appears to support these excessive norms. Working within the system to alter perceptions needs greater investigation if risky drinking is to be reduced.

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TABLE 1

Numbers and Percentages of Participants' Audit-C Scores

AUDIT-C Score	Spring 2013			
	Female		Male	
	n	%	n	%
0	29	12.4	10	7.2
1	0	0.0	0	0.0
2	16	6.8	5	3.6
3	27	11.5	5	3.6
4	27	11.5	15	10.9
5	45	19.2	18	13.0
6	25	10.7	22	15.9
7	34	14.5	21	15.2
8	17	7.3	18	13.0
9	5	2.1	11	8.0
10	4	1.7	6	4.3
11	5	2.1	4	2.9
12	0	0.0	3	2.2

TABLE 2

Mean Values of Gender on AUDIT-C Questions in Rank Order and Their Comparison

	Female		Male		U^a	Z	p^b
	Mean ± SD	ranking	Mean ± SD	ranking			
How often do you have a drink containing alcohol?	1.756± .924	1	2.138± .961	1	12663.00	-3.716	.000
How many drinks containing alcohol do you have on a typical day when you are drinking?	1.910± 1.106	2	2.355± 1.189	2	12573.50	-3.683	.000
How often do you have six or more drinks on one occasion?	1.068± .933	3	1.545± 1.026	3	11983.00	-4.342	.000

a. Mann-Whitney U test

b. $p < 0.05$

TABLE 3

Cross-tabulation Table – Participants' Gender and Perception of Alcohol Education Training

Participants	Changed Perception of Drinking		
	Yes	No	Total
Female:			
Count	135	76	211
% within Gender	64.0	36.0	100
Male:			
Count	50	75	125
% within Gender	40.0	60.0	100