Differences in African American and White College Students' Drinking Behaviors: Consequences, Harm Reduction Strategies, and Health Information Sources

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Abstract. The authors explored the differences between African American and White college students' drinking behaviors and their attitudes toward consequences, harm-reduction strategies, and health information sources. They collected data from a randomly selected sample of 1,110 students in a large public university to examine the effects of a high-risk drinking prevention intervention. In the current analysis, they compared African American and White students on indicators of high-risk drinking, drinking consequences, harm-reduction strategies, the sources that students typically used for health information, and the believability of those sources. The African American students scored lower on drinking measures than the White students did, reported fewer negative consequences, and more regularly employed drinking-reduction strategies, with one exception—choosing a designated driver. Both African and White respondents reported that their parents were their most frequent and usual sources of health-related information and said that parents and health professionals were the most credible sources.

Key Words: college students (Black and White), drinking consequences, racial differences, health information resources

The increasing accounts in the literature of college students' drinking reflect the growing concern about the potential consequences of high-risk (ie, binge) drinking. These consequences are problematic because students who are frequent binge drinkers are 21 times more likely to experience negative consequences than are nonbinge drinkers.[1] The 2002 National Institute on Alcohol and Alcoholism (NIAAA) College Drinking Task Force report, A *Call to Action*, describes college drinking as a pervasive culture with its own customs and beliefs handed down from generation to generation. From students' first days on campus, these customs and beliefs are constantly transmitted. Students are bombarded with messages from the retail alcohol industry and their peers.[2] Interventions that focus on drinking, including social norms campaigns that attempt to curb high-risk drinking by changing students' perceptions of their peers' drinking behaviors, are implemented. These interventions are based on the theory that students' drinking behavior is, in large part, driven by their perceptions that peers drink more than they do.[3]

Health promotion messages, however, receive less attention in the college drinking literature. In fact, very little information is available about where students receive their health-related information or how believable they find these sources. These kinds of data are critical to creating prevention and intervention campaigns for health issues such as high-risk drinking because information diffusion is only successful if it is transmitted through respected and regularly used channels.[4]

A key feature to crafting successful prevention and intervention campaigns is having a good understanding of the target audience.[4] College students are a diverse group and a one-message-fits-all strategy may not be as successful as a campaign that creates many messages or prevention interventions that appeal to a variety of students. Understanding racial differences in drinking behavior, their consequences, and believable sources of information is essential. Yet the data on ethnic differences among college students' high-risk drinking are relatively sparse. Our literature review found no data about racial differences in health-related information sources and only one analysis describing racial differences in harm-reduction strategies that students were already using.[5] In this secondary data

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analysis, we attempt to address this gap in knowledge by exploring how and where college students acquire health information messages and which sources they find most believable. We also examine differences between African American and White college students' information sources and investigate those differences on measures of high-risk drinking and its consequences. Because understanding the harm-reduction strategies that students already use is fundamental to the creation of successful and comprehensive prevention campaigns, our analysis also examines these strategies. We expand the literature on high-risk drinking by using a more complex measure—blood alcohol concentration (BAC) during students' most recent drinking occasion—along with the more traditional measures used in studies of college drinking. BAC is not frequently used with this population, and our findings could provide an interesting comparison with traditional measures.

METHOD

This secondary data analysis explored differences in African American and White college students' drinking behaviors and consequences, harm reduction strategies, and health information sources. The data we used were previously collected at a large, southeastern, public university in the 2002 spring semester as the first wave of a cross-sectional project evaluating the effect of a social norms campaign on students' drinking behavior over time. The researchers, following Dillman,[6] used strategies to improve survey quality and response rate and randomly selected a sample of students and administered a confidential survey. They placed identifiers on the return mail envelopes rather than on the questionnaires; trained staff members removed the questionnaires from the envelopes, being careful not to link the data to the respondents in any way. The protocol was approved by the university's institutional review board (IRB).

The National College Health Assessment (NCHA),[7] a frequently used survey instrument, was mailed to 4,485 students. The first mailing yielded 1,121 usable responses; 211 surveys were returned because of incorrect mailing addresses. After they corrected the addresses, the survey team sent a second mailing of 3,000 questionnaires to the students who had not yet responded and those with corrected addresses. An additional 263 responses resulted in an overall response rate of 31%. The study's response rate was low, although slightly higher than the average 23% return rate of other college studies that used the NCHA (Victor Leino, ACHA, personal communication, July 15, 2002). The sample of 1,121 responses provided more than enough power for our analyses.

Measures

The items that we used in this study were from the NCHA health assessment and included measures of alcohol, tobacco and other drug use, consequences, risks, protective factors, and general health status, perceptions of peer behavior, and use of health information messages.

Drinking

We included several indicators of drinking behaviors in our analyses—the number of days within the last 30 that respondents drank alcohol, the number of alcoholic drinks they consumed the last time they "partied" or socialized, the average number of drinks per hour the last time they socialized, and the number of times in the last 2 weeks that they drank 5 or more alcohol drinks "at a sitting." We calculated an additional measure—blood alcohol concentration (BAC)—in accordance with guidelines established by the United States National Highway Safety and Transportation Board.[8] This formula adjusts respondents' reported number of drinks and hours spent drinking during their most recent drinking occasion by height, weight, and gender. We included it as a comparison with the more traditional measures of drinking among college students. Finally, we measured rates of abstention according to those respondents who had never had an alcoholic drink and those who had not had 1 drink in the previous 30 days.

Drinking Consequences

In the NCHA survey, students were asked if, during the last school year, they had experienced any of the following as a consequence of their drinking: physically injuring themselves, physically injuring another person, being involved in a fight, doing something they later regretted, forgetting where they were or what they did, having unprotected sex, or having someone use force or threat of force to have sex with them. These items were coded using a scale of 1 = *no* and 2 = *yes*.

Harm-Reduction Strategies

This set of items in the NCHA study asked students how frequently, during the last school year, they had used a number of strategies to reduce the potential harm associated with high-risk drinking. The strategies included alternating nonalcoholic with alcoholic beverages; determining, in advance, not to exceed a set number of drinks; choosing not to drink alcohol; using a designated driver; eating before and/or during drinking; having a friend let them know when they have had enough; keeping track of how many drinks they were having; pacing drinks to 1 or fewer per hour; avoiding drinking games; and drinking an alcohol look-alike (nonalcoholic beer, punch, etc.). We coded the response categories as follows: 1 = *never,* 2 = *rarely,* 3 = *sometimes,* 4 = *usually,* and 5 = *always*.

Usual Health Information Sources/Believability

For this variable, the NCHA questionnaire asked students if they usually got health information from any of the following sources: leaflets; pamphlet or flyers; campus newspaper articles; health center medical staff or other health educators; friends; resident assistants/advisors; parents; religious center; television; magazines; campus peer educators; faculty/coursework; Internet or World Wide Web; or some other source. We coded the responses 1 = *no* and 2 =

yes. Students were also asked to indicate how believable they found each of these sources of health information. We coded the responses as 1 = *unbelievable,* 2 = *neither believable nor unbelievable,* and 3 = *believable.*

Demographics

Respondents reported demographic information. We listed age groups in 2 categories, those younger than legal drinking age (18–20 years) and those older than legal drinking age (21–26). The category relationship status included single; engaged or in a committed dating relationship; married or having a domestic partner; and separated or divorced (collapsed). We divided class standing into first year, second year, third year, fourth year, and fifth year or more undergraduate categories. Living environment responses included university housing (either campus residence hall or other university housing), fraternity or sorority house, off-campus housing, and other (including parent or guardians' home). In the analysis, responses to gender were male or female and to full-time student were yes or no.

Analysis

After our statistical examination of the data, we decided to remove an additional 147 respondents from the original sample in an effort to reduce the influence of outliers. These included respondents who reported being older than 26 years, having more than 10 different sexual partners since the beginning of the school year, or believing that their typical peer drank greater than 15 drinks the last time they partied. We excluded less than 1% of the respondents for each of these variables, resulting in a sample s of 1,237. Because the purpose of our analysis was to examine differences between African American and White students, we also removed respondents who indicated they were Hispanic, Asian or Pacific Islanders, American Indian or Alaskan Native, or "Other" from the sample, leaving 1,110 respondents for analyses.

We used SPSS 10.0 to generate descriptive data and chi square tests to determine significant differences between African American and White respondents for categorical variables. One-way analyses of variance determined differences on continuous variables.

RESULTS

Respondents were typically full-time students (96%), single (97%), and lived off campus (84%). Their mean age was 21 years, the same mean age as the undergraduate population at the university where the initial NCHA was conducted. Women, at 68%, were somewhat overrepresented compared with 56% in the entire student population. Ninety percent of the respondents were White, compared with 86% White for the university population. See Table 1 for a full description of demographic characteristics of the sample and the university population.

African American students in the study were more likely than White students to have abstained from drinking alcohol: 27% reported they had never had an alcoholic drink, compared with only 9% of the White respondents. In addition, 20% of the African American students who were not abstainers had not had an alcoholic drink in the previous 30 days, in contrast to the 10% of the White respondents.

White students generally scored significantly higher on all other drinking measures except for the average number of drinks per hour. Fifty-one percent of White students showed a BAC that was .08 or higher the last time they partied or socialized, whereas only 16% of the African American students were at or above that level—the legal limit for driving while intoxicated. White students reported that they drank on more days in the previous 30 (4.3 days) than did the African American students (2.9 days) and reported an average of 3 more drinks the last time they drank than did the African American students (5.4 compared with 2.4; see Table 2).

The most common sequela of drinking for all of the surveyed students was driving after consuming any amount of alcohol, and we found no significant differences between the African American and the White students. A substantial number of students reported several other sequela: doing something they later regretted (46%), forgetting where they were or what they did (38%), physically injuring themselves (25%), and having unprotected sex (23%). Percentages by race vary significantly, with White students experiencing these consequences statistically more frequently than African American students did (see Table 3).

White students said they had used a designated driver as a harm-reduction strategy significantly more often than did African American students. Both groups of students used eating before and during drinking occasions as a protective measure, and both groups kept track of the number of drinks they consumed—although African American students employed this strategy more frequently than their White counterparts did. The remaining strategies were used less frequently by both groups of students, although African American students were more likely to employ most of them (see Table 4).

When the survey queried students about where they usually received their information on health-related topics, parents were most frequently mentioned by White (76%) and African American (74%) students. Friends were the resource reported next most frequently by White students (59%). Although 60% of African American students reported friends as a resource, they ranked them sixth most frequently, behind both magazines and the Internet. The second most frequently mentioned resource for African American students was information from leaflets, pamphlets, and fliers (70%), a level significantly higher than White students' reported. Although information received from a religious center ranked 11th out of the 13 possible information sources, African American students mentioned this resource significantly more frequently (19%) than White students (11%).

Students reported that health educators and health center medical staff were the most believable resources, but they used them less than they used their parents and friends.

TABLE 1. Summary of Demographic Variables, by Ethnicity (N = 1,110)

Characteristic	White (n = 959)		African American (n = 151)		Total		FSU total
	n	%	n	%	n	%	%
Gender							
Female	597	67	105	72	702	68	56
Male	290	33	41	28	331	32	44
Age (y)							
18–20	443	46	83	55	526	47	55
21–26	516	54	68	45	584	53	45 (21+)
Relationship							
Single	526	55	94	62	620	56	n/a
Engaged	407	42	54	36	461	42	n/a
Married	22	2	3	2	25	2	n/a
Separated/divorced	3	0.3	0	0	3	0.3	n/a
Full-time student status	919	96	142	97	1,061	96	89
Class standing							
First-year	82	9	24	17	106	10	19
Second-year	202	22	34	14	236	22	22
Third-year	268	29	28	20	296	28	28
Fouth-year	279	31	40	28	319	30	31
Fifth year	80	8.8	16	11.3	96	9	(in senior)
Residence							
University housing	67	7	14	9	81	7	n/a
Off-campus	799	84	129	86	928	84	n/a
Fraternity/sorority	48	5	0	0	48	4	n/a
Other (eg, parents)	38	4	7	4.6	45	4	n/a

Note. FSU = Florida State University; n/a = not applicable. Missing values range from 0 (age) to 77 (gender).

Conversely, students found TV and the Internet least believable, although more than half reported using them as resources. Two other differences were significant: African American students considered campus peer educators and religious centers more believable sources of health information than White students did.

COMMENT

Before discussing our findings, it is important to acknowledge the limitations of these analyses. Although response rates were low and the sample slightly overrepresented women and underrepresented first-year students, the large sample size supported the statistical power of the analysis. Drinking measures are subject to the inaccuracy and underreporting attributable to asking respondents to estimate and report on the amount of alcohol that they consume. That is true for all measures used in studies of college drinking. The real potential for error in all studies of college drinking are related to the assumptions made in the reporting of a "drink." Traditional measures, including the ones used for this study, specify standard amounts in each alcoholic drink (eg, 4 ounces of wine or 1 shot of alcohol). That college students may not drink in these quantities (eg, they may consume a mixed drink that is half liquor and is drunk from a water glass or a partial glass refilled from a keg) may be a major source of error.

A few additional limitations are worth noting. Several variables (eg, drinking consequences) had dichotomized response options and thus could not provide conclusive data. It would also have been instructive to analyze the data by gender as well as by ethnicity, but the small number of African American men in the sample (N = 41) precluded a sound analysis. Finally, although the findings are limited to descriptions, retaining the specificity by not collapsing some response options provides meaningful information for health educators to use in their practice.

The high rates of heavy drinking (ie, number of drinking days, number of drinks per occasion), and the finding that African American students drank less than White students did support the results of previous studies.[9] This finding remained true, even when using a more complex measure like BAC than previous studies of college drinking have used and somewhat less sensitive measures to support their findings (eg, Harvard Alcohol Study and the CORE Alcohol and Drug Survey).

A noteworthy finding is that driving after drinking was the most common drinking sequela, which is worrisome when it is coupled with the fact that 51% of the White

TABLE 2. Summary of Drinking Variables, by Ethnicity (*N* = 1,110)

Variable	White			African American			Total			
	M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*p*
Days (*n*) used alcohol in last 30	4.26	1.74	956	2.93	1.67	150	4.08	1.79	1,106	**< .0000**
Drinks (*n*) last time partied	5.39	4.04	950	2.43	3.04	151	4.99	4.05	1,101	**< .0000**
Times (*n*) had ≥ 5 drinks in last 2 weeks	2.61	2.15	951	1.37	1.01	150	2.44	2.08	1,101	**< .0000**
Blood alcohol concentration	.10	.10	877	.04	.06	145	.09	.09	1,022	**< .0000**
Average (*n*) drinks/h	1.65	.82	816	1.72	1.09	93	1.66	.85	909	.4160

Note. Boldface indicates significance using Bonferroni Holm correction for multiple comparisons. Nondrinkers are not included in the analysis.

TABLE 3. Comparison of Drinking Consequences, by Ethnicity (*N* = 1,110)

Variable	White		African American		Total			
	n	% yes	*n*	% yes	*n*	% yes	*N*	*p*
Drove after drinking (last 30 days)	494	60.2	52	55.3	546	59.7	915	.3637
Did something I later regretted	405	47.8	30	29.1	435	45.7	951	**.0003**
Forgot where I was or what I did	335	39.6	25	24.3	360	37.9	950	**.0025**
Physically injured myself	231	27.2	10	4.1	241	25.4	950	**.0001**
Had unprotected sex	208	24.5	12	11.7	220	23.1	951	**.0034**
Drove after drinking ≥ 5 drinks (last 30 days)	151	18.4	8	8.7	159	17.4	913	.0200
Was involved in a fight	69	8.1	2	1.9	71	7.5	951	.0239
Physically injured another	54	6.4	3	2.9	57	6.0	951	.1630
Someone threatened or used force to have sex with me	14	1.6	2	1.0	15	1.6	952	.6017

Note. Boldface indicates significance using Bonferroni Holm correction for multiple comparisons. Nondrinkers are not included in the analysis.

TABLE 4. Comparison of Past Year Harm Reduction Strategies, by Ethnicity (*N* = 1,110)

Variable	White			African American			Total			
	M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*p*
Used a designated driver	4.03	1.07	849	3.54	1.44	100	3.98	1.12	949	**< .0000**
Ate before and/or during drinking	3.96	.86	843	4.02	1.05	101	3.96	.89	944	.5112
Kept track of number of drinks	3.57	1.29	845	4.15	1.27	99	3.64	1.30	944	**< .0000**
Chose not to drink alcohol	2.90	.95	881	3.47	1.01	122	2.97	.98	1003	**< .0000**
Avoided drinking games	2.83	1.36	851	3.64	1.40	106	2.92	1.39	957	**< .0000**
Had a friend let me know when I'd had enough	2.60	1.40	838	2.71	1.62	99	2.61	1.43	937	.4665
Determined in advance not to exceed a set number of drinks	2.45	1.35	847	3.00	1.61	103	2.51	1.39	950	**.0002**
Alternated nonalcoholic with alcoholic drinks	2.43	1.20	841	3.00	1.24	102	2.50	1.21	943	**< .0000**
Paced my drinks to ≥ 1/h	2.39	1.19	844	2.72	1.50	100	2.42	1.23	944	**.0104**
Drank an alcohol lookalike drink	1.49	.82	856	2.05	1.16	108	1.55	.89	964	**< .0000**

Note. Boldface indicates significance using Bonferroni Holm correction for multiple comparisons. 1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *usually*, and 5 = *always*.

students' BAC was over the legal limit the last time they drank. Although African American students regularly experienced most consequences to a lesser degree than the White respondents, this was not the case for driving after drinking any amount of alcohol. When the amount of drinking was specified as driving after 5 or more drinks, only half as many African American students (9%) as White students (18%) reported this behavior. Even these lower statistics are disturbing because they reflect the percentages of students who drove after drinking 5 or more drinks within the previous 30 days.

An interesting picture of harm-reduction strategies emerged from the data. African American students were significantly more likely to use harm-reduction strategies with the notable exception of being less likely to use a designated driver. It is tempting to focus on this as a meaningful finding for health promotion messages, but this finding may reflect African American students' drinking to intoxication less frequently than White students do (as indicated by their significantly lower BAC scores and BAC levels that are below the legal driving threshold). Further research is clearly needed to examine other factors that may influence this finding.

The college students in this survey used several harm-reduction strategies frequently (eating before or during drinking, keeping track of the number of drinks they consumed, and choosing not to drink, although the latter strategy was used much more frequently by the African American students). These strategies may be intuitive as a result of previous health promotion campaigns, they may not be the best targets for new health messages. However, several strategies (eg, avoiding drinking games, choosing a "designated friend" to tell a student when she or he has had enough, or planning a drink limit ahead of time) may be used less often but could benefit from intensive health promotion messages and should be tested.

The examination of students' usual sources of health-related information offers some intriguing insights. Whereas students' college years are typically times of separation and independence from family, parents were the most frequently reported information source for both African American and White students. This is especially meaningful when we consider that first-year students were somewhat underrepresented in this sample. This highlights the potential influence that parents may continue to have, even when their children are attending college. It seems intuitive that friends' messages may become more important than parents' messages during students' college years. Yet our study found that although students frequently reported their friends as sources of information (60% for African American students and 59% for White students), they rated their parents as much more credible resources than their friends. The degree to which students will heed their parents' advice is a question that remains to be addressed.

Some students use reliable sources like health center medical staff for their information, but more than half of all respondents were turning to sources such as the Internet (57%); magazines (56%); leaflets, pamphlets, and flyers (55%); and television (50%). Less than half of all students used resources that were available from university administrators and counselors (eg, college newspapers and faculty members), and fewer than 10% of all students sought information from peer educators or resident advisors. This creates a twofold challenge for universities—to interest students in using university resources for gathering health information and to find ways to use other venues (ie, TV, magazines, and the Internet) to get their health messages to the students.

The findings about resources' credibility provide useful information for university officials interested in improving the diffusion of their health messages. We are encouraged that students find health educators and health center medical staff to be believable sources of information. Thus, universities should find ways to encourage increased interaction between students and these health professionals. Because parents rank high on the believability scale, educators should develop promotion messages about drinking and harm-reduction strategies that include parents as a key ingredient. Good examples can be found on the NIAAA Web site (http://www.collegedrinkingprevention.gov/Parents) or in parent-focused brochures such those available at the Higher Education Center for Alcohol and Drug Prevention Web site (http://www.edc.org/hec/pubs/parents.pdf). Parents who have attended college and have experienced a similar drinking culture may be especially likely to dismiss college drinking as a rite of passage; therefore, we believe it would be useful to construct appropriate interventions that can be empirically tested.

Another potentially useful target for intervention that is already used in a number of universities and colleges is to urge faculty members to take greater interest in college students' drinking, integrating information and health promotion messages in their courses, even when the course topic area may not be specifically related to student health. A good resource, *Making the Link*, is available on the Higher Education Center for Alcohol and Drug Prevention Web site (http://www.edc.org/hec/pubs/faculty-prevention.pdf).

Finally, health educators have long known the wisdom of using churches and religious organizations for the dissemination of health-related information among African American people.[10] Our findings support this idea and highlight the need for studies that consider churches as outlets for providing messages about drinking for both African American and White college students.

More research is needed to determine the best strategies for finding information about drinking and its consequences and drinking-reduction strategies for college students. Targeted studies that focus on better understanding the differences between African American and White students (eg, well-designed focus groups and population-based studies) might be the most useful in enhancing our understanding of these issues. Interventions could include focusing on what techniques are already being used successfully with African American students and testing whether those strategies

work with White students, focusing on believable sources of information, increasing their use for harm-reduction messages, testing their effects, and finding ways to take advantage of the information resources that students are using successfully, providing effective messages and testing the results. Given the well-documented negative consequences of college students' drinking,[2,11,12] these studies should be encouraged by university administrators and conducted by college health and counseling personnel in partnership with researchers who can carry out rigorous evaluations. Once the avenues for effective health promotion are determined, they can then be used to address other health and social problems facing college students such as sexually transmitted infections and violence.

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NOTE

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