Reducing High-Risk Drinking Among Student-Athletes: The Effects of a Targeted Athlete-Specific Brief Intervention

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Abstract. Objective: This study examined the effects of a single-session motivational interviewing–based in-person brief alcohol intervention that contained student-athlete–specific personalized drinking feedback. Participants: Participants were 170 National Collegiate Athletic Association Division I student-athletes meeting screening criteria for heavy episodic drinking. Methods: Baseline assessments of alcohol use frequency and quantity, norm perceptions of peers’ alcohol use, experiences of negative consequences, and use of protective behaviors were administered to student-athletes prior to a 1-session brief intervention containing personalized feedback highlighting the relationship between alcohol use and athletic performance. Follow-up assessment was conducted 3 months post intervention. Results: Student-athletes participating in the athlete-specific brief intervention showed significant reductions in their alcohol use and alcohol-related negative consequences, increases in use of protective behavioral strategies, and corrections in norm misperceptions at 3 months post intervention relative to a no-treatment comparison group. Conclusions: Student-athlete–specific brief alcohol interventions show promise in addressing high-risk drinking, reducing associated harms, and supporting health.

Keywords: alcohol, brief intervention, mental health, prevention, student-athletes

Both researchers and practitioners have documented the critical and potentially devastating effects of alcohol use among student-athletes that affect their behavioral health, their sport, and the institution of higher education as a whole. During the past several decades, for example, a number of landmark large-scale national studies have reported that college student-athletes consume more alcohol than their nonathlete counterparts. Further, pressures associated with Division I status that student-athletes face in the context of extensive athletic commitments with year-round realities (eg, pressure to perform) can lead to student-athletes making unhealthy athletic commitments, such as engaging in alcohol use to enhance performance or cope with performance pressures, particularly during the preseason. Moreover, research indicates that compared with nonathletes, college athletes experience more adverse consequences from alcohol use, including hangovers, academic difficulties, trouble with the law (such as driving while intoxicated and driving under the influence), memory loss, and physical or verbal conflicts. Other common consequences include vandalism, nausea or vomiting, being physically injured, and being involved in sexual misconduct. Athletic performance on the field may also be significantly affected by use of alcohol through missed practices, playing while under the influence, and more aggressive or high-risk playing; in fact, athletes who drink at least once per week are more than twice as likely to experience injuries as those who do not consume alcohol.

Although research is helping us understand the nature and scope of high-risk alcohol use among student-athletes and the associated behavioral health consequences of such use, comparatively little attention has been focused on the development, implementation, and evaluation of evidence-based brief interventions that may hold promise in reducing alcohol use, mitigating alcohol-related negative consequences, and increasing the use of protective behaviors or strategies that may reduce alcohol-related harms,
among student-athletes. A recent study by Outlaw and Torricelli12 demonstrated some success in using a brief motivational interviewing intervention often implemented efficaciously with general college student populations to reduce alcohol use among African American student-athletes; these investigators recommended that such an intervention be studied further and implemented more widely in behavioral health practice with student-athletes.

In response to the problem of high-risk alcohol use within the broader population of college students, researchers and practitioners have developed a number of screening and brief intervention (SBI) strategies, many of which have been shown to be effective at reducing drinking and subsequent alcohol-related problems.9–12 SBI programs are designed to be an efficient, yet effective means of providing alcohol abuse prevention services to individuals engaging in heavy or “at-risk” drinking. Although the specifics of SBI programs can vary, one of the most effective strategies involves motivational enhancement combined with personalized feedback.13,14 This approach utilizes a motivational interviewing–based philosophy15 combined with cognitive-behavioral principles. After meeting predetermined screening criteria for high-risk drinking, students complete a set of measures used to generate a personalized feedback summary that highlights a variety of information regarding their drinking habits, consequences experienced related to their alcohol use, comparisons with normative alcohol use, and harm reduction strategies. The intervention provider then uses this feedback in a 1-hour face-to-face intervention using motivational interviewing15 delivered in a nonconfrontational, empathic, and collaborative manner. In addition to providing feedback, the interventionist may also engage in cognitive-behavioral strategies such as expectancy challenging and teaching of specific alcohol abuse prevention skills.

The most standardized, widely known, and frequently implemented SBI model is the Brief Alcohol Screening and Intervention for College Students (BASICS) program.16 A number of studies have shown that relative to those in a control condition, college students who received a BASICS intervention reported greater reductions in various measures of alcohol consumption13–16 and alcohol-related consequences.17,18 Other studies using interventions similar to BASICS have also shown positive effects.17,19,20

Within college and university clinical practice settings, there has been little examination to date of the effects of brief alcohol interventions on drinking and associated harms. Such interventions, which may have practical benefits with regard to feasibility, cost-effectiveness, and student engagement in the interventions, have only been evaluated in limited contexts, largely within highly controlled laboratory environments.13,21, Moreover, in-person brief interventions specifically designed for student-athletes and implemented in naturalistic campus service delivery settings, such as university-based health and counseling centers faced with multiple competing service demands, have not been evaluated through research studies to date.

There are several reasons that underscore the importance of examining the effects of integrating student-athlete–specific content into personalized drinking feedback within brief alcohol interventions. Specifically, research suggests that more successful athletes report better concentration, higher levels of self-confidence, more task-oriented thoughts, and lower levels of anxiety.22–24 Through performance enhancement, psychological skills training, and mental skills training, all of which are inconsistent with and contrary to alcohol abuse, the performance of student-athletes may be enhanced as a secondary benefit of reductions in alcohol use and related harms. Coupled with feedback about alcohol use, performance enhancement is predicted to encourage student-athletes to focus on the use of protective behavioral strategies and to function at peak performance by targeting and delivering interventions that are relevant and specific to their unique experiences. In sum, it makes theoretical sense to integrate and examine through clinical research the efficacy of personalized feedback content focused on performance enhancement as part of brief alcohol interventions with student-athletes.

Considering the significant and complex problems associated with alcohol use among student-athletes and the dearth of SBI studies focused on the unique needs of this population conducted in naturalistic campus health and mental health care settings, the present exploratory study was designed to assess the short-term effectiveness of a BASICS intervention that was modified to include athlete-specific personalized feedback content in reducing alcohol use frequency and quantity and alcohol-related harms in a group of Division I varsity student-athletes at a large public university in the northeastern United States. Additionally, this study examined factors that might serve as correlates of changes in drinking behavior; 2 variables that are theoretically related to intervention effectiveness—perceived normative drinking and protective behavioral strategies—were examined to determine whether student-athletes participating in the brief intervention differed on these dimensions from a comparison group of student-athletes not receiving the intervention.

**METHODS**

**Participants**

Participants for this study were National Collegiate Athletic Association Division I varsity student-athletes enrolled at a large public research university in the northeastern United States who were identified as engaging in, or at risk of engaging in, heavy episodic drinking based on screening using the Daily Drinking Questionnaire (DDQ)25 administered at baseline assessment. Student-athletes were eligible for the study if they met any of the following inclusion criteria based on their responses on the DDQ: (a) reported consumption of 5 or more drinks (for males) and 4 or more drinks (for females) on any day of the week; (b) reported consumption of 5 or more drinks (for males) and 4 or more drinks (for females) on any occasion within the past
30 days; or (c) a report of at least 1 episode of consumption of 5 or more drinks (for males) and 4 or more drinks (for females) in the past 2 weeks. All student-athletes were recruited during the preseason period to minimize the variability of baseline alcohol use across participants, to capitalize on the provision of a “just-in-time” brief alcohol intervention when alcohol use among student-athletes is at its peak within the calendar year, and to engage participants in the study during a time when competing sport-related demands would be least likely to interfere with potential study participation.

Recruitment and Assessment Procedures

Prior to beginning any data collection, institutional review board approval was obtained at the university. Recruitment for the study was conducted by selecting student-athletes from among the 19 varsity athletic teams that were out-of-season; participants were recruited from athletic teams such as football, baseball, track and field, golf, and other varsity sports, and recruitment was conducted within both men’s and women’s sports. The study was introduced to these student-athletes in the context of their regularly scheduled team meetings, where the study was explained to potential participants. Team meetings in which student-athletes were to be recruited for the study were scheduled to take place in a computer laboratory at the university to facilitate access to web-based baseline alcohol screening measures and informed consent forms for student-athletes interested in study participation. After team meeting business was completed, coaches and other department of athletics staff members were asked to leave the room, and the study was described to the student-athletes by 2 sport psychologists from the university’s counseling center who were associated with the project. As part of the study description, all student-athletes were informed that their participation was voluntary and that no individual or team-specific data would be provided to coaches or other department of athletics staff members. Student-athletes were also informed that they would receive a $10 gift card to their choice of the university bookstore or a local movie theater and would earn 1 hour of credit to meet their mandatory study hall requirement for completing the alcohol screening baseline survey and 3 month follow-up assessment.

Student-athletes agreeing to participate in the study were directed to an e-mail account that included a link to the web-based alcohol screening baseline assessment survey, which was housed on a secure server not connected to the university information technology services system. Student-athletes created a unique identification number used for data tracking and provided their e-mail addresses and phone numbers so that those meeting alcohol use screening cutoffs could be contacted and invited to participate in the in-person brief alcohol intervention. Each student-athlete meeting eligibility criteria for being at risk for or already engaging in heavy episodic drinking based on the study’s screening criteria was contacted, and an individual feedback session with 1 of 2 sport psychologists trained in delivery of the study intervention was scheduled at the university’s counseling center. Each participant was then contacted via e-mail at 3 months post intervention and was provided a weblink to access and complete the web-based follow-up survey, which was identical in content to the baseline assessment survey.

Intervention Procedures

The current research utilized a 1-hour in-person individually delivered intervention implementation format consisting of brief, individual-level prevention strategies incorporating motivational interviewing (MI) and cognitive-behavioral content developed by Marlatt and colleagues as part of the BASICS intervention. Specific intervention techniques included expressing empathy, developing discrepancies, rolling with resistance, and supporting self-efficacy. Within this framework, review of student-athletes’ personalized drinking feedback was used to facilitate the building of discrepancies by illustrating areas in which the student-athlete’s alcohol use–related behavior may be in conflict with important athletic, academic, and other goals or could be incongruent with the student-athlete’s impression of the impact of his or her use. In the review of feedback, the provider listened for and reflected “change talk” (statements made by the student-athlete that indicated concern or need for change), and elicited “change talk” with evocative questions and other strategies suggested by Miller and Rollnick. Although the layout of the feedback profile was consistent across participants, individual content within domains on the feedback profile was delivered to the individual student-athlete based on his/her baseline survey responses. Further, the motivational discussion with each participant was tailored to responses to the feedback and expressed goals, level of readiness to change, and interest in particular feedback topics; in other words, because MI involves a variety of active listening strategies (simple and complex reflections, open questions, affirmation, and strategic responses to resistance), the conversation was inherently tailored to each participant’s unique reaction to the feedback and his or her concerns, questions, and goals. At the end of the brief intervention session, discussion was focused on motivation for readiness to change behavior; the degree of motivation to change was assessed, and the student-athlete was supported in his or her identification of specific steps for future behavior change.

Personalized Feedback Profile Content

Data from the student-athletes’ baseline surveys were used to create the personalized feedback profiles for study participants receiving the in-person brief interventions; these personalized feedback profiles were printed in color using the university athletics logo and color scheme and
were shared and discussed with each student-athlete during his or her intervention session. The personalized feedback provided as part of the study intervention consisted of information typically delivered in the BASICS format; these areas include typical and peak drinking and blood alcohol concentration (BAC), risks associated with particular BAC, general campus drinking norms and campus student-athlete drinking norms, calories consumed from alcohol, expectancies related to drinking, reported use of protective behaviors, and alcohol-related negative consequences experienced by the student-athlete. The feedback profile also included athlete-specific information pertaining to the effects of alcohol on athletic performance. For instance, athletes were informed about the dehydrating effects of alcohol and the potential negative implications of dehydration on performance. The feedback profile also included other alcohol-performance factors such as nutrition and endurance, injury risk, motor skills, strength-speed output, and sleep and performance recovery. Additionally, the feedback profile provided participants with information relevant to their use of psychological coping strategies related to their sport. Each of these factors (eg, “When things are going badly, I tell myself to keep calm, and this works for me” or “The more pressure there is during a game, the more I enjoy it”) was categorized as either contributing to one’s confidence (helping performance) or leading to increased anxiety (hindering performance) and were displayed graphically on the personalized feedback profile sheet. Finally, general feedback about alcohol use, associated harms, and strategies to reduce risk, as well as psychological and seasonal factors affecting sport performance, were also addressed.

Selection and Training of Interventionists

For this study, 2 sport psychologists on the counseling center service provider staff were trained in both the BASICS intervention and the student-athlete adapted brief alcohol intervention used in this study. Both staff members participated in a 2-day workshop conducted by the developers of the BASICS intervention as well as intensive MI training. Intervention elements on which providers were trained included components such as reviewing the person's feedback profile, clarifying and addressing resistance concerning norms information, discussing strategies for reducing alcohol-related harms and increasing use of protective behavioral strategies, and assessing and supporting readiness for change.

Measures

The primary method of data collection for this study was through web-administered surveys, accessed via a secure server housed outside the university to ensure the highest level of data security. This was accomplished by working with an outside vendor to format the measures, develop the feedback profile, and maintain the server. Careful consideration was given to the pros and cons of web-based assessment, particularly with regard to issues of privacy and the protection of human subjects, as well as data integrity and subject burden; to this end, assessment measures were selected to both minimize participant burden and obtain the data essential to evaluate the specific aims of the study. Measures were the following.

Alcohol consumption (frequency and quantity) was assessed using 2 measures: the Daily Drinking Questionnaire (DDQ) and the Alcohol Use Disorders Identification Test (AUDIT). The DDQ,27 which was used to determine eligibility for the study as described above, is a self-report measure requesting estimation of the individual’s “typical” alcohol consumption per day over the last 30 days. The instrument also assesses drinking frequency, peak number of drinks, frequency of heavy episodic drinking, and the age at which drinking began. Gearhardt et al28 reported an internal reliability of .83 in a college population. The DDQ was found to be strongly correlated with the Drinking Habits Questionnaire29 and the Drinking Patterns Questionnaire30 showing good convergent validity. Gearhardt et al28 reported convergent validity ranging from .50 to .60 with other measures of college student drinking. For this study, the items contained in this measure demonstrated good internal reliability ($\alpha = .83$).

The AUDIT27 is a 10-item self-report measure that assesses a range of alcohol-related experiences. Typical use is as a dichotomous screen (cutoff score is 8 for men and 7 for women), and the score range is between 0 and 40. Psychometrics of the AUDIT have been extensively studied and summarized by Reinert and Allen.31 Reliability generalization analyses indicate median reliability of .83, with a range of .75 to .97. Test–retest reliability of dichotomous scoring (cutoff = 8) yields $\kappa$s of .70 to .89. Using the AUDIT as a screening tool has shown strong sensitivity and specificity as well as strong positive and negative predictive value (see Reinert and Allen31 for full table of findings). For this study, the items contained in this measure demonstrated adequate internal reliability ($\alpha = .78$).

Alcohol-related consequences were measured using the Rutgers Alcohol Problem Index (RAPI).32 The RAPI is a 23-item self-report measure assessing alcohol-related consequences across a single factor. The 23-item RAPI has repeatedly demonstrated good internal consistency21 and has been shown to have good test–retest reliability.17 Neal et al32 reported good convergent validity with other measures of alcohol use for both the 23-item and a briefer 18-item RAPI. Additionally, for this study, a new 32-item RAPI-A (Athlete Version was developed by constructing survey items focused on student-athletes and their experiences with alcohol. Participants were asked to rate on a 5-point scale how often ranging from “Never” to “More than 10 times” they experienced each of the alcohol-related problems during the past 3 months. For example, “Went to a practice high, drunk, or hung over”; “Neglected athletic responsibilities”; or “Teammates avoided you.” For this study, the items contained in both the RAPI and RAPI-A
measures demonstrated excellent internal reliability (α = .90 for the RAPI and α = .91 for the RAPI-A).

**Norm perceptions** were assessed using the Drinking Norms Rating Form (DNRF). The DNRF parallels the DDQ in structure, asking participants to estimate how many drinks an individual from a given reference group consumed in a typical week over the last month by giving daily estimates. The instrument also assesses perceptions of drinking frequency, peak number of drinks, and frequency of heavy episodic drinking. Broadwater et al. reported adequate test–retest reliability in a college student population. Borsari and Carey and others have found good convergent validity for the DNRF based on other measures of alcohol consumption. For this study, the items contained in this measure demonstrated good internal reliability (α = .83).

The use of **protective behavioral strategies** was assessed using the Protective Behaviors Strategies Scale (PBSS). The PBSS is a 15-item self-report measure addressing protective alcohol use behaviors across 3 domains: limiting consumption, manner of drinking, and harm reduction. Internal consistency of the 3 factors ranged from .63 (harm reduction) to .81 (limiting drinking), with the low value suggested to be related to the low number of items on that factor. The authors also found good convergent and divergent validity as assessed by strong correlations between PBSS factors and measures of alcohol use and alcohol-related problems in a college-aged sample. For this study, PBSS items demonstrated excellent internal consistency (α = .90).

**Participant demographics** were collected via a brief questionnaire that assessed sex, ethnicity, age, height and weight, year in school, and whether the athlete’s sport was currently in-season or out-of-season.

## RESULTS

Quantitative data for this exploratory study were analyzed using the Statistical Package for the Social Sciences, version 19 (IBM, Armonk, New York).

### Demographic Data

A total of 170 student-athletes were enrolled in this study. Seventy-two student-athletes completed the in-person intervention and 43 of these students completed the 3-month follow-up survey. Follow-up survey invitations were also sent to 263 student-athletes who were eligible for the study but did not complete a brief intervention, and 98 of these completed 3-month follow-up surveys, comprising a no-treatment comparison group. The sample of student-athletes completing the in-person brief intervention and 3-month follow-up assessment consisted of 22 (51.2%) males and 21 (48.8%) females. Ages ranged from 17 to 23 years,

### TABLE 1. Means and Standard Deviations of Measures of Alcohol Use, Protective Behaviors, Negative Consequences, and Perceived Social Norms at Baseline and 3-Month Follow-up

| Measure | In-person intervention | | | No treatment | | | Baseline | 3-Month | Baseline | 3-Month |
|---------|------------------------|--|---|------------------------|--|---|------------------------|--|---|------------------------|--|---|
| | **Baseline** | **SD** | **3-Month** | **SD** | **Baseline** | **SD** | **3-Month** | **SD** |
| AUDIT* | 9.33 | 4.91 | 8.33 * | 4.95 | 6.71 | 5.31 | 6.52 | 4.98 |
| BAC Last Time Partied | 0.055 | 0.041 | 0.045 | 0.039 | 0.041 | 0.033 | 0.038 | 0.033 |
| PBSS Total score | 48.48 | 9.69 | 50.31 ** | 9.01 | 50.85 | 11.12 | 49.44 | 13.35 |
| PBSS Limiting/Stopping Drinking scale | 18.95 | 5.76 | 19.71 * | 5.58 | 20.51 | 6.50 | 20.40 | 7.34 |
| PBSS Serious Harm Reduction scale | 13.33 | 1.92 | 13.71 | 1.36 | 13.59 | 1.90 | 12.98 | 3.20 |
| RAPI Total | 4.71 | 5.02 | 2.92 ** | 3.47 | 4.21 | 6.44 | 1.97 ** | 2.80 |
| RAPI-A Total | 5.30 | 6.20 | 3.33 ** | 4.27 | 4.90 | 7.77 | 2.34 ** | 3.52 |
| Perceived norms (Drinks per week) | 22.26 | 10.08 | 15.93 *** | 7.81 | 22.97 | 11.92 | 21.25 | 14.63 |

*Significant between-group difference at baseline. Within-group differences from baseline to 3-month follow-up: \( p < .10 \); \( p < .05 \); \( p < .01 \); \( p < .001 \).

**Note.** AUDIT = Alcohol Use Disorders Identification Test (range = 0–40); BAC = blood alcohol content; PBSS = Protective Behavior Strategies Scale (total range = 15–90), Limiting/Stopping Drinking range = 7–42, Manner of Drinking range = 5–75, Serious Harm Reduction range = 3–45; RAPI = Rutgers Alcohol Problem Index (range = 0–92); RAPI-A = Rutgers Alcohol Problem Index containing student-athlete–specific negative consequences (range = 0–128).
with a mean age of 19.1. The majority were Caucasian (88.4%), while 7.0% were black/African American, 2.3% were Latino/a, and 2.3% were of mixed race/ethnicity. In the no-treatment comparison group, 38 (38.8%) were male and 60 (61.2%) were female. Participants in this group ranged in age from 18 to 23 years and had a mean age of 19.2. The majority were Caucasian (75.3%), while 15.5% were black/African American, 4.1% were Latino/a, 3.1% were Asian/Pacific Islander, and 2.1% reported mixed race/ethnicity. There were no significant differences at baseline assessment between study participants who completed and did not complete both baseline and 3-month follow-up surveys. There were significant differences between the intervention and comparison groups on baseline scores on the AUDIT (t[118] = −2.65, p < .01) and BAC Last Time Partied (t[122] = −2.06, p < .05), with scores in both cases being higher for the intervention group.

Means and standard deviations of the measures of alcohol use, protective behaviors, negative consequences, and norms perceptions are presented in Table 1. These data are for cases that have both baseline and follow-up assessments.

**Changes in Alcohol Use, Associated Negative Consequences, and Protective Behaviors**

Two-tailed paired-sample t tests were conducted to assess for changes from baseline to 3-month follow-up for participants completing the in-person brief intervention, as well as for those who did not complete an intervention. A number of significant findings were observed for student-athletes who completed the in-person brief intervention. For student-athletes completing the intervention, there were significant reductions in scores on the AUDIT (t[38] = 2.64, p < .05), RAPI (t[37] = 2.75, p < .01), and RAPI-A (t[33] = 2.73, p < .01). There was a statistical trend toward lower BAC last time partied (t[38] = 1.94, p < .10). Additionally, student-athletes who participated in the in-person brief intervention reported increases in use of protective behaviors, particularly those related to limiting alcohol intake and drinking in a controlled manner, as evidenced by PBSS Total (t[35] = −2.98, p < .01) and Limiting/Stopping Drinking (t[37] = −2.69, p < .05), and Manner of Drinking (t[38] = −2.50, p < .05) subscale scores. Finally, a significant reduction in perceptions of typical students’ weekly drinking was observed (t[41] = 4.29, p < .001), with perceptions moving closer to actual campus norms.

For student-athletes in the comparison group who did not receive an intervention, the only significant change from baseline to 3-month follow-up was a reduction in reported negative consequences, as indicated by the RAPI (t[64] = 3.48, p < .01) and RAPI-A (t[62] = 3.42, p < .01).

**Comparisons Between Intervention and No-Treatment Groups**

Repeated-measures analyses of variance (ANOVAs) were conducted to compare changes over time in the treatment and no-treatment groups for each of the study measures. Results indicated significant differences between the in-person brief intervention group and the no-treatment group in measures of reported use of protective behaviors and perceptions of typical students’ number of drinks per week. More specifically, there was a significant difference between groups on the PBSS Manner of Drinking subscale (F[1, 114] = 4.48, p < .05). In addition, there were statistical trends toward a difference between groups on the PBSS Total score (F[1, 108] = 3.11, p = .08) and Serious Harm Reduction subscale (F[1, 117] = 3.43, p = .07). In each of these cases, student-athletes who completed the in-person brief intervention reported an increase in use of protective behaviors at 3-month follow-up, whereas, conversely, student-athletes who did not receive the in-person study intervention reported a slight decrease in use of protective behaviors at 3-month follow-up. With regard to norms perceptions, there was a significant difference between conditions (F[1, 135] = 5.90, p < .05), with student-athletes who completed the in-person brief intervention reporting a greater correction in their estimates of the number of drinks per week consumed by the typical student compared with the estimates of typical student drinks per week reported at 3-month follow-up by student-athletes in the no-treatment comparison group.

**COMMENT**

The main findings of this study indicate that an in-person alcohol screening and brief intervention protocol delivered to student-athletes containing athlete-specific personalized feedback content was effective in reducing reports of alcohol use frequency and quantity and alcohol-related negative consequences at 3 months post intervention. In addition, student-athletes participating in the athlete-specific brief intervention reported decreases in their use of protective behaviors and showed statistically significant corrections in norm misperceptions of the number of alcoholic drinks per week consumed by the typical student. There was also a statistical trend noted with regard to reduction of BAC from baseline to 3-month follow-up. Moreover, participants in the student-athlete-specific brief intervention condition demonstrated greater corrections of norm misperceptions of drinks per week consumed by the typical student and reported greater use of protective behavioral strategies focused on their manner of drinking and their overall use of protective behavioral strategies than did a comparison group of student-athletes not participating in the intervention.

The above results support the hypothesis that an in-person, 1-session individual brief alcohol intervention that integrates the principles and theories of sports medicine, sport psychology, and exercise and performance science to deliver personalized drinking feedback that is relevant, responsive, and realistic to the unique issues, demands, and challenges faced by student-athletes is associated with short-term reductions in both alcohol use and related consequences and increases in the use of protective behaviors.
over time. This exploratory study also offers evidence of potential clinical promise based on data supporting inter-
vention effectiveness in comparison with a no-treatment 
group. At a basic level, these data add to the emerging body 
of knowledge on the value—and limitations—of target pop-
ulation-specific alcohol screening and brief intervention 
protocols. Specifically, the study offers evidence to suggest 
that an SBI protocol tailored to the unique needs of student-
athletes can be a useful component within the array of serv-
ices offered by campus-based health care and counseling 
providers. Although randomization of study participants 
was not employed in the current study and the follow-up 
period was relatively brief, the observed reductions in alco-
hol use and associated negative consequences were consis-
tent with prior studies using the BASICS intervention 
among general populations of college students.13,14,19,20 

More importantly, the reductions occurred in the context of 
a naturally existing service delivery setting on a college 
campus (ie, a university-based counseling center) faced 
with multiple and competing administrative and service 
demands. These findings are comparable to several studies 
general college student populations conducted within 
college health and counseling centers.13,14 

Findings from this study suggest that estimates of other 
students’ drinking were corrected for student-athletes 
receiving the in-person brief intervention relative to stu-
dent-athletes in the no-treatment comparison group. The 
positive relationship between normative perceptions and 
one’s own alcohol use has been well established in the 
college drinking literature,36 and some studies have shown 
stand-alone social norms interventions to be effective at 
reducing alcohol consumption.37 It is not clear, however, 
how changes in norm perceptions might influence alcohol-
related outcomes in a multicomponent intervention such 

between protective behavioral strategies and changes in 
alcohol consumption is largely unknown. Some researchers 
have suggested that the construct may be associated with 
reductions in reported alcohol-related problems between 
baseline and postintervention follow-up points.34–36 to this 
end, it is encouraging to note that student-athletes in this 
study reported both increases in use of protective behav-
ioral strategies and reductions in reported alcohol-related 
negative consequences at the 3-month follow-up interval, 
suggesting that this construct has potentially useful implica-
tions for both researchers and clinicians who address alco-
hol use among college student-athletes and underscores the 
need for further study. 

Clinical Implications 

Excessive use of alcohol is most widespread among 
young adults,38 and college student-athletes are among the 
populations at highest risk for both use and related harms. 
Despite this concerning prevalence and the existence of 
practice guidelines recommending screening and health 
care provider advice, which could help address these com-
mon causes of injury and related negative consequences, 
research indicates that few young adults are asked and 
advised by health care providers about excessive alcohol 
consumption and other drug use.39,40 This results in many 

missed opportunities to identify signs of alcohol use/abuse 
and dependence early, within routine medical and mental 
health visits that are unrelated to alcohol use. Consequently, 
there is a current critical need to identify screening and 
brief interventions that are efficacious and cost-effective 
when delivered in campus-based clinical settings. Because 
many student-athletes seek medical and mental health serv-
ices, such as sports physicals, performance enhancement 
and mental skills training, and treatment for presenting 
problems unrelated to their alcohol use, from health and 
mental health care agencies within their institutions of 
higher education, early intervention for alcohol use con-
ducted within a college or university setting as part of rou-
tine medical and mental health care is a promising, 
innovative, and cost-effective evidence-based strategy to 
investigate through research and implement as a best practice.

In light of the above, this study has important clinical 
implications for professionals working in college and un-
iversity service and treatment settings. The problems associ-
ated with alcohol use among student-athletes are well 
documented, and athletics departments, campus health 
and mental health service providers, and administrators are in 
critical and immediate need of intervention strategies that 
can be applied readily and administered efficiently and 
cost-effectively on their campuses. Integrating SBI proto-
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athletics and health and mental health care providers is a
natural fit, potentially appealing to college student-athletes, and consistent with the delivery of motivational interventions. The results of this study suggest that alignment of SBI programs between departments of athletics and campus health care agencies may be a feasible and effective solution to the problem of alcohol abuse among student-athletes, with benefits for the individual student-athlete, the department of athletics, and the institution of higher education as a whole.

Given the well-documented history of laboratory-based studies demonstrating the effectiveness of SBI protocols with college students and the preliminary evidence regarding their efficacy with specialized target populations such as student-athletes, health and mental health practitioners and administrators on college campuses are encouraged to offer SBI programs in their health and counseling centers for student-athletes as well as members of other target populations of students engaging in, or potentially engaging in, high-risk drinking. Although a number of potential barriers to intervention implementation exist, including the development of collaborations with department of athletics staff, hiring and/or training the necessary intervention provider staff, educating medical and counseling staff about the usefulness of SBI protocols, obtaining physical space and other resources to conduct the programs, and devoting resources to monitor and evaluate intervention effectiveness, there is strong, compelling evidence that the benefits to both the students who participate in these interventions and the campus as a whole are many, and the benefits, over time, may outweigh the challenges.

**Limitations**

There were several limitations associated with this study. Because participants in this study were not randomized, firm conclusions about the causal effect of the study intervention cannot be made, and potential mediators of intervention effectiveness could not be tested. Additionally, because study participants were not randomized, there was a significant difference between the intervention and comparison group scores on the AUDIT; however, as baseline AUDIT scores were higher in the intervention group, student-athletes in most need of the study intervention received it. A second limitation was a relatively low follow-up rate, although baseline characteristics of study participants who completed and did not complete the study intervention did not appear to differ in the study. A third limitation associated with this study was that it was conducted at only one university, which limits the generalizability of the findings. Finally, all data were self-report, although research has indicated that self-report data regarding drinking behaviors are generally reliable and valid.17,41 Despite these limitations, this exploratory study serves as an initial step that may guide future research on brief and potentially lifesaving interventions for student-athletes.

**Summary and Future Directions**

This study makes an important and innovative contribution to the literature on the practical application of research findings to clinical and prevention practice addressing the prevention of and intervention for high-risk drinking among student-athletes. Results indicate that the implementation of an alcohol screening and brief intervention program that is relevant and responsive to the specific needs of its target audience and which includes and highlights opportunities for examination of intervention content relevant to the target population is associated with significant reductions in alcohol use and related harms. Such interventions are also associated with reported increases in the use of protective behavioral strategies that reduce alcohol-related harms. Finally, these interventions are linked to corrections in norm misperceptions across time, a perception shift that is necessary, but not sufficient, for longer-term behavior change to occur.

Within future research, it is important to utilize both randomized controlled trials that examine longer-term attitude, perceptual, and behavior changes over time, with additional attention focused on the assessment of the maintenance of learned risk reduction skills between brief intervention and follow-up points. It is also recommended that research be conducted on the provision of student-athlete–specific personalized feedback versus general, non–athlete-specific feedback with the student-athlete target population during the brief intervention sessions.

Future research addressing alcohol use among student-athletes may also be augmented by findings within the sports medicine research. As the physiological correlates between alcohol and exercise science are elucidated further, researchers will be equipped with greater guidance regarding the link between particular quantities of alcohol and the concurrent and resultant declines in athletic performance. Further, as researchers are better able to understand and determine the biological markers associated with specific levels of alcohol use, this information could help student-athletes make better-informed decisions about the frequency and quantity of their alcohol use and associated risk reduction.

Although additional outcome research with student-athletes, particularly in the context of campus health care delivery settings, is needed,13,21 the present study represents a significant step in informing prevention practice through innovation, and can serve as a focal point for the development of future brief intervention models that address alcohol use as well as a variety of other behavioral health issues for both student-athletes and other at-risk populations at institutions of higher education on a national scale.

**ACKNOWLEDGMENTS**

We thank the University at Albany Department of Athletics, including department leadership, coaches, and support staff, for their ongoing and unwavering collaboration, assistance, and commitment to the health and success of
their student-athletes. We also thank Richard Lucey, Jr, our Government Project Officer, for his assistance during the implementation of this project and his unwavering commitment to addressing high-risk drinking and other drug use among college students while at the US Department of Education and, most recently, at the Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration.

**FUNDING**

This project was supported by US Department of Education grant number Q184H060067. The views and opinions expressed are those of the authors and do not necessarily reflect those of the US Department of Education.

**CONFLICT OF INTEREST DISCLOSURE**

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of the United States and received approval from the Institutional Review Board of the University at Albany, State University of New York.

**NOTE**

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