

The Use of Alcohol Among NCAA Division I Female College Basketball, Softball, and Volleyball Athletes

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Objective: To identify and describe alcohol use among NCAA Division I female college basketball, softball, and volleyball players and to determine to what extent the players have been exposed to alcohol or other drug education programs.

Design and Setting: Mailed self-reporting questionnaire, sample of convenience. The study was conducted in the Department of Physical Education at the University of South Carolina.

Subjects: NCAA Division I athletic trainers of ten female basketball teams, ten female softball teams, and eleven female volleyball teams received questionnaires. A total of 371 participants returned questionnaires: 106 basketball players, 138 softball players, and 127 volleyball players.

Measurements: After reviewing the related literature, I developed a questionnaire and pilot tested it with a group of female swimmers and track and field athletes. The questionnaire consisted of three sections: demographic information, alcohol use, and alcohol education. I analyzed the questionnaires descriptively (frequencies, percentages, and means) and collectively, on the total population, and separately, on all teams. To validate and further understand information gained from the questionnaires, I conducted multiple face-to-face interviews with forty (11%) of the participants.

Results: Almost 79% of the subjects consumed alcohol, with light beers being the most popular beverage. Most started using alcohol before 18 years of age. More softball (89.1%) and volleyball (88.9%) athletes reported drinking than did basketball (63.2%) athletes. Quantity and frequency of alcohol use decreased during the competitive sport season but increased out

of season. Almost 60% (55.9%) of the participants engaged in binge drinking (defined as four or more drinks per drinking episode) out of season and 35% in season. Female athletes who lived off campus drank more frequently than those who lived in residence halls, but athletes living in residence halls reported drinking in larger quantities. The most common reasons subjects chose not to use alcohol included the effects alcohol has on health and sports performance, coaches' rules, dislike of the taste of alcohol, and concerns about weight gain. Those who chose to use alcohol did so mostly for social purposes. Most subjects received 4 to 8 hours of alcohol education in lecture sessions during their college careers. The majority wanted additional education, especially with regard to the effects of alcohol on sports performance.

Conclusions: Based upon the results of this study, alcohol education has little impact on alcohol use among NCAA Division I female basketball, softball, and volleyball players, particularly out of season. Most choose to use alcohol simply to have fun. Because alcohol affects athletic performance, female athletes tend to use less alcohol in season. Future studies should address the types of alcohol prevention and intervention methods used during out-of-season and in-season periods. Correlation studies should investigate relationships between these programs and alcohol use among female athletes. A broader population of athletes from various sports (eg, field hockey, golf, gymnastics, tennis, soccer, and swimming) should also be investigated.

Key Words: drugs, substance abuse, binge drinking

Previous studies have addressed the use of alcohol and alcohol-related behaviors of women of various ages and ethnic backgrounds.¹⁻⁵ However, limited research has been conducted on the use of alcohol by female college athletes.⁶⁻¹¹ The most recent 1997 NCAA Study¹¹ surveyed the use of alcohol and other drugs by 13,914 college athletes, of whom 4722 were females. The female athletes were from all three NCAA divisions. Unlike previous NCAA studies,⁶⁻⁸ female participants represented a wide range of female sports, including basketball, fencing, field hockey, golf, gymnastics, ice hockey, lacrosse, skiing, softball, soccer, swimming, tennis, track and field, and volleyball. Of the total population (including male athletes), 80.5% reported the use of alcohol. None of

the NCAA reports distinguished between male and female use of alcohol other than by sport. Athletes from NCAA Division I institutions (79.2%) reported alcohol use similar to that of Division II (79.7%) and Division III (82.6%) athletes.¹¹ To date, there have been no documented studies that examined alcohol use exclusively among Division I female college athletes. As more and more female athletes participate in organized sports programs and continue their sport experiences into the college level, information concerning this population's alcohol use and abuse will be beneficial in creating alcohol abuse prevention and intervention programs.

The study was proposed 1) to investigate and describe alcohol use among NCAA Division I female college basket-

ball, softball, and volleyball athletes and 2) to identify the degree to which the subjects participated in alcohol or other drug education programs.

METHODS

To examine this issue, the study used a multi-method approach, combining self-reporting questionnaires and multiple face-to-face interviews. I designed a self-reporting questionnaire based on results of previous studies⁶⁻⁹ and input from health education professionals and professionals in the fields of alcohol and other drug studies. To determine clarity of questions and time required to complete the questionnaire, I conducted a pilot test with 50 female track and field and swimming athletes. After the pilot test, I made changes in the questionnaires and sent them to certified athletic trainers of NCAA Division I female basketball, softball, and volleyball teams who competed against the University of South Carolina during the 1994-1995 sports season. Certified athletic trainers of the 21 participating teams received a total of 371 questionnaires. The certified athletic trainers distributed the questionnaires to the subjects who agreed to participate in the study. All of the participants returned the questionnaires. Questions on the survey addressed 1) quantity of alcohol consumption among female athletes, 2) frequency of alcohol consumption among female athletes, 3) types of alcohol used by female athletes, 4) differences in consumption of alcohol by school residence, 5) initial age of alcohol consumption, 6) reasons for using and not using alcohol, and 7) alcohol education received by female athletes.

I computed frequency distributions, collectively and separately, on all basketball, softball, and volleyball teams using SPSS-X software (release 2.0, Chicago, IL).

After the questionnaires were completed and returned, in order to validate and further understand information gained from the questionnaires, I conducted multiple face-to-face interviews with 40 participants (11%) in the study. I sorted, categorized, and interpreted qualitative data using an inductive mode of analysis (formation of subsuming categories of information from specific raw units of data) to establish the qualitative data analysis.

RESULTS

The certified athletic trainers returned the questionnaires that all 371 participants completed. Subjects included 106 (28.6%) basketball players, 138 (37.2%) softball players, and 127 (34.2%) volleyball players from across the southeastern, eastern, and midwestern regions of the United States. Participants ranged in age from 17 to 23 years, with a mean age of 19.5 years. With reference to ethnic background, 78% ($n = 291$) of the participants were white, 18% ($n = 67$) were African American, and 3% ($n = 13$) were from other ethnic backgrounds. Most participants (60.1%, $n = 223$) started in their respective sports and 55.8% ($n = 207$) had grade point

averages of 3.0 or higher on a 4.0 scale. Most of the participants lived in residence halls (62.2%, $n = 231$).

Almost 80% (78.8%, $n = 292$) of the subjects used alcohol. The most common alcoholic beverage used was light beer (47.6%), followed by wine coolers (27.1%) and liquor (20%), such as vodka, rum, whiskey, and mixed-drink combinations. Fewer basketball players (63.2%, $n = 67$) used alcohol than did softball (89.1%, $n = 123$) or volleyball (88.9%, $n = 113$) players.

Initial Age of Alcohol Use

Most of the subjects who used alcohol began before age 18 (72.6%, $n = 212$), with a mean age of 16.1 years. Softball (76.4%, $n = 94$) and volleyball (76.1%, $n = 86$) players reported initial use of alcohol at a younger age (before age 18) than did basketball (62.1%, $n = 42$) players. The mean age for initial use was 15.8 years (SD 2.1) by softball players, 16.0 years (SD 2.2) by volleyball players, and 16.5 years (SD 2.1) by basketball players.

Frequency of Alcohol Use

Frequency of alcohol use decreased during the competitive sport season and increased out of season. During the competitive sport season, 5.5% ($n = 16$) of all athletes who used alcohol reported drinking more than once per week. Among volleyball players who used alcohol, 2.7% ($n = 3$) reported drinking more than once per week in season, as did 6% ($n = 4$) of basketball players and 7.3% ($n = 9$) of softball players.

When out of season, 17.5% ($n = 51$) of all subjects reported drinking more than once per week. Among basketball players who used alcohol, 11.9% ($n = 8$) reported drinking more than once per week out of season, as did 16.2% ($n = 20$) of softball and 21.2% ($n = 24$) of volleyball players.

Quantity of Alcohol Use

While in the competitive sport season, 35.3% ($n = 103$) of all athletes who used alcohol drank 4 or more alcoholic beverages per drinking episode (binge drinking).¹² While in season, volleyball players binge drank the least (28.3%, $n = 32$), followed by basketball players (31.3%, $n = 21$) and softball players (41.1%, $n = 51$).

Out of season, binge drinking increased from 35.3% ($n = 103$) to 56.2% ($n = 164$) for subjects who used alcohol. Softball players had the highest rate of binge drinking (61.8%, $n = 76$), followed by basketball (44.8%, $n = 30$) and volleyball (39%, $n = 66$) players (Table).

Place of School Residency and the Use of Alcohol

Most of the female athletes in this study lived in residence halls (62.2%, $n = 231$). Almost three-fourths of the athletes living in residence halls (74.8%, $n = 173$) reported using

Binge Drinking (4 or More Drinks Per Episode)

Team	Number	Percentage
In Season		
Total	103	35.3
Basketball	21	31.3
Softball	51	41.1
Volleyball	32	28.3
Out of Season		
Total	164	56.2
Basketball	30	44.8
Softball	76	61.8
Volleyball	66	39.0

alcohol. Slightly over 74% (74.3%, $n = 104$) of the athletes who lived off campus reported drinking. Female athletes who lived off campus used alcohol more frequently but in less quantity than did those who lived in residence halls. Slightly over one-fifth (21.1%, $n = 22$) of the athletes living off campus reported drinking more than once per week, compared with 13.8% ($n = 24$) living in residence halls. Binge drinking (58.4%, $n = 101$) was higher among those female athletes living in residence halls than those living off campus (52.9%, $n = 55$).

Why Do Female Athletes Use Alcohol?

Using a 3-point Likert scale, (1 = not important, 2 = somewhat important, 3 = very important), the questionnaire asked female athletes to rank why they did or did not choose to use alcohol. Most female athletes (92.6%) felt that the effects alcohol has on their sports performance was a somewhat or very important reason why they chose not to drink. The second most common reason not to drink was the effects alcohol has on general health (89.1%). The athletes also included their coaches' rules about alcohol use (79.4%) and concerns about weight gain (52.1%).

When asked why they chose to drink, most athletes reported that drinking for social reasons (73.3%) and the fact that alcohol made them feel good (67.3%) were either somewhat or very important.

Alcohol Education

Most NCAA Division I female basketball, softball, and volleyball athletes (85%) participated in some type of alcohol education program during their college careers. Subjects described the programs as either single lecture (41.8%) or multiple lectures (27.8%). Single lectures were those requiring the team to listen to a speaker on a one-time basis. This type of program was usually conducted at the beginning of the academic year. The athletic department invited a professional speaker to meet with the athletes, coaches, and staff. There was usually no followup program to this session. Multiple lectures incorporated various types of sessions throughout the academic

year and most often out of season. These sessions were often more holistic as various issues were presented: alcohol and performance, use of anabolic steroids, use of weight loss products, sports nutrition, and stress management. The mean education contact hours subjects received throughout their college careers was 8.75, although not all hours involved alcohol education.

DISCUSSION

Although previous studies have explored the issue of alcohol use among college athletes,^{6-9,11} because of differences in sampling techniques and methods of inquiry, those results are not directly comparable with the results of this study. In addition, no previous documented studies exclusively address the issue of alcohol use by Division I female college athletes who participate in the sports of basketball, softball, and volleyball. NCAA studies^{6-8,11} addressed the use of alcohol among both male and female college athletes from all three NCAA divisions. The first three NCAA studies⁶⁻⁸ included the women's sports of basketball and softball but not volleyball. It was not until the most recent 1997 NCAA study¹¹ that volleyball and other female sports were included. The NCAA studies reported differences in the use of alcohol by sex only as it related to a particular sport.

Of the three sports addressed in this study, basketball players reported using alcohol less frequently than did softball or volleyball players, but reported the second highest incidence of binge drinking. In the 1997 NCAA¹¹ study, fewer basketball (78.5%) players used alcohol than did female volleyball (81.9%) or softball (81.4%) players. Previous research^{11,12} indicated that African American females do not start using alcohol in quantities and frequencies comparable with white females until their mid twenties. In this study, the percentage of African American athletes was higher in basketball (47.2%) than in softball (4%) or volleyball (11%). All female athletes in this study were 23 years of age or younger. This difference in alcohol use among basketball players as compared with softball and volleyball players may be related to the ethnic makeup of basketball teams and the traditional drinking patterns found in the African American female culture.³

In addition to the different ethnic composition of basketball teams, qualitative data indicated that many female softball and volleyball players believe basketball players drink less due to the physical demands of basketball. Softball and volleyball players perceive the aerobic requirements of basketball as being quite demanding. Also, college basketball has a competitive season longer than that of softball or volleyball and requires more in-season time. Since basketball players have less off-season time and more holidays during their competitive season (Thanksgiving, Christmas, and for some teams, spring break), perhaps this is a reason for their less frequent use of alcohol.

Qualitative inquiry indicates that many female athletes believe that their athletic and academic schedules provide less

opportunity to drink than their nonathlete peers' schedules do. In season, most female athletes drink less than once per week, while their nonathlete peers drink two or more times per week.¹³ Female athletes drink less in season, but they engage in more binge drinking out of season. Forty-two percent of all college students report binge drinking,¹³ while nearly 47% of college athletes who use alcohol (88.2%) binge drink. A University of Massachusetts study¹³ reported that 50% of all college students drink to get drunk. Thirty-five percent of female college students report binge drinking throughout the year.¹³ About 56% of female basketball, softball, and volleyball athletes binge drink out of season, a period that ranges from 6 to 8 months.

As reported in previous studies,^{6-9,11} athletes used alcohol more often and in larger quantities out of season than in season. Female athletes also reported drinking in cycles. They drink more on weekends and out of season. In contrast with the results of previous studies on college students, the results of this study indicate that female athletes no longer wait until the weekend to binge drink, but are likely to do so any night or several nights of the week. Among general college students, both quantity and frequency of drinking have increased.^{13,14}

Why do female athletes drink less frequently, but in similar or in greater quantity, than their nonathlete peers? Many female athletes see their athletic participation as a full-time job, and during the season this job becomes quite demanding.¹⁵ A Commission on Alcohol and Substance Abuse (CASA)¹⁴ study found that 70% of college students with full-time jobs reported less frequency and quantity of drinking than did students without full-time jobs. A second reason for the limited use of alcohol by female athletes during the season is that they seem to know the effects of alcohol on sports performance and choose moderation in quantity and frequency during this period. In this study, nearly 90% chose not to use alcohol because of its effects on sports performance. A third reason for alcohol nonuse is coach's rules against alcohol use during the competitive season. Female athletes know that, to keep their athletic scholarships, they must remain in good standing with the coach. Breaking the coach's rules for any reason may jeopardize their scholarships and keep them from attaining a college degree.

There is concern that intensive athletic training and the keen competition of college sports may be related to increased alcohol use among athletes. Tricker and Cook¹⁶ refer to the environment of college athletics as the "fishbowl" experience. The "fishbowl" describes athletes as a special population, living and participating in highly charged, intense, and publicly exposed environments. While in this environment, athletes must deal with public scrutiny, media attention, and intense societal focus that often put them at greater risk for alcohol and drug use.¹⁶ However, in this study, the number one reason for the use of alcohol was for social purposes. The 1993 and 1997 NCAA studies^{6,11} and a study conducted by Selby¹⁷ concurred with this study: that athletes attribute relatively little alcohol use to coping with college or athletic stress. Similar to the

behavior of athletes in the NCAA studies, NCAA Division I female college basketball, softball, and volleyball athletes do not use alcohol to combat or cope with stress associated with being a college student-athlete. Indeed, if they were using alcohol as a coping mechanism for stress, then what could explain the more frequent and greater quantity of alcohol use during the off season?

No previous studies exist concerning differences in alcohol use among athletes who live in residence halls compared with those who live off campus. This study found that female athletes who live in residence halls drink less frequently but in larger quantities, which could be due to alcohol use rules in residence halls. Many colleges do not permit the possession or use of alcohol in dormitories; thus, there is less likelihood of alcohol in a dormitory room than in an off-campus apartment. The use of alcohol for those athletes who live in residence halls is less convenient, which in turn decreases the frequency of their drinking. In addition, athletes who live in residence halls tend to be younger. Many colleges require or encourage freshmen to live on campus the first year. The younger the college student, the greater the risk of binge drinking.^{9,13} In fact, 57.6% of all 18- and 19-year-old athletes in this study reported binge drinking, compared with 52% of the 20- and 21-year-olds.

Eighty percent of college athletes who use alcohol began drinking while in junior high or high school.⁶ Almost three-fourths of the female athletes in this study who use alcohol began before entering college. Of the 371 participants in this study, 79 did not use alcohol and 23 started using alcohol after age 18. Approximately 21% of these women were nondrinkers or did not begin drinking until after entering college. Alcohol abuse prevention education should be targeted at those athletes who have not started drinking. Alcohol use surveys can be used to help develop prevention and intervention programs.

Nearly all of the female athletes in this study had participated in some type of alcohol education program. Decreased frequency and quantity of drinking during the competitive season indicated that they understood and respected the negative effects of alcohol on sports performance while they were competing. Unfortunately, this knowledge had little impact on their off-season behavior, a time when 56% engaged in binge drinking. Indeed, most female athletes reported that what education they received had little impact on their behavior, particularly when they were not competing.

CONCLUSIONS

As Title IX continues to make an impact on women's sports programs, more females will participate in sports at all levels. With this increased participation will come a more diverse group of athletes, with diverse behaviors involving the use of alcohol and other drugs.

Decreasing the use of alcohol among female college athletes is a challenge. Female athletes reflect the views and practices of the larger college population, which regards the use of alcohol as an acceptable and often promoted practice. Results of this study indicate that these female athletes are aware of the

short-term impact of alcohol on sports performance but seem less aware of the overall long-term effects. Certified athletic trainers, coaches, administrators, and health care professionals need to continue their efforts to develop and deliver alcohol prevention and intervention programs to athletes. A one-shot educational program is as effective as one practice before the competitive season. These programs should be integrated throughout the career of the student-athlete in a series of programs addressing concerns such as the effects of alcohol on motor performance, cognition, and affective behavior.

Since more female athletes engage in drinking during the off season, these programs should be offered during this period. The off season provides more time to promote and engage in educational and intervention activities than the competitive sport season.

As female athletes have more opportunities to compete in competitive sports programs, they should also have the opportunities and tools to develop an understanding and acceptance of how practicing good health habits can enhance their sports and academic performance, thus making their college experience more successful.

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