

Review Article

Addicted to Winning: A Review of Gambling Disorder in College Athletes

Donald E. Nowak Jr*

Department of Counseling & Clinical Psychology, Medaille College, USA

*Corresponding author

Donald E. Nowak Jr, Department of Counseling & Clinical Psychology, Medaille College, USA, Tel: 17168802448; Email: donald.e.nowak@medaille.edu

Submitted: 15 May 2018

Accepted: 28 May 2018

Published: 30 May 2018

ISSN: 2373-9363

Copyright

© 2018 Nowak

OPEN ACCESS

Keywords

- Gambling disorder
- College student-athletes
- Prevalence
- Addiction
- NCAA

Abstract

This review looks at research from 1991 to the present in regard to college student-athlete gambling addiction and disorder issues with an emphasis on prevalence rates, motivations, and comorbid disorders as well as NCAA national studies and derivative research. Subsets of the college student-athlete population, namely, minority athletes are also examined. PsycINFO, PsycARTICLES, ERIC, SPORTDiscus, MEDLINE, and *Dissertation Abstracts International* (ProQuest) were searched for possible contributions to this review. Student-athletes and male student-athletes in particular, are vulnerable to disordered gambling problems, which, if not addressed by university administration and athletic departments, can result in severe negative consequences for the student-athlete. The research shows, for the most part, that student-athletes have a higher rate of pathological gambling than non-athletes, though the rate of "normal" gambling behavior is about the same. Additionally, it appears that athletes in certain high profile team sports (football, basketball, etc.) as well as athletes belonging to a minority group are more likely to report problems with gambling than their counterparts. Recommendations for working with student-athletes with a gambling disorder as well as directions for future research in this burgeoning area are offered, including screening for the disorder by mental health professionals and counselors, as well as training for coaches and financial aid personnel.

INTRODUCTION

The economic downturn and volatility of the past decade have seen an unprecedented number of cash-strapped state and national governments turn to and rely more heavily upon gambling revenue by expanding lotteries, approving more and more casinos, and establishing slot machines at existing racetracks [1]. In addition to these governmental agencies, academic institutions and religious organizations have also turned to gambling revenue to meet increasing expenditures amidst the backdrop of imposed cutbacks [2]. Even countries that do not officially permit gambling for its citizens because of cultural or religious reasons often sanction gambling venues for foreign visitors (e.g., Malaysia and South Korea) [3]. This rapid growth is not only driving up profits for gambling organizers, it is also resulting in a dramatic increase in gambling disorder [3]. The concomitant cost to society is staggering, as one Baylor University researcher estimated that addicted gamblers cost the United States alone somewhere between \$32.4 billion and \$53.8 billion a year [1].

Many adolescents begin gambling at an age earlier than they begin other risky behaviors such as smoking and alcohol use [4]. Thus, by the time they reach their college years, many young men and women have already begun gambling, whereas others may

simply get involved in gambling as a "rite of passage" for the first time while in college [5]. Regardless, young adult populations between the ages of 18-25 have become especially vulnerable to gambling problems with significantly higher rates than the general adult population, and as such are often specifically targeted by advertising campaigns [6-9].

The rise in problem gambling has been most notably reflected in the increase in college counseling centers reporting cases of students facing issues such as insurmountable debt, depression, and academic problems, as well as college student-athletes in jeopardy of expulsion for their illegal activities related to gambling [10-12]. The problem of gambling disorder can be especially noteworthy among college and university students, many of whom have the resources, proximity, free time, and general desire to become involved in the myriad options of gambling such as casinos, Internet gambling websites, daily fantasy sports (DFS) online, poker games on- and off-campus, sports gambling, instant scratch-off tickets, and state lotteries. This does not begin to include the vast number of illegal and informal modes of gambling (often involving a bookmaker) that may expose a student to personal safety issues, as well as the obvious and inevitable monetary losses.

College students are particularly susceptible to developing

gambling disorder issues because of the confluence of several different factors, creating a so-called “perfect storm” in what this researcher terms “The Five A’s”: *age*, with the college years being associated with a wide range of risky behaviors [13] *availability* of wide-scale legal (and illegal) gambling, including online gambling; *acceptability* of gambling operated by various government entities and integrated into mainstream culture; *advertising* and media which promote, glorify, and glamorize gambling as a legitimate sport; and *access* to monetary funds, especially from student loans and through numerous credit card solicitations. The result is a population group specifically targeted by both the media and advertisers which is especially vulnerable to gambling problems.

COLLEGE STUDENT-ATHLETES AND GAMBLING

The area of pathological gambling in college student-athletes was generally ignored in favor of an initial focus on treatment of pathological gambling in adults and on addiction and prevention in adolescents. But gambling scandals in the late 1990s at Arizona State University, Boston College, and Northwestern University caught the attention of the National Collegiate Athletic Association (NCAA), its member institutions, the press, and fans of intercollegiate athletics. Other researchers began to believe that college students might well represent the segment of our population with the highest rate of pathological gambling [14].

METHODOLOGY

The process involved in obtaining information about problem gambling and probable pathological gambling and its prevalence among college and university student-athletes was thorough and exhaustive. In order to identify all possible studies from 1987 to the present, the search terms “gambling,” “college students,” and “student-athletes” were used as the primary search terms, as well as the use of other synonyms such as “gaming” for “gambling,” “disordered” and “compulsive” for “pathological,” and “university students” for “college students.” The following online databases were closely examined using the search terms outlined above, PsycINFO, PsycARTICLES, ERIC, SPORTDiscus, and MEDLINE. *Dissertation Abstracts International* (ProQuest) was also searched for possible contributions and suggested several possible studies for inclusion. Bibliographies and references from the past three published syntheses in this area of interest [9,15,16] were examined for possible additions to the set of studies as well, and assisted in the review.

Additionally, this researcher used the aforementioned terms in search functions for the online library of the Responsible Gambling Council (www.responsiblegambling.org), as well as the online gambling library of the International Gambling Research Institute (www.gamblib.org). Both digital libraries are comprehensive resources for scholarly articles in the gambling research field, which is still growing and relatively nascent in terms of generating academic work, specifically in the realm of college students’ gambling behavior.

STUDIES

One of the earliest published articles looking at the gambling behaviors and attitudes toward risk-taking in general with student-athletes was done by Cross, Basten, Hendrick, Kristofic,

and Schaffer [17], at the University of Michigan. The researchers surveyed 648 NCAA Division I football and men’s basketball players, with a stated goal of better understanding student-athlete gambling and to “encourage more extensive research that may lead to preventive measures in the future” (p. 432). The results indicated that 25.5% of the college student-athletes gambled on intercollegiate athletic events, which in itself is an NCAA violation carrying with it a year’s suspension [18], and 3.7% indicated they had wagered on a sporting event in which they had participated, an NCAA violation with a mandatory lifetime ban.

Additionally, Cross et al., found that the men’s basketball and football players who gambled on sports had significantly different attitudes towards risk-taking than their student-athlete counterparts who had not participated in gambling activities, namely, much more permissive attitudes in general. This level of permissiveness towards risk-taking was higher in the football players than the basketball players, supporting one hypothesis of the researchers that the more physical nature of the sport of football would potentially predict this because they were, presumably, high-sensation seeking individuals to begin with.

Another study that looked specifically at the group of college student-athletes [19], not only attempted to ascertain levels of problem and pathological gambling but also attitudes towards gambling and the modes of gambling they preferred, as well as some of the predictors of gambling problems. Kerber surveyed 636 student-athletes at three Midwestern universities using the South Oaks Gambling Screen (SOGS) and the Gambling Attitude Scale (GAS) and found that while nearly one-quarter (24.1%) of the college athletes claimed never to have gambled, the observed SOGS scores (i.e., those scores ≥ 3) indicated that 15% exhibited either problem or pathological gambling.

The SOGS was originally intended to screen for pathological gambling in clinical settings, but over the past quarter-century, has since expanded to other purposes, populations, and settings, including prevalence estimate studies of pathological gambling in the general population [20]. The past-year self-report version has indicated good overall classification accuracy (.96), with better sensitivity (.99) than specificity (.75), indicating that the SOGS tends to more often identify false positives (Stinchfield, 2002), a common limitation mentioned by researchers.

Using a multiple regression analysis to predict this total SOGS score from six variable sets, it was concluded that the variables that best predict gambling problems (via a SOGS score) were: frequency of gambling behavior; number of family members or friends with gambling problems; race (i.e., being a minority group member); and age (older rather than younger). There was no correlation between grade point average and SOGS scores, but student-athletes who were in a fraternity or sorority were found to have higher rates of pathological and problem gambling. The most frequent modes of gambling, for those who did in fact gamble, were in games of skill, such as betting on golf, or playing cards (specifically poker) for money.

NCAA NATIONAL STUDY AND DERIVATIVE RESEARCH

As stated earlier, the NCAA had taken a pointed interest in the gambling behaviors of college student-athletes, particularly

because of the damage that could be done to its reputation and those of its member institutions. To that end, the NCAA commissioned the *2003 NCAA National Study on Collegiate Sports Wagering and Associated Health-Risk Behaviors*, a self-administered, voluntary, and anonymous survey, which was returned by 20,739 student-athletes. The study was comprised of 102 questions and was the most comprehensive and first truly national assessment of college student-athletes ever undertaken [21]. Four of the published research articles that used this valuable information are examined in this literature review.

Huang et al. [22], in the first of a series of articles using this extensive NCAA data set, attempted to look at prevalence rates of problem and pathological gambling, as well as the most popular forms of gambling for student-athletes, and the particular NCAA sports which were most susceptible to having gambling problems and issues. The researchers found that past-year prevalence was consistently higher among male student-athletes than it was among their female counterparts, consistent with all gambling research. On the basis of DSM-IV Gambling Screen methodology, 4.3% of men, and 0.4% of women were identified as problem or pathological gamblers.

Athletes involved in golf, ice hockey, and lacrosse were seen to have the highest rates of participants who reported wagering on any sporting event. In addition, student-athletes in gender-specific sports wagered more than did their counterparts in unisex sports. As found previously by Kerber [19], the most popular forms of gambling were card playing, games of skill, and lotteries. Of particular interest to the NCAA, a small number (1.1%) of student-athletes were asked to directly influence the outcome of a sporting event due to a sports wagering debt. However, Huang et al. caution the reader in the brief limitations section that it is quite reasonable to assume that some of these numbers are underreported "because of the sensitive nature of the questions asked, especially with athletic and scholarship eligibility at stake" (p. 98).

Ellenbogen, Jacobs, Derevensky, Gupta, & Paskus [22], used the 2003 NCAA survey data to determine whether certain student-athletes were more prone to frequent or problem gambling behavior. Looking at gender, race, type of sport played, and gambling mode, among many correlates, Ellenbogen et al. found that Hispanic males reported the highest problem and pathological rates and that the percentage of gamblers was highest among Division III student-athletes, followed by Divisions II and I. In addition, members of team sports were more likely to gamble than student-athletes in individual sports. Student-athletes in high profile sports were more likely than other student-athletes to gamble, gamble weekly, be at-risk gamblers, be pathological gamblers, and place more money on sports wagers.

In attempting to explain some of these findings, the researchers echoed the aforementioned findings of Cross and colleagues in stating that it is plausible that high-profile sports attract individuals who are particularly competitive and risk-takers, and that these personality types are generally associated with problem gambling. Ellenbogen et al. found that minorities may be especially vulnerable to gambling problems in this and a previous study [23], the authors explain that the risk to college athletes in high-profile sports goes beyond greater representation

of ethnic minorities. High profile sports in which minorities are less represented (e.g., ice hockey, golf) show comparable gambling rates. They reasoned that "at least part of the reason for the high prevalence of gambling problems lies in the nature of high-profile sports, the personalities of the athletes attracted to these sports, or a combination of both" (p. 359).

Huang, Jacobs, Derevensky, Gupta, & Paskus [24] returned to the same NCAA data set in examining the connection between gambling and health risks among college student-athletes. The researchers reiterated some of the findings from their earlier study, but also looked at such health risk behaviors such as alcohol, cigarette, and marijuana usage, along with other drug use, eating disorders, and incidents of unprotected sex. Students were classified as a non-gambler, social gambler, problem gambler, or pathological gambler.

The results indicated that there was a general upward trend in the data that suggested that as the level of gambling-related problems increased, so did the prevalence of substance use/abuse, gorging/vomiting, and risky sexual practices with multiple partners. Cross-group comparisons by gambler type (as outlined above) were all significant. These findings led additional credence to the idea of risk-taking and permissiveness towards risk being a vital predictor of possible problem gambling in college student-athletes. Huang et al., concluded by suggesting the need for "multi-faceted initiatives to tackle these risk behaviors simultaneously" (p. 397).

One specific study looked at the particular issue of heavy episodic drinking (HED) using the NCAA data in relation to DSM-based problem gambling [24]. The study aimed to "empirically examine the prevalence patterns and odds of at-least-weekly alcohol use and HED in relation to various levels of gambling severity in college student-athletes" (p. 302). Different studies had suggested the link between gambling and drinking, especially in college students, and particularly with student-athletes, but none had examined them empirically, especially with such a large sampling (almost 21,000 respondents).

Similar to other studies, and not unexpectedly, the researchers found that males had a higher prevalence of gambling and rates of drinking alcohol than females. Univariate and multivariate logistic regression models revealed that problem gambling was the strongest covariate of at-least-weekly HED. The prevalence of alcohol use increased significantly as gambling level severity increased. Additionally, the steep increase in relative risk also suggested a possible quadratic relationship between gambling level and HED. The researchers concluded by urging health care providers, college administrators, and athletics personnel to develop evidence-based policies and initiatives to curb college drinking and gambling problems, and to incorporate gambling as a risk factor in future investigations of college drinking.

One of the main limitations mentioned or at least alluded to in most of the aforementioned student-athlete studies is the generalizability of the findings to the population of college students in general. However, there have been several studies which have comparatively examined the gambling behaviors of non-athlete college students and student-athletes. Three of these studies are reviewed here, with some surprisingly disparate results.

COMPARATIVE STUDIES

Engwall, Hunter, & Steinberg [25], surveyed 1,350 undergraduates at the four campuses of Connecticut State University in the fall of 2000, using a modified South Oaks Gambling Screen. The researchers found that 18% of the men and 4% of the women had at least three negative life consequences due to gambling. These negative consequences included feeling guilty about gambling, gambling more than they had intended, and using money earmarked for other expenses (rent, car, food) for gambling instead. Not unlike Huang et al.'s findings above, they discovered that those who were identified as problem gamblers were also significantly likely to be heavy drinkers, report negative consequences of drinking activity, and be regular cigarette and marijuana users.

Problem gambling was also related to binge eating and greater use of weight-control efforts. Engwall et al., also found that the percentage of male team athletes (for this research, students were asked if they participated in intercollegiate or club sports) involved in problem and pathological gambling (26%, $n=122$) to be significantly higher than the rate among non-athletes. This same pattern was also indicated in female athletes versus their non-athlete counterparts. Male and female student-athletes alike both also gambled more frequently on card games, sports betting, and games of skill, as had been reported in some of the other studies cited in this literature review.

Another study that looked at gambling and other high risk behaviors in college students [26], surveyed over 1,000 Pennsylvanian college students, with part of their research devoted to noting patterns of gambling among student-athletes as compared to non-athletes. The researchers found that significantly more athletes (17%) than non-athletes (9%) reported ever gambling ($p<.01$) and also had more gambling debt (5%) than did non-athletes (1%; $p<.001$). However, a significantly higher percentage of athletes actually sought help for gambling problems compared with non-athletes (7% vs 4%; $p<.05$). They also found that these significant differences were gender-specific to the men in the sample only. Not surprisingly, the number of females reporting gambling problems in the sample was so few as to render no significant differences.

The researchers also raised a question in their article which had not been mentioned in any of the reviewed articles in this paper, namely, "Should the measure (of gambling problems) be lifetime prevalence, past-year prevalence, or prevalence during school?" (p. 79). This is an important question that should be addressed in most research on this subject of gambling with student-athletes and non-athletes alike, because including lifetime, or even summertime into a student's assessment may incorporate different responses based on the students' past behaviors that researchers may or may not want to be included in the scope of such studies.

One research article that did not find any real statistical difference between college student-athletes and a student cohort [27], attempted to replicate previous prevalence work on student-athlete gambling, as well as examine risk factors for gambling behavior and pathology. The researchers stated that their study improved on previous studies by strictly defining

student-athletes as intercollegiate athletes, assessing gambling at four universities from geographically diverse areas, and using a comparison cohort of non-athlete students. A total of 736 student-athletes in 15 NCAA sports and a cohort of 1,071 non-athlete students from the same universities participated in the study.

The results were somewhat surprising on a couple of levels. First, there were no significant differences between student-athletes and non-athletes in terms of gambling frequency, use of a bookmaker, and disordered (i.e., problem and pathological) gambling. The only difference Weinstock et al., found was that student-athletes were actually less likely to engage in sports betting than the student cohort. The most alarming similarity was the lifetime prevalence rate of disordered gambling, with 12% of males and approximately 4% of females identified as disordered gamblers. These figures were quite a bit higher than any of the other studies reviewed had reported finding, and prompted Weinstock and colleagues to comment that "the notion that gambling is a university wide phenomenon in which student-athletes require supplementary attention due to the potential harm to intercollegiate athletics" (p. 21).

In the only meta-analysis of its type to date, Nowak [28], examined 124 independent data estimates retrieved from 72 studies conducted between 1987 and 2015, surveying 41,989 university students and student-athletes worldwide. The estimated proportion of probable pathological gamblers among students was computed at 6.13%, with a 6.46% rate among student-athletes; this difference was not statistically significant. Rates of problem gambling were computed at 10.23% and 8.97% for students and student-athletes respectively, and were statistically significant. Nowak also found that Black and Hispanic student-athletes were at an increased risk for exhibiting problem gambling.

CONCLUSIONS AND RECOMMENDATIONS

It appears that gambling behavior on university campuses is a problem that does not show any signs of abating anytime soon. Student-athletes and male student-athletes in particular, are vulnerable to disordered gambling problems, which, if not addressed by university administration and athletic departments, can result in severe negative consequences for the student-athlete, and possibly the institution and their reputation. The prevalence studies referenced here show disparate results in regard to athletes versus students in terms of gambling severity, with most showing little to no significant differences. One possible reason for this could be underreporting by student-athletes because of the perceived NCAA ramifications as previously noted. For those stakeholders in college athletics, the fact that these rates are just as high in student-athletes as in students (the highest percentage population of gambling disorder) should be a cause for concern and attention. Most notably, it appears that athletes in certain high-profile, revenue-generating team sports (football, basketball, etc.) are more likely to report problems with gambling than their counterparts participating in less visible athletic programs.

COLLEGE FACULTY AND STAFF

It would seem logical that faculty could also benefit from

in-service training related to gambling disorders and how to recognize some of the signs of a gambling problem, such as lateness or missed classes, declining grades and performance, tiredness, irritability, and the like. While these symptoms could be a litany of other issues, the main goal is to help faculty be cognizant of the possibility of a gambling problem as a potential cause of such symptomology. University personnel such as financial aid counselors should also be trained in detecting and screening for excessive gambling, as should residence hall directors and assistants, who see and interact with students in a much different milieu than faculty and administrators often do. Those university employees involved in the delivery of health services should also be trained in screening students for mental health problems, including gambling, when presenting for physical exams or problems.

COACHES

Because of the particular risk to student-athletes, as well as the inherent dangers of damaging an institution's reputation due to gambling-related scandals, college coaches and other members of athletic departments involved in recruiting, training, and coaching students should be provided with basic education on the popularity of sports wagering and the risks associated with gambling. They should also be made aware of the signs and symptomology of disordered gambling in the same type of training that other university faculty and staff should be strongly encouraged to participate in. This is particularly true for those coaches who work in high-profile NCAA Division I sports which most gambling activity in Las Vegas and online casinos is focused on.

LIMITATIONS AND FUTURE DIRECTIONS

Putting aside the relative dearth of research in the area of college student-athletes and gambling disorder, some limitations include the aforementioned possibility of underreporting by student-athletes, as well as missing data in a number of the articles reviewed, as researchers indicated students did not always answer fully what was asked of them. One limitation that kept cropping up was the use of lifetime gambling measures (SOGS, DSM-IV) which could have resulted in some distorted information rather than asking specifically about gambling experiences while enrolled in college. Future studies could be better served by inquiring about the college experience exclusively, as well as comparing and contrasting the percentage rates of gambling disorder as per the DSM-5 (APA, 2013) [29-32], versus the long-standing pathological and problem gambling rates which have been reported on prior to the new classification of this serious disorder which affects many college student-athletes in the United States. By addressing these issues, the larger body of work regarding college students and gambling can be better served in order to not only understand the scope of the problem, but how best to address it and by what means, as students' proclivity and access to the myriad options of both legal and illegal forms of gambling are still emerging. In fact, as states seriously consider legalizing sports betting, these gambling opportunities for young people already deeply invested in sports will grow as well.

REFERENCES

1. Stuart E. Gambling on the rise: Is America becoming addicted? Deseret News. 2011.
2. Iancu I, Lowengrub K, Dembinsky Y, Kotler M, Dannon PN. Pathological gambling. *CNS drugs*. 2008; 22: 123-138.
3. Hodgins D, Stea J, Grant J. Gambling disorders. *Lancet*. 2011; 378: 1874-1884.
4. Ladouceur R, Dubé D, Bujold A. Prevalence of pathological gambling and related problems among college students in the Quebec metropolitan area. *Can J Psychiatry*. 1994; 39: 289-293.
5. Stinchfield R, Hanson WE, Olson DH. Problem and pathological gambling among college students. In McClellan GS, Hardy TW, Caswell J (Eds.), *Gambling on Campus: New Directions for Student Services*. San Francisco: Jossey-Bass. 2006; 63-72.
6. Lesieur HR, Cross J, Frank M, Welch M, White CM, Rubenstein, et al. Gambling and pathological gambling among university students. *Addictive Behaviors*. 1991; 16: 517-527.
7. Shaffer HJ, Donato AN, LaBrie RA, Kidman RC, LaPlante DA. The epidemiology of college alcohol and gambling policies. *Harm Reduction J*. 2005; 2: 1-20.
8. Annenberg Public Policy Center. *The national Annenberg survey of youth*. Philadelphia, A: The University of Pennsylvania. 2005.
9. Nowak DE, Aloe AM. The prevalence of pathological gambling among college students: A meta-analytic synthesis, 2005–2013. *J Gambl Stud*. 2013; 1-25.
10. Martin R J, Nelson S E, Gallucci AR. Game on: Past year gambling, gambling-related problems, and fantasy sports gambling among college athletes and non-athletes. *J Gambl Studies*. 2016; 32: 567-579.
11. National Collegiate Athletic Association. *NCAA national study on collegiate sports wagering and associated health-risk behaviors*. Indianapolis, IN: The National. 2003.
12. Oster SL, Knapp TJ. Sports betting among college students: Who bets and how often? *College Student J*. 1998; 32: 289-292.
13. LaBrie RA, Shaffer HJ, LaPlante DA, Wechsler H. Correlates of college student gambling in the United States. *J Am Coll Health*. 2003; 52: 53-62.
14. Weiss SM, Loubier SL. Gambling behaviors of former athletes: The delayed competitive effect. *UNLV Gaming Research & Review J*. 2008; 12: 53-60.
15. Shaffer HJ, Hall MN, Vander Bilt J. Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *Am J Public Health*. 1999; 89: 1369-1376.
16. Blinn-Pike L, Lokken Worthy S, Jonkman JN. Disordered gambling among college students: A meta-analytic synthesis. *J Gambl Stud*. 2007; 23: 175-183.
17. Cross ME, Basten J, Hendrick E, Kristofic B, Schaffer EJ. Student-athletes and gambling: An analysis of attitudes towards risk-taking. *J Gambl Stud*. 1998; 14: 431-439.
18. Cullen FT, Latessa EJ. The extent and sources of NCAA rule infractions: A national self-report study of student-athletes. Indianapolis, IN: The National Collegiate Athletic Association. 1996.
19. Kerber C. Problem and pathological gambling among college athletes. *Ann Clin Psychiatry*. 2005; 17: 243-247.
20. Stinchfield R. Reliability, validity, and classification accuracy of the South Oaks Gambling Screen (SOGS). *Addict Behav*. 2002; 27: 1-19.

21. Huang J, Jacobs DF, Derevensky JL, Gupta R, Paskus TS. A national study on gambling among US college student-athletes. *J Am College Health*. 2007; 56: 93-99.
22. Ellenbogen S, Jacobs D, Derevensky J, Gupta R, Paskus T. Gambling behavior among college student-athletes. *J Applied Sport Psychol*. 2008; 20: 349-362.
23. Ellenbogen S, Gupta R, Derevensky JL. A cross-cultural study of gambling behaviour among adolescents. *J Gambl Stud*. 2007; 23: 25-39.
24. Huang J, Jacobs DF, Derevensky JL. DSM-based problem gambling: Increasing the odds of heavy drinking in a national sample of U.S. college athletes? *J Psychiatric Res*. 2011; 45: 302-308.
25. Engwall D, Hunter R, Steinberg M. Gambling and other risk behaviors on university campuses. *J Am Coll Health*. 2004; 52: 245-255.
26. Stuhldreher WL, Stuhldreher TJ, Forrest KZ. Gambling as an emerging health problem on campus. *J Am Coll Health*. 2007; 56: 75-83.
27. Weinstock J, Whelan JP, Meyers AW, Watson JM. Gambling behavior of student-athletes and a student cohort: What are the odds? *J Gambl Stud*. 2007; 23: 13-24.
28. Nowak DE. A meta-analytical synthesis and examination of pathological and problem gambling rates among college students and student-athletes. State University of New York at Buffalo. 2014.
29. American Psychiatric Association. DSM 5: Diagnostic and statistical manual (Fifth Edition). Washington, DC: American Psychiatric Association. 2013.
30. Chassin L, Pitts SC, Prost J. Binge drinking trajectories from adolescence to emerging adulthood in a high-risk sample: predictors and substance abuse outcomes. *J Consult Clin Psychol*. 2002; 70: 67.
31. McComb JL, Hanson WE. Problem gambling on college campuses. *NASPA J*. 2009; 46: 1-29.
32. Orlando M, Tucker JS, Ellickson PL, Klein DJ. Developmental trajectories of cigarette smoking and their correlates from early adolescence to young adulthood. *J Consul Clin Psychol*. 2004; 72: 400.

Cite this article

Nowak DE Jr (2018) Addicted to Winning: A Review of Gambling Disorder in College Athletes. *J Subst Abuse Alcohol* 6(2): 1076.