



Drinking Game Participation Among High School and Incoming College Students

A Narrative Review

Byron L. Zamboanga, PhD ○ Cara C. Tomaso ○ Renee M. Cloutier, BA ○
Heidemarie Blumenthal, PhD ○ Shannon R. Kenney, PhD ○ Brian Borsari, PhD

Abstract

The transition from high school to college has been characterized as a potentially vulnerable period because of decreased parental supervision and increased autonomy. This transition can increase risk for participation in high-risk behaviors such as drinking games (DGs), which are a social drinking activity that encourages intoxication and are associated with negative alcohol-related consequences. To date, there has not been a narrative review of DG research that examines this activity among high schoolers and incoming college students specifically, and thus, the current review bridges this gap. Findings indicate that DG participation is consistently linked to negative consequences (e.g., passing out, becoming sick) and other high-risk behaviors, such as prepartying (drinking before going to a social event). In addition, DG participation is linked to demographic (e.g., age, gender), psychological (e.g., personality, alcohol cognitions), and contextual/cultural factors (e.g., the college drinking culture). These findings have implications for current prevention and intervention efforts and suggest promising directions for future research.

Keywords: adolescents, alcohol use, college transition, drinking games, high school students, incoming college students

Byron L. Zamboanga, PhD, and Cara C. Tomaso, Smith College, Northampton, Massachusetts.

Renee M. Cloutier, BA, and Heidemarie Blumenthal, PhD, University of North Texas, Denton.

Shannon R. Kenney, PhD, Brown University, Providence, Rhode Island.

Brian Borsari, PhD, San Francisco VA Medical Center, and University of California-San Francisco.

Brian Borsari's contribution to this manuscript was supported by National Institute on Alcohol Abuse and Alcoholism Grant R01-AA017427 and VISN1 Career Development Award V1CDA2012-18. The contents of this manuscript do not represent the views of the National Institute on Alcohol Abuse and Alcoholism, the Department of Veterans Affairs, or the United States Government. Byron L. Zamboanga and Cara C. Tomaso contributed equally to the writing of this manuscript.

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

Correspondence related to content to: Byron L. Zamboanga, PhD, and Cara C. Tomaso, Department of Psychology, Smith College, Northampton, MA 01063.

E-mail: ctomaso@smith.edu; bzamboan@smith.edu

DOI: 10.1097/JAN.0000000000000108

Students transitioning from high school to college are susceptible to increased involvement with alcohol use (Fromme, Corbin, & Kruse, 2008). National statistics indicate that one in five high schoolers report current binge drinking (i.e., five or more consecutive drinks in a row within a 2-hour time span on at least 1 day over the past 30 days; Kann et al., 2014), and longitudinal research indicates that rates of heavy consumption increase after the college transition (Sher & Rutledge, 2007). One way that high schoolers and college students partake in heavy consumption is by playing drinking games (henceforth referred to as DGs). Drinking games comprise a social drinking activity that is designed to promote intoxication, has rules specifying when and how much players drink, and involves doing some kind of cognitive and/or motor gaming tasks (Zamboanga, Pearce, et al., 2013). Compared with other high-risk drinking behaviors, like prepartying (i.e., drinking before going out to a social event or gathering; Borsari et al., 2007) and 21st birthday celebrations (Neighbors et al., 2014), DGs are a unique high-risk activity because they are composed of rules expressly designed to encourage drunkenness (Zamboanga & Tomaso, 2014). Participants may in turn use these rules to target specific players for their increased intoxication (Borsari, 2004; Zamboanga et al., 2015).

Prevalence rates of DG participation among high schoolers vary, and most are based on retrospective reports from current college students. For example, Douglas (1987) reported that 73% of college students reported first playing DGs during high school. Subsequent studies with incoming college students report that 63% endorse lifetime DG participation (Borsari, Bergen-Cico, & Carey, 2003), and roughly 54% of students who indicate past-year alcohol use played DGs during the last few months of high school (Kenney, Hummer, & Labrie, 2010). These participation rates, spanning 3 decades, are alarming given that heavy consumption is inherent in DG participation

(e.g., Pedersen, 1990) and that this activity is associated with a number of negative consequences (Borsari et al., 2013).

Many high schoolers eventually enter college; in October 2014, approximately 68% of students who graduated from high school enrolled in colleges or universities (U.S. Bureau of Labor Statistics, 2015). The college transition can be characterized by decreased parental control and supervision and increased access to alcohol and peers who drink (Borsari, Murphy, & Barnett, 2007), and during this time, students may establish and further refine their personal drinking habits. Participation in DGs appears to play a significant role in this process. Retrospective research with first-year college students indicates that high school DG participation and higher levels of alcohol consumption is significantly associated with increased negative alcohol-related consequences once students are in college (Kenney et al., 2010). Another recent study with first-year college students found that, regardless of how often they play DGs, students are likely to consume more alcohol while playing, further underscoring the high-risk nature of this activity (Ray, Stapleton, Turrisi, & Mun, 2014).

Research indicates that high schoolers and incoming college students are therefore an important target for early intervention and educational efforts. Unfortunately, past (Borsari, 2004) and recent (Kenney, LaBrie, & Hummer, 2012; Zamboanga et al., 2014) reviews of the DG literature have focused on the general college population, with little to no attention given to high schoolers and incoming college students. However, given the apparent prevalence of DG participation in this at-risk population, it is important for researchers to expand their understanding of students' DG participation leading up to and during the college transition. Thus, the purpose of this review is threefold: (a) to examine DG beliefs, behaviors, and risk factors among high schoolers and incoming college students; (b) to highlight implications for DG prevention and intervention; and (c) to discuss future research directions.

SELECTION OF ARTICLES

We restricted this review to studies with samples of high schoolers and incoming college students (i.e., transitioning students surveyed during orientation or their first semester of college). We conducted searches for peer-reviewed articles examining DGs in our target sample using combinations of these keywords: drinking game, game, alcohol, high school student, adolescent, and incoming college student. Ancestry and descendency searches were also conducted. Studies published or in press through January 2015 were eligible for inclusion. Our search yielded 23 manuscripts, to which we added an in press project conducted by members of the current team. Studies that included DGs as part of the analyses, regardless of whether DGs were the focus of the study, were included. However, 10 studies that included DGs in latent constructs, included nonfreshmen or nontraditionally aged high school or college students, and/or assessed DG behaviors outside the transition period (i.e., beyond the first semester) were excluded. Of the remaining 13 articles, seven studies

were conducted with high schoolers (six of which used the same sample drawn from a Northeastern U.S. high school), and six studies were conducted with incoming college students.

LITERATURE REVIEW

DGs, Negative Consequences, and Other High-Risk Behaviors

Consistent with the college DG literature (Zamboanga et al., 2014), research examining high schoolers links DG participation with negative drinking experiences (e.g., memory lapses, passing out, becoming sick, and engaging in regrettable sexual activities; Borsari et al., 2013). A recent study conducted latent class analysis to group high school gamers according to gaming-specific consequences (Borsari et al., 2013). Three classes emerged: "lower-risk" gamers who experienced comparatively few negative consequences because of playing DGs, "higher-risk" gamers who had difficulties limiting consumption and experienced negative physical/social outcomes, and "sexual regret" gamers who engaged in unplanned sexual activity that they later regretted because of playing DGs. "Higher-risk" and "sexual regret" gamers differed from "lower-risk" gamers with respect to their thoughts about the effects of alcohol, reasons for drinking, and impulsivity; these differences are discussed in greater depth in later sections. In summary, there appears to be a continuum of risk among high school gamers, such that not every player experiences similar types or severity of consequences. Although support for this notion has also been found among college students with respect to DG frequency and gaming consumption (Zamboanga et al., 2010), Borsari et al. (2013) provides a more in-depth understanding of this continuum among high schoolers.

Similar to studies with college students, research suggests that DG participation is also linked with prepartying (i.e., drinking before social events involving alcohol; Borsari et al., 2007) among high schoolers (Zamboanga et al., 2011; Zamboanga, Tomaso, et al., 2013) and incoming college students (e.g., Haas, Smith, Kagan, & Jacob, 2012; Kenney et al., 2010). Investigating whether involvement in both as opposed to one of these activities increases risk for negative consequences, Tomaso et al. (2013) found that high schoolers who reported past 30-day DG participation and prepartying did not significantly differ from those who only played DGs. Consistent with these data, (Kenney et al., 2010) noted in their study that incoming college students who engage in DGs and prepartying during high school also report similar levels of negative drinking consequences during the first month of college as those who only engaged in one activity.

Certain types of DGs may be riskier than others (Zamboanga, Pearce, et al., 2013). For example, extreme consumption games (e.g., chugging) have been characterized as especially risky because of their emphasis on rapid, high-volume consumption (LaBrie, Ehret, & Hummer, 2013). Indeed, Tomaso et al. (in press) found that, while controlling for typical alcohol consumption and participation in other types of DGs, high

schoolers were more likely to play extreme consumption games if they also reported current, more frequent pre-partying, compared with less frequent pre-partying.

Demographic Factors

Late adolescence (i.e., ages 17–19 years, which encompasses older high school students and younger college students) appears to be a period of peak risk for DG participation. For example, the general college DG literature suggests that younger college students (aged 18–19 years) are at higher risk for DG participation than their older peers (for a review, see Zamboanga et al., 2014). Consistent with this suggestion, in the literature with high school students, descriptive statistics reported in Pedersen's (1990) study indicated that a higher percentage of older Norwegian high school students (aged 17–19 years) reported more frequent DG participation than their younger counterparts (aged 14–16 years), and a more recent study of high schoolers found that current gamers tended to be slightly older than nongamers (Borsari et al., 2013). Borsari et al. (2003) also found that those who started drinking when they were younger (aged 13–15 years) were almost three times more likely to report DG participation than students who started drinking when they were older (aged 16 years and up). Thus, individuals who initiate alcohol use early in adolescence not only may be at risk for problematic use later on in life (Grant, Stinson, & Harford, 2001) but also may be susceptible to high-risk styles of drinking such as DG participation.

Consistent with the general college DG literature (Zamboanga et al., 2014), findings regarding gender and DG participation among high schoolers and incoming college students are mixed. Pedersen (1990) found that, overall, more high school boys than girls participated in DGs. However, in a sample of high schoolers who reported current drinking, Borsari et al. (2013) found no significant gender differences with regard to DG prevalence. Incoming college students show inconsistent patterns as well. Haas et al. (2012) found that being male was modestly associated with increased DG participation on prior drinking occasions, whereas Borsari et al. (2003) reported that a slightly higher proportion of women reported lifetime participation in DGs compared with men. Finally, Borsari et al. (2013) found that a higher proportion of high school gamers reported varsity sports participation compared with nongamers. Consistent with this finding, research suggests that sports participation is associated with increased alcohol use among adolescents (Kwan, Bobko, Faulkner, Donnelly, & Cairney, 2014) and college students (Lisha & Sussman, 2010).

Psychological Factors

Personality. Borsari et al. (2013) did not find any significant differences with regard to levels of impulsivity between high school gamers and nongamers; however, high schoolers who regretted sexual encounters because of gaming reported higher levels of impulsivity compared with the “lower-risk” and “higher-risk” groups (see above for descriptions of these groups). Thus, impulsivity does not appear to be associated

with whether high schoolers report current DG participation; rather, impulsivity relates to negative consequences. With regard to incoming college students, one study found that, after controlling for alcohol indices and other psychosocial variables, higher levels of sensation seeking (but not impulsivity) were associated with higher peak blood alcohol concentrations while playing DGs (Moser, Pearson, Hustad, & Borsari, 2014). Thus, in light of the novelty and excitement inherent in the first few weeks of college, students high in sensation seeking may be especially vulnerable for DG participation.

Alcohol expectancies. High schoolers' thoughts regarding their beliefs about the effects of alcohol consumption, known as alcohol expectancies (e.g., “When I drink alcohol, I expect that I would feel dizzy”), and their evaluations of such effects, known as expectancy valuations (i.e., the extent to which an individual views a drinking outcome, such as feeling dizzy, as either good or bad), can influence drinking behaviors (Fromme, Stroot, & Kaplan, 1993; for reviews, see Jones, Corbin, & Fromme, 2001; Patel & Fromme, 2010). Participation in DGs is no exception. For example, in one study, bivariate analyses indicated that frequency of DG participation among in-season, high school athletes was positively associated with positive expectancies (e.g., “When I drink alcohol, I expect that I would be outgoing”) and negatively associated with negative expectancies (e.g., “When I drink alcohol, I expect that I would be clumsy”), including negative thoughts regarding the effects of alcohol on athletic functioning (Zamboanga et al., 2012). Favorable evaluations of both positive and negative drinking outcomes were also associated with increased frequency of DG participation. In addition, Borsari et al. (2013) found that, compared with higher risk classes of gamers, “lower-risk” gamers endorsed slightly fewer negative expectancies and valued these negative effects less favorably.

In the one study examining the bivariate relations among these variables in a sample of incoming college students, Haas et al. (2012) found that the beliefs that alcohol makes one attractive, social, and interested in having sex (i.e., “horny”) were each associated with increased DG participation on prior drinking occasions. Taken together, the literature examining DG participation and alcohol expectancies among high schoolers and incoming college students mirrors findings with general college students, such that if individuals expect good things to happen because of drinking and endorse favorable valuations of negative drinking outcomes, their risk for DG participation increases.

Drinking motives. Alcohol theory and research suggest that motives for drinking serve as the “final common pathway” to alcohol consumption, through which other predictors of alcohol use (e.g., environmental and situational factors) are mediated (Kuntsche, Knibbe, Gmel, & Engels, 2005). Among studies that have examined the association between drinking motives and DGs among high schoolers, Van Tyne, Zamboanga, Ham, Olthuis, and Pole (2012) found that social (e.g., “to be sociable”) motives were positively associated with DG participation. Moreover, the associations between positive expectancy outcomes/valuations and DG participation

were partially mediated by social motives. Another study by Borsari et al. (2013) found that “higher-risk” high school gamers (i.e., those who had a hard time limiting their drinking and who experienced negative physical and social consequences from playing DGs) and “sexual-regret” high school gamers (i.e., those who engaged in unplanned sexual activity that they later regretted because of playing DGs) endorsed drinking for social and enhancement motives slightly more frequently than those in the “lower-risk” group (i.e., gamers who experienced comparatively few negative consequences because of playing DGs). Furthermore, Tomaso et al. (2013) found that high schoolers who reported current participation in both DGs and prepartying endorsed enhancement motives more frequently than those who only played DGs and those who did not participate in either activity. Finally, in terms of studies with samples of incoming college students, Boekeloo, Novik, and Bush (2011) suggest that students who report drinking to get drunk are at increased risk for consuming alcohol as part of playing DGs. Another study by Borsari et al. (2003) found that the most commonly endorsed motive for playing DGs among incoming college students was to get drunk quickly (endorsed by 55% of the sample), followed closely by playing to socialize/meet new people (endorsed by 53% of the sample). Altogether, social (e.g., alcohol makes social gatherings more enjoyable) and enhancement (e.g., alcohol makes one feel pleasant or high) drinking motives are consistently associated with increased risk for DG participation, and this may be because DGs are a social drinking activity designed to promote drinking to intoxication.

Contextual and Cultural Factors

Contextual and cultural factors can also influence incoming college students’ DG behaviors. For instance, one study found that incoming college students were more likely to endorse drinking while playing DGs in the context of a small gathering of friends compared with less controlled contexts involving heckling (i.e., where players being made fun of, perhaps because of performing poorly; Anderson, Duncan, Buras, Packard, & Kennedy, 2013). In addition, Moser et al. (2014) recently examined the cultural adjustment that takes place when students transition into college; those who internalized the college drinking culture (e.g., “college is a time for experimentation with alcohol”) had higher BAC estimates during DG participation.

IMPLICATIONS FOR PREVENTION AND INTERVENTION

The literature on DGs among adolescents and transitioning college students has important implications for intervention and prevention that leaders in high school communities (e.g., school nurses, coaches, and PTA members) and health practitioners in college settings (e.g., doctors, physician’s assistants, registered nurses, or nurse practitioners) may find useful in their efforts to combat alcohol use and negative related outcomes:

- High school and college personnel could employ a more comprehensive approach to assessing students’ drinking behaviors by including measures of involvement in high-risk activities and assessing gaming-specific negative consequences (e.g., Hazardous Drinking Game Measure; Borsari et al., 2013) to map students onto a continuum of risk.
- Efforts to provide incoming college students with substance-free social alternatives, as well as incentives to participate in these events, could help deter involvement in DGs, especially among students who may be predisposed to sensation seeking.
- Colleges could incorporate DG-specific data and education into existing alcohol harm reduction interventions on campus, particularly during first-year summer orientations or early in college when many U.S. campuses already implement alcohol prevention/intervention programming. For example, many colleges require students to take AlcoholEdu, an empirically developed, online tutorial that educates students about the effects of alcohol and encourages them to reflect on their drinking behaviors (EverFi, Inc., 2005; see also Croom et al., 2009). Similarly, Brief Alcohol Screening and Intervention for College Students (Dimeff, Baer, Kivlahan, & Marlatt, 1999) is a brief motivational intervention that combines empathetic, nonconfrontational interviews with an online survey that creates customized feedback based on social norms and has been shown to be effective at reducing students’ alcohol use and mitigating negative alcohol-related consequences (Terlecki, Buckner, Larimer, & Copeland, 2015). Incorporating data about students’ participation in high-risk drinking activities such as DGs may be ideally suited for normative reeducation. Indeed, Pedersen and LaBrie (2008) found that students generally overestimate peers’ DG participation and consumption and that, among men in particular, perceptions of same-gender DG behaviors are associated with higher levels of actual DG participation. Campus wellness efforts could also assess the efficacy of such programming and solicit student feedback to continuously improve their content and delivery.
- Interventions designed to challenge an individual’s expectations about the effects of alcohol consumption (i.e., alcohol expectancy challenge interventions) that have been used with general populations of college students (Scott-Sheldon, Terry, Carey, Garey, & Carey, 2012) could be adapted for use with high schoolers and transitioning college students specifically. For example, colleges could administer personalized drinking feedback (i.e., feedback given to students that provides them with information about their self-reported drinking attitudes and behaviors) to student athletes to educate them about the negative effects of excessive alcohol use on athletic performance (Martens, Kilmer, Beck, & Zamboanga, 2010).
- Among incoming college students, perceptions of higher levels of parental monitoring, higher levels of disapproval toward heavy drinking, and lower levels of permissiveness

toward alcohol use are associated with reduced levels of heavy episodic drinking (i.e., consuming five or more drinks in a row; Wood, Read, Mitchell, & Brand, 2004). These findings indicate that parents continue to exert influence on their children, even during late adolescence and the college transition. Prevention efforts could therefore capitalize on parental influence by including parents in college intervention efforts designed to address high-risk drinking behaviors such as involvement in DGs. Parents should be informed that their influence matters and strive to maintain open lines of communication with their children, even after they leave for college (National Institute on Alcohol Abuse and Alcoholism, 2010). For example, providing parents with didactic information about the prevalence and risks of DG participation may facilitate important conversations with their children. Moreover, parental intervention efforts designed to correct misperceptions parents may have regarding (a) their children's alcohol use and (b) other parents' approval of drinking (to illustrate that not all parents endorse lenient attitudes toward alcohol use) could also prove useful in combatting college students' risk for high-risk drinking, such as DG involvement (Labrie, Napper, & Hummer, 2014). Not only could such efforts encourage parents to engage in greater and more in-depth conversations with their children regarding their alcohol use, but they could also reduce the risk of "parental groupthink," whereby parents fall into the trap of thinking that other parents approve of drinking. Finally, parents should also familiarize themselves with the alcohol policies at their child's college and consider these policies as part of the college selection process (National Institute on Alcohol Abuse and Alcoholism, 2010).

FUTURE RESEARCH DIRECTIONS

Compared with studies examining DG participation among college students broadly, the literature investigating this high-

risk behavior among high schoolers and incoming college students is underdeveloped. Indeed, we acknowledge that, among the seven articles examining high schoolers' DG participation, six used the same sample, highlighting the need for further research examining this high-risk behavior in current high schoolers. Moreover, although there is considerable overlap in terms of what is known about DGs and its correlates with high schoolers transitioning into college and the general college population, more research examining DGs among high schoolers and incoming college students is needed to corroborate these preliminary findings.

- Piecing together the cross-sectional high school and college DG literatures indicates that older high schoolers (i.e., aged 17–18 years) and younger college students (i.e., aged 18–19 years) are at greatest risk for DG participation, perhaps representing a 1- to 3-year window of vulnerability for these transitioning students. Although previous research has examined alcohol use in general during the transition from high school to college (Fromme, Corbin, & Kruse, 2008), to our knowledge, there is currently no published research examining high schoolers' involvement in DGs during this period. As such, longitudinal, multivariate studies following younger samples are needed to derive specific classes of gamers and nongamers to map drinking trajectories across high school, the college transition, and beyond.
- Research on contextual and cultural factors related to DG participation among high school and/or incoming college students is very limited. Drawing from studies with general college samples, students play DGs in a variety of contexts (e.g., Greek houses, bars), with private homes as the most common venue (Zamboanga et al., 2014). However, given that high school students are underage and may still live with their parents, the context in which these students play DGs may differ from the general college population and therefore warrants examination. Studies that have examined cultural factors

TABLE 1 Sample Characteristics of DG Research

Authors	Region/Country	High School Students	Incoming College Students	Public School	Private School
Pedersen (1990)	Norway	✓		Did not report (multisite sample)	
Zamboanga et al. (2011, 2012), Van Tyne et al. (2012), Borsari et al. (2013), Tomaso et al. (2013, in press)	Northeastern United States	✓		✓	
Borsari et al. (2003)	Northeastern United States		✓	Did not report	
Kenney et al. (2010)	West Coast, United States		✓		✓
Boekeloo et al. (2011)	Did not report		✓	Did not report	
Haas et al. (2012)	West Coast, United States		✓		✓
Anderson et al. (2013)	West Coast, United States		✓	✓	
Moser et al. (2014)	Mid-Atlantic United States		✓	✓	

and their relevance to DG participation are also lacking. One important cultural correlate of alcohol use is acculturation or how cultural groups adapt to a new social environment (Iwamoto, Kaya, Grivel, & Clinton, 2016; Zamboanga, Tomaso, Kondo, & Schwartz, 2014). Although only two studies thus far have examined the link between acculturation (or some proxy of it) and DG participation in general college students (Schwartz et al., 2014; Zamboanga, Iwamoto, Pesigan, & Tomaso, 2015), no studies to date have investigated these associations among ethnic minority high school and/or incoming college students. Investigating the relationships between both contextual and cultural factors and DG participation in this population is an important direction for future research.

- Future studies should assess negative consequences that are the direct result of DG participation to differentiate these outcomes from general negative consequences. One of the limitations of the DG literature among high schoolers, incoming college students, and college students in general is that many studies do not use standardized measures specific to DGs (e.g., Hazardous Drinking Games Measure; Borsari et al., 2013), which makes comparisons across studies difficult. In addition, studies that have examined participation in both prepartying and DGs do not assess whether these behaviors co-occurred. Event-specific designs are needed to clarify the unique and combined effects of participation in these behaviors (e.g., Ray et al., 2014).
- To our knowledge, studies examining DG participation during young adulthood are limited to samples of college students, and as such, it is unclear how (if at all) high schoolers planning to attend college differ from those who do not attend college in terms of their DG participation. Given that a sizeable minority of the graduating class of 2014 either joined the workforce or the military (approximately 38%; U.S. Bureau of Labor Statistics, 2015), it is important to examine participation in high-risk drinking behaviors like DGs among young adults who do not attend college.
- A measure that assesses motives specific to playing DGs (see Johnson & Sheets, 2004) has been developed for college students, but its psychometric properties have not been examined with high schoolers. An important next step would be to examine whether DG-specific motives extend beyond general drinking motives in this population. In support of this suggestion, LaBrie, Hummer, Pedersen, Lac, and Chithambo (2012) found that college students' prepartying-specific motives, but not general motives, predicted participation in this behavior.
- As far as we know, studies examining DGs among high schoolers have relied solely on self-report measures. The Simulated Drinking Games Procedure (Silvestri, Lewis, Borsari, & Correia, 2014) enables researchers to study DG participation in a laboratory setting by substituting alcohol with water. In addition to helping researchers

overcome legal and ethical constraints in the study of underage drinking, the Simulated Drinking Games Procedure allows them to systematically manipulate independent variables of interest and more reliably assess DG behaviors.

- We recognize that alcohol consumption patterns and drinking attitudes may not be uniform across all colleges/universities. As such, it is possible that rates of DG participation and attitudes/norms regarding this activity vary as a function of school type (i.e., private vs. public) and location (i.e., different regions across the United States). Future research investigating whether such differences exist is warranted (see Table 1 for a review of the studies' sample characteristics).
- To our knowledge, there are no statistical reviews or meta-analyses examining DGs among high schoolers and/or incoming college students. As more DG research with this demographic continues to be published, researchers should consider conducting such analyses to strengthen our confidence in the patterns established here and in other reviews (e.g., Kenney et al., 2012; Zamboanga et al., 2014).

CONCLUSION

The small but growing DG literature among high schoolers and incoming college students clearly indicates that participation in this high-risk behavior begins long before students start college. DG participation also appears to be a multifaceted phenomenon, with a variety of factors linked with involvement. Fortunately, there are several promising intervention and prevention strategies that can be utilized to reduce DG participation before and during this transition, and additional research with this population will only continue to improve the efficacy of these efforts.

REFERENCES

- Anderson, K. G., Duncan, K., Buras, M., Packard, C. D., & Kennedy, C. (2013). C-SIDE: Drinking simulation for college students. *Journal of Studies on Alcohol and Drugs*, 74(1), 94–103.
- Boekeloo, B. O., Novik, M. G., & Bush, E. (2011). Drinking to get drunk among incoming freshmen college students. *American Journal of Health Education*, 42(2), 88–95. doi:10.1080/19325037.2011.10599176
- Borsari, B. (2004). Drinking games in the college environment: A review. *Journal of Alcohol and Drug Education*, 48(2), 29–51.
- Borsari, B., Bergen-Cico, D., & Carey, K. B. (2003). Self-reported drinking-game participation of incoming college students. *Journal of American College Health*, 51(4), 149–154. doi:10.1080/07448480309596343
- Borsari, B., Boyle, K. E., Hustad, J. T., Barnett, N. P., O'Leary Tevyaw, T., & Kahler, C. W. (2007). Drinking before drinking: Pregaming and drinking games in mandated students. *Addictive Behaviors*, 32(11), 2694–2705. doi:10.1016/j.addbeh.2007.05.003
- Borsari, B., Murphy, J. G., & Barnett, N. P. (2007). Predictors of alcohol use during the first year of college: Implications for prevention. *Addictive Behaviors*, 32(10), 2062–2086. doi:10.1016/j.addbeh.2007.01.017
- Borsari, B., Zamboanga, B. L., Correia, C., Olthuis, J. V., Van Tyne, K., Zadworny, Z., ... Horton, N. J. (2013). Characterizing high school students who play drinking games using latent class analysis. *Addictive Behaviors*, 38(10), 2532–2540. doi:10.1016/j.addbeh.2013.04.009.

- Croom, K., Lewis, D., Marchell, T., Lesser, M.L., Reyna, V. F., Kubicki-Bedford, L., ... Staiano-Coico, L. (2009). Impact of an online alcohol education course on behavior and harm for incoming first-year college students: Short-term evaluation of a randomized trial. *Journal of American College Health*, 57(4), 445–454.
- Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, A. G. (1999). *Brief alcohol screening and intervention for college students (BASICS): A harm-reduction approach*. New York, NY: Guilford Press.
- Douglas, P. (1987). Bizz-Buzz, Turtles, Quarters, and One Horse Club: The role of drinking games among high school and college students. *Alcohol Health and Research World*, 11, 54–57.
- EverFi, Inc. (2005). *AlcoholEdu for college*. Retrieved from <http://www.everfi.com/alcoholedu-for-college>
- Fromme, K., Corbin, W. R., & Kruse, M. I. (2008). Behavioral risks during the transition from high school to college. *Developmental Psychology*, 44(5), 1497–1504. doi:10.1037/a0012614
- Fromme, K., Stroot, E. A., & Kaplan, D. (1993). Comprehensive effects of alcohol: Development and psychometric assessment of a new expectancy questionnaire. *Psychological Assessment*, 5(1), 19–26. doi:10.1037/1040-3590.5.1.19
- Grant, B. F., Stinson, F. S., & Harford, T. C. (2001). Age at onset of alcohol use and DSM-IV alcohol abuse and dependence: A 12-year follow-up. *Journal of Substance Abuse*, 13(4), 493–504. doi:10.1016/S0899-3289(01)00096-7
- Haas, A. L., Smith, S. K., Kagan, K., & Jacob, T. (2012). Pre-college pregameing: Practices, risk factors, and relationship to other indices of problematic drinking during the transition from high school to college. *Psychology of Addictive Behaviors*, 26(4), 931–938. doi:10.1037/a0029765
- Iwamoto, D. K., Kaya, A., Grivel, M., & Clinton, L. (2016). Under-researched demographics: Heavy episodic drinking and alcohol-related problems among Asian Americans. *Alcohol Research: Current Reviews*, 38(1). <http://www.arcr.niaaa.nih.gov/arcr/arcr381/article02.htm>
- Johnson, T. J., & Sheets, V. L. (2004). Measuring college students' motives for playing drinking games. *Psychology of Addictive Behaviors*, 18(2), 91–99. doi:10.1037/0893-164X.18.2.91
- Jones, B. T., Corbin, W., & Fromme, K. (2001). A review of expectancy theory and alcohol consumption. *Addiction*, 96(1), 57–72. doi:10.1046/j.1360-0443.2001.961575.x
- Kann, L., Kinchen, S., Shanklin, S. L., Flint, K. H., Kawkins, J., Harris, W. A., ... Centers for Disease Control and Prevention. (2014). Youth risk behavior surveillance—United States, 2013. *Morbidity and Mortality Weekly Report*, 63(Suppl. 4), 1–168.
- Kenney, S. R., Hummer, J. F., & Labrie, J. W. (2010). An examination of prepartying and drinking game playing during high school and their impact on alcohol-related risk upon entrance into college. *Journal of Youth and Adolescence*, 39(9), 999–1011. doi:10.1007/s10964-009-9473-1
- Kenney, S. R., LaBrie, J. W., & Hummer, J. F. (2012). Drinking game playing: A prevalent and risky activity among youth. In R. J. Levesque (Ed.), *Encyclopedia of adolescence* (pp. 771–777). New York, NY: Springer.
- Kuntsche, E., Knibbe, R., Gmel, G., & Engels, R. (2005). Why do young people drink? A review of drinking motives. *Clinical Psychology Review*, 25(7), 841–861. doi:10.1016/j.cpr.2005.06.002
- Kwan, M., Bobko, S., Faulkner, G., Donnelly, P., & Cairney, J. (2014). Sport participation and alcohol and illicit drug use in adolescents and young adults: A systematic review of longitudinal studies. *Addictive Behaviors*, 39(3), 497–506. doi:10.1016/j.addbeh.2013.11.006
- LaBrie, J. W., Ehret, P. J., & Hummer, J. F. (2013). Are they all the same? An exploratory, categorical analyses of drinking game types. *Addictive Behaviors*, 38(5), 2133–2139. doi:10.1016/j.addbeh.2012.12.002
- LaBrie, J. W., Hummer, J. F., Pedersen, E. R., Lac, A., & Chithambo, T. (2012). Measuring college students' motives behind prepartying drinking: Development and validation of the prepartying motivations inventory. *Addictive Behaviors*, 37(8), 962–969. doi:10.1016/j.addbeh.2012.04.003
- Labrie, J. W., Napper, L. E., & Hummer, J. F. (2014). Normative feedback for parents of college students: Piloting a parent based intervention to correct misperceptions of students' alcohol use and other parents' approval of drinking. *Addictive Behaviors*, 39(1), 107–113. doi:10.1016/j.addbeh.2013.08.036
- Lisha, N. E., & Sussman, S. (2010). Relationship of high school and college sports participation with alcohol, tobacco, and illicit drug use: A review. *Addictive Behaviors*, 35(5), 399–407. doi:10.1016/j.addbeh.2009.12.032
- Martens, M. P., Kilmer, J. R., Beck, N. C., & Zamboanga, B. L. (2010). The efficacy of a targeted personalized drinking feedback intervention among intercollegiate athletes: A randomized controlled trial. *Psychology of Addictive Behaviors*, 24(4), 660–669. doi:10.1037/a0020299
- Moser, K., Pearson, M. R., Hustad, J. T., & Borsari, B. (2014). Drinking games, tailgating, and pregameing: Precollege predictors of risky college drinking. *The American Journal of Drug and Alcohol Abuse*, 40, 367–373.
- National Institute on Alcohol Abuse and Alcoholism. (2010). *What parents need to know about college drinking*. Retrieved from <http://www.collegedrinkingprevention.gov/NIAAACollegeMaterials/parentBrochure.aspx>
- Neighbors, C., Rodriguez, L. M., Rinker, D. V., DiBello, A. M., Young, C. M., & Chen, C. H. (2014). Drinking games and contextual factors of 21st birthday drinking. *The American Journal of Drug and Alcohol Abuse*, 40(5), 380–387. doi:10.3109/00952990.2014.918623
- Patel, A. B., & Fromme, K. (2010). Explicit outcome expectancies and substance use: Current research and future directions. In L. Scheier (Ed.), *Handbook of drug use etiology: Theory, methods, and empirical findings* (pp. 147–164). Washington, DC: American Psychological Association.
- Pedersen, E. R., & LaBrie, J. W. (2008). Normative misperceptions of drinking among college students: A look at the specific contexts of prepartying and drinking games. *Journal of Studies on Alcohol and Drugs*, 69(3), 406–411.
- Pedersen, W. (1990). Drinking games adolescents play. *British Journal of Addiction*, 85(11), 1483–1490.
- Ray, A. E., Stapleton, J. L., Turrisi, R., & Mun, E. Y. (2014). Drinking game play among first-year college student drinkers: An event-specific analysis of the risk for alcohol use and problems. *The American Journal of Drug and Alcohol Abuse*, 40(5), 353–358. doi:10.3109/00952990.2014.930151
- Schwartz, S. J., Zamboanga, B. L., Tomaso, C. C., Kondo, K. K., Unger, J. B., Weisskirch, R. S., ... Ravert, R. D. (2014). Association of acculturation with drinking games among Hispanic college students. *The American Journal of Drug and Alcohol Abuse*, 40(5), 359–366. doi:10.3109/00952990.2014.910521
- Scott-Sheldon, L. A., Terry, D. L., Carey, K. B., Garey, L., & Carey, M. P. (2012). Efficacy of expectancy challenge interventions to reduce college student drinking: A meta-analytic review. *Psychology of Addictive Behaviors*, 26(3), 393–405. doi:10.1037/a0027565
- Sher, K. J., & Rutledge, P. C. (2007). Heavy drinking across the transition to college: Predicting first-semester heavy drinking from precollege variables. *Addictive Behaviors*, 32(4), 819–835. doi:10.1016/j.addbeh.2006.06.024
- Silvestri, M. M., Lewis, J. M., Borsari, B., & Correia, C. J. (2014). Towards the development of laboratory methods for studying drinking games: Initial findings, methodological considerations, and future directions. *The American Journal of Drug and Alcohol Abuse*, 40, 403–410.
- Terlecki, M. A., Buckner, J. D., Larimer, M. E., & Copeland, A. L. (2015). Randomized controlled trial of Brief Alcohol Screening and Intervention for College Students for heavy-drinking mandated and volunteer undergraduates: 12-month outcomes. *Psychology of Addictive Behaviors*, 29(1), 2–16. doi:10.1037/adb0000056
- Tomaso, C. C., Zamboanga, B. L., Haas, A. L., Kenney, S. R., Ham, L. S., & Borsari, B. (in press). Extreme consumption games and prepartying among high school students. *Journal of Child and Adolescent Substance Abuse*.
- Tomaso, C. C., Zamboanga, B. L., Haas, A. L., Olthuis, J. V., Kenney, S. R., & Ham, L. S. (2013). All it takes is one: Drinking games, prepartying, and negative drinking consequences among high school students. *Journal of Substance Use*. Advance online publication.

- U.S. Bureau of Labor Statistics. (2015). *College enrollment and work activity of 2014 high school graduates*. Retrieved from <http://www.bls.gov/news.release/hsgsec.nr0.htm>
- Van Tyne, K., Zamboanga, B. L., Ham, L. S., Olthuis, J. V., & Pole, N. (2012). Drinking motives as mediators of the associations between alcohol expectancies and risky drinking behaviors among high school students. *Cognitive Therapy and Research*, 36(6), 756–767. doi:10.1007/s10608-011-9400-0
- Wood, M. D., Read, J. P., Mitchell, R. E., & Brand, N. H. (2004). Do parents still matter? Parent and peer influences on alcohol involvement among recent high school graduates. *Psychology of Addictive Behaviors*, 18(1), 19–30. doi:10.1037/0893-164X.18.1.19
- Zamboanga, B. L., Borsari, B., Ham, L. S., Olthuis, J. V., Van Tyne, K., & Casner, H. G. (2011). Pregaming in high school students: Relevance to risky drinking practices, alcohol cognitions, and the social drinking context. *Psychology of Addictive Behaviors*, 25(2), 340–345. doi:10.1037/a0022252
- Zamboanga, B. L., Ham, L. S., Olthuis, J. V., Martens, M. P., Grossbard, J. R., & Van Tyne, K. (2012). Alcohol expectancies and risky drinking behaviors among high school athletes: “I’d rather keep my head in the game.” *Prevention Science*, 13(2), 140–149. doi:10.1007/s11121-011-0252-3
- Zamboanga, B. L., Iwamoto, D. K., Pesigan, I. J. A., & Tomaso, C. C. (2015). A “player’s” game? Masculinity and drinking games participation among White and Asian American male college freshmen. *Psychology of Men and Masculinity*, 16(4), 468–473. doi:10.1037/a0039101
- Zamboanga, B. L., Olthuis, J. V., Kenney, S. R., Correia, C. J., Van Tyne, K., Ham, L. S., & Borsari, B. (2014). Not just fun and games: A review of college drinking games research from 2004 to 2013. *Psychology of Addictive Behaviors*, 28(3), 682–695. doi:10.1037/a0036639
- Zamboanga, B. L., Pearce, M. W., Kenney, S. R., Ham, L. S., Woods, O. E., & Borsari, B. (2013). Are “extreme consumption games” drinking games? Sometimes it’s a matter of perspective. *The American Journal of Drug and Alcohol Abuse*, 39(5), 275–279. doi:10.3109/00952990.2013.827202
- Zamboanga, B. L., Pesigan, I. J., Tomaso, C. C., Schwartz, S. J., Ham, L. S., Bersamin, M., ... Hurley, E. A. (2015). Frequency of drinking games participation and alcohol-related problems in a multiethnic sample of college students: Do gender and ethnicity matter? *Addictive Behaviors*, 41, 112–116. <http://dx.doi.org/10.1016/j.addbeh.2014.10.002>
- Zamboanga, B. L., Schwartz, S. J., Van Tyne, K., Ham, L. S., Olthuis, J. V., Huang, S., ... Weisskirch, R. (2010). Drinking game behaviors among college students: How often and how much? *The American Journal of Drug and Alcohol Abuse*, 36(3), 175–179. doi:10.3109/00952991003793869
- Zamboanga, B. L., & Tomaso, C. C. (2014). Introduction to the special issue on college drinking games. *The American Journal of Drug and Alcohol Abuse*, 40(5), 349–352. doi:10.3109/00952990.2014.949728
- Zamboanga, B. L., Tomaso, C. C., Haas, A. L., Olthuis, J. V., Borish, S., & Borsari, B. (2013). Trouble brewing: Pregaming among high school and incoming college students. *Journal of Psychosocial Nursing and Mental Health Services*, 51(10), 14–17.
- Zamboanga, B. L., Tomaso, C. C., Kondo, K. K., & Schwartz, S. J. (2014). Surveying the literature on acculturation and alcohol use among Hispanic college students: We’re not all on the same page. *Substance Use & Misuse*, 49(8), 1074–1078. doi:10.3109/10826084.2014.887731

For more than 30 additional continuing education articles related to Addiction topics, go to NursingCenter.com/CE.