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Are they all the same? An exploratory, categorical analysis of drinking game types[★]

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Abstract

Drinking games have become a ubiquitous part of the college student drinking culture and are associated with drinking to intoxication and increased alcohol consequences. Contemporary research commonly considers drinking games holistically, with little to no consideration to the different drinking game types. The current study describes the creation of a novel DG categorization scheme and reports differences between DG categories. Participants were 3421 college students (58% female) who completed online surveys. Based on participant responses, 100 distinct drinking games were identified and defined. Two student focus groups were conducted in which drinking game definitions and rules were verified by students. Drinking games were then categorized into five mutually exclusive categories: Targeted and Skill games, Communal games, Chance games, Extreme Consumption games, and Even Competition games. Finally, the frequency of games played in each category and typical player profiles were reported. Differences in peak drinks and frequency of specific alcohol consequences were documented according to game categories. The findings provide a novel drinking game categorization scheme and an exploratory analysis of basic differences between game categories.

Keywords

College student drinking; Drinking games; Drinking game types; Sex differences; Alcohol consequences

1. Introduction

Drinking games (DGs) are a fixture of the college social scene with 50 to 62% of students reported having played DGs in the past month (Borsari, 2004). Consistent research confirms

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Conflict of interest

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that DGs encourage rapid and heavy alcohol consumption that is strongly associated with negative alcohol-related consequences such as poor grades, unplanned sexual activity, and interpersonal conflicts (for review, see Borsari, 2004). Despite this link between DG participation and consequences, student who play DGs hold positive alcohol expectancies, believing DG alcohol consumption will results in desirable outcomes such as tension reduction and liquid courage (Ham, Zamboanga, Olthuis, Casner, & Bui, 2010; Zamboanga, Schwartz, Ham, Borsari, & Van Tyne, 2010). Research strongly links drinking consequences to game participation (Johnson & Cropsey, 2000; Zamboanga, Schwartz, Ham, et al., 2010; Zamboanga, Schwartz, Van Tyne, et al., 2010), in one case even crediting DG participation with explaining as much as 50% of the variance in consequences resulting from alcohol consumption (Johnson, Wendel, & Hamilton, 1998). Research typically treats the over 500 types of DGs as one homogenous category (Borsari, Bergen-Cico, & Carey, 2003), although more recently, studies have indicated that DGs do vary on important alcohol-related factors such as level of intoxication (Cameron, Leon, & Correia, 2011; Zamboanga, Calvert, O'Riordan, & McCollum, 2007; Zamboanga, Leitkowski, Rodriguez, & Cascio, 2006). The current research seeks to establish a DG categorization system based on drinking behavior directly resulting from specific DG rules or procedures and to explore differences between different DG categories.

1.1. Drinking game consequences

Nagoshi, Wood, Cote, and Abbit (1994) explain the relationship between DG participation and consequences, suggesting that the act of getting drunk while playing DGs mediates the link between DG participation and resulting alcohol consequences. The finding of drunkenness as a mediator is significant as it is not uncommon for DG players to drink to extreme levels, evidenced by one study reporting 89% of participants either witnessing or experiencing loss of consciousness due to DG drinking (Polizzotto, Saw, Tjhung, Chua, & Stockwell, 2007). Moreover, increased DG frequency is related to increased negative drinking consequences (LaBrie, Hummer, Kenney, Lac, & Pedersen, 2011; Pedersen & LaBrie, 2006; Zamboanga, Schwartz, Ham, et al., 2010; Zamboanga, Schwartz, Van Tyne, et al., 2010). Considering the mediational role of intoxication between drinking game participation (Nagoshi et al., 1994) and the tendency for DG players to drink to intoxication (Polizzotto et al., 2007), the need to understand factors leading to high levels of intoxication is just as, if not more important to understanding resulting consequences than game participation alone.

1.2. Heterogeneous analyses of DGs

To our knowledge only three studies have investigated DGs heterogeneously (Cameron et al., 2011; Zamboanga et al., 2006, 2007). Two studies examined differences between specific DGs. The first study analyzed the heterogeneity of DGs by focusing on the popularity, type of beverage consumed, and intoxication level of participants for specific DGs (Zamboanga et al., 2006). Findings revealed differences between popularity of specific games, types of alcohol used for specific games (e.g., liquor versus beer), and level of participants' intoxication, suggesting that DGs do vary. The second study investigated the structural heterogeneity of DGs by analyzing beverage type consumed, competitiveness, intoxication level, game duration, and participation motives (Zamboanga et al., 2007). Game categories were found to vary based on beverage type, competitiveness, game duration, intoxication levels, and DG participation motives. The third study considered the games beer pong, three man, and memory and reported similar findings that alcohol consumption and blood alcohol levels varied between the game types (Cameron et al., 2011). These three exploratory studies indicate that a homogenous approach to DG research fails to capture important differences between games. Although the three studies do support a heterogeneous approach to DGs, limitations of sample demographics necessitate further

work in this area using larger representative samples. The two studies by Zamboanga et al. contained female-only samples and all studies were limited in size, with sample sizes of 303, 162, and 92 respectively.

1.3. Current study

Given the relative lack of empirical research, the current study used quantitative and qualitative procedures to investigate the heterogeneity of DGs with respect to relevant alcohol outcomes. The study utilized a novel categorization scheme based on different styles of drinking behaviors resulting from specific DGs (e.g., chugging versus competing against others). The current categorization scheme was inspired from Borsari's (2004) six descriptive DG categories. Borsari's DG categorization scheme describes the physical nature of game play (e.g., bouncing a quarter and rolling a die), but does not focus on in-game alcohol consumption. The currently proposed categorization scheme was designed to distinguish between different DGs with criteria more related to specific consumptions levels and the primary way in which the game promotes drinking.

DG categories were examined according to player demographics as previous research has consistently demonstrated drinking behaviors vary based on gender (Johnston, O'Malley, & Bachman, 2000; Wechsler et al., 2002), race (Centers for Disease Control, 1997; Pedersen & LaBrie, 2006), and membership in fraternities or sororities (hereafter referred to as Greek status) (Meilman, Leichliter, & Presley, 1999; Park, Sher, & Krull, 2008). Also examined were variations by peak drinks consumed and by specific consequences experienced. No specific a-priori hypotheses were proposed regarding differences between categories, allowing instead for an exploratory approach. Six goals were established prior to the study's implementation: 1) Establish a comprehensive DG categorization scheme based on each game's specific impetus for alcohol consumption; 2) Document the frequency of games played in each category; 3) Document the frequency of each category in which students reported peak DG drinking; 4) Report typical player profiles for each category; 5) Record differences between categories for number of peak drinks consumed when peak DG drinking occurred; 6) Document proportions of DG players experiencing specific alcohol related consequences as a function of category membership.

2. Method

2.1. Participants

A random sample of 11,069 undergraduate students stratified across class year and equally portioned from two west-coast campuses, one a large public university and the other a private mid-sized university was invited to complete a Web-based screening survey approximately one month into the fall term of the academic year. Local institutional review boards at each site approved the current study. Of these, 4984 (45.0%) completed the screening survey. For the purposes of the analyses, we were only interested in participants who reported consuming at least one alcoholic drink during a typical week. A total of 3421 participants met this criteria (68.3% of sample) and were selected for analyses. Recruitment rates were comparable to other large-scale studies among this population (e.g., Marlatt et al., 1998; McCabe, Boyd, Couper, Crawford, & D'Arcy, 2002).

The assessment took approximately 30 min to complete and participants received $25 for completion. Participants were informed that their responses were confidential and would not be connected to their name or e-mail address. Prior to answering questions related to drinking behavior, a standard drink was defined as a drink containing one-half ounce of ethyl alcohol — one 12 oz. beer, one 4 oz. glass of wine, or one 1.25 oz. shot of 80 proof liquor. Pictures of standard drinks accompanied these descriptions.

Analyses considered two distinct groups of participants: those who drank at least one standard alcoholic drink in a typical week but did not play a DG in the past 30 days and those who did play at least one DG in the past 30 days. Of the participants reporting drinking one or more standard alcoholic drinks in a typical week and no DG participation (n=1018; 29.9%), the mean age was 20.3 years (SD=1.42) and 70.4% were female. The distribution by class year was 12.3% first year, 17.7% sophomore, 28.2% junior, 41.3% senior and 45.5% of participants identified as Caucasian, 30.6% Asian, 10.8% Multiracial, 9.4% Other, and 3.7% African American. Among the group of participants who did play DGs (n=2403, 70.1%), the mean age was 19.9 years (SD=1.076) and 53.4% were female. The distribution by class year was 17.0% first year, 24.9% sophomore, 27.4% junior, and 30.8% senior. Over half (60.4%) of participants identified as Caucasian, 18.8% Asian, 10.9% multiracial, 8.4% other, 1.5% African American.

2.2. Measures

Participants first provided information regarding their age, birth sex, racial identity, and Greek status (membership in a fraternity or sorority).

DG behavior was assessed using four items. First, game participation was determined by asking participants "In the past 30 days, how many days did you play drinking games?" Participants responded with 0 to 30 days. Participants who reported playing at least one DG were then asked, "What drinking games did you play?" and were allowed to type in the names of the games they played. As a follow-up to that question, participants were then asked, "In which of the games listed above did you consume the most alcohol?" Participants were allowed to type in the name of only one DG. Peak alcohol consumption while playing DGs was assessed by asking "How many drinks did you typically consume when you played the above game?" (referring to the single game they listed in which they consumed the most alcohol while playing).

Alcohol consequences were assessed using the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989). The RAPI documented the occurrence of 25 negative alcohol-related consequences from one's drinking (e.g., "Passed out or fainted suddenly" and "Noticed a change in your personality"). Two items assessing driving after two or more and four or more drinks were added to the standard 23-item measure. In order to capture more severe consequences that occur less frequently such as memory loss due to drinking, the RAPI measured consequences over the past three months. Participants rated each item on a scale from 1 (*never*) to 4 (*more than 10 times*). The RAPI was dichotomized with "0" indicating that that consequence was not experienced in the past three months and "1" indicating that it was experienced. Dichotomous scoring has been shown to be reliable and valid in identifying alcohol-related problems among college students (Martens, Neighbors, Dams-O'Connor, Lee, & Larimer, 2007). Inter-item reliability was very good for the dichotomized RAPI (α=.90).

2.3. Individual game descriptions

Specific DGs were sourced from the open-ended question that asked what DGs the participants played in the last 30 days. DG descriptions were obtained by conducting internet searches for rules and/or descriptions of the games (search terms: [name of game], drinking game, rules, description). After consolidating duplicate or extremely similar games and eliminating unidentifiable games (e.g., "that game last night" or "that one with cards"), exactly 100 distinct games were identified and described; these are reported in Table 1.

2.3.1. Game description validation—Two focus groups (*N*s=8 and 9) were conducted to verify the wording of the DG descriptions. Students were presented with each DG and its

corresponding description and were then instructed to read each definition and voice any concerns regarding the game's description or directions for play. Furthermore, students were directed to only critique the global nature of the game description and ignore minor rule nuances or personal variations to the game. The group discussed and agreed upon each suggested change for gameplay description and for the primary way in which the game prompts alcohol consumption.

2.4. Game category definitions

Once the DG descriptions were finalized, five distinct and mutually exclusive DG categories were established based on the commonalities between games and the defining characteristics of the games that precipitate alcohol consumption (e.g., games requiring that a participant drinks based on the roll of a die were grouped together into a single category). These five categories were inspired by Borsari's (2004) six general, descriptive game types. The five categories that were established are as follows: (1) Targeted and Skill games, (2) Communal games, (3) Chance games, (4) Extreme Consumption games, and (5) Even Competition games (see Table 1).

Targeted and Skill games are games in which a single person uses skill to either avoid drinking or target others to drink. An example is "Speed Quarters", in which an individual bounces a coin into a shot glass as quickly as possible. When the individual successfully bounces the quarter into the shot glass, he or she passes the shot glass to another player of his or her choice, thereby targeting another player and making the other player more likely to drink.

Communal games are group activities where there are no winners or losers. Drinking is prompted by external cues, such as phrases in a television show, with all group members taking a sip of an alcoholic drink each time the cue appears.

Chance games rely on random events such as the role of a die or the guess of a playing card value. An example is King's Cup, where an individual must draw a card from a deck of cards and perform the drinking action associated with that card (e.g., "Three is me," player takes a drink or "nine is rhyme," players take turns rhyming until a player makes a mistake and must drink).

Extreme Consumption games are defined as games where one or more standard drinks are consumed rapidly; there is little else to the "game." An example is drinking a whole beer as fast as possible (i.e., chugging a beer).

Even Competition games are games where individuals or teams of equal size compete against each other and the losing person or side will drink. A popular example is beer pong/ Beirut, in which teams of two individuals attempt to throw ping pong balls into the opposing side's cups, forcing them to drink that cup and remove it from the table. The team that makes all of their shots first wins and the losing side drinks as a result. Full definitions of each game category and example games are given in Table 1.

2.4.1. Individual game categorization—Game categorization was completed by four professional staff members at different times. Each staff member was instructed to read through the five category definitions and ask any questions that required clarification. Each staff member was then given five example DGs to categorize to confirm he or she understood the distinctions between the categories. After successfully completing the example coding, staff members were instructed to continue categorizing each game based on the primary way in which each DG prompts alcohol consumption (e.g., result of a die roll, players assigns a drink to another player). Fully 95% of the games had majority agreement

between the four coders. Krippendorff's alpha for interrater reliability was .88, indicating reliable coding (Hayes & Krippendorff, 2007; Krippendorff, 2004). Furthermore, steps were taken to resolve the disagreement on the categorization of the remaining five games by allowing all four coders to discuss the disagreed upon games and come to unanimous agreements on their final categorizations.

3. Results

3.1. Analytic plan

Frequency descriptives were computed to assess the percentage of game-playing drinkers who played each type of game category in the past month, as well as the percentage of game players who reported drinking the most while playing a game within each of the five categories. Only 2.2% of players reported peak DG drinking while playing Communal DGs. Because of the Communal category's extremely low frequency it was left out of further analyses.

Next, group-based differences using z tests of independent proportions to examine the percentage of players that reported consuming their peak number of drinks while playing a game in a specific category were computed as a function of gender, race, and Greek-status (Table 2). For analytic purposes, race was dichotomized as 0 (White) and 1 (non-White). Additionally, the average peak amount of drinks typically consumed for each category was calculated overall, and by gender, race, and Greek status. Within each subgroup, one-way ANOVAs assessed differences in peak drinks reported between categories (Table 3). Finally, the percentages of participants experiencing each of the 25 alcohol-related consequences sourced from the RAPI were analyzed. Chi-square goodness-of-fit tests were run to determine if the percentage of players experiencing a consequence varied by game category. If a significant chi-square revealed which categories were different from one another, a series of z tests of independent proportions revealed which categories were different. Consequence analyses are reported in Table 4.

3.2. Games played

In the past 30 days 72.8% of participants played an Even Competition game, 55.5% played a Chance game, 26.3% played a targeted or skill game, 7.2% played an Extreme Consumption game, and 4.7% played a Communal game. Furthermore, 54.4% of participants reported typically drinking the most while playing an Even Competition game, 29.8% while playing a Chance game, 9.6% while playing a targeted or skill game, 4.2% while playing an Extreme Consumption game, and 2.2% while playing a Communal game.

3.3. Participant characteristics

Chi-square goodness-of-fit analyses verified that there were significant differences within each subgroup of males, females, White students, non-White students, Greek students, and non-Greek students for the DG category in which students reported peak DG drinking. Each subgroup was unequally distributed between the four categories. Next, z tests for independent proportions were run between corresponding subgroup pairs for each category (e.g., males versus females). All proportions and comparisons are shown in Table 2. The proportion of students reporting peak DG drinking while playing a targeted and skill game did not vary by gender. For Chance games, a significantly greater proportion of females reported peak DG drinking. For Extreme Consumption and Even Competition games, a greater proportion of males reported peak DG drinking.

Considering race, for Targeted and Skill and Extreme Consumption games, the proportion of Whites and non-Whites reporting peak DG drinking did not vary. For Chance games, a

greater proportion of non-Whites as compared to Whites reported peak DG drinking, and, for Even Competition games, a greater proportion of Whites as compared to non-Whites reported peak DG drinking.

Finally, for Targeted and Skills games and Extreme Consumption games, there was no difference in proportions by Greek status. For Chance games, a higher proportion of non-Greeks reported peak DG drinking than did Greeks. For Even Competition games, a greater proportion of Greeks reported peak DG drinking than non-Greeks.

3.4. Peak drinking

One-way ANOVAs assessed mean differences between the four categories for the peak number of drinks consumed while playing a DG overall, $F(3,2178)=11.42$, $p<.001$, and by the six sub-populations: males, $F(3,1012)=7.06$, $p<.001$, females, $F(3,1162)=2.38$, $p=.07$, Whites, $F(3,1343)=6.43$, $p<.001$, non-Whites, $F(3,831)=4.94$, $p=.002$, Greeks, $F(3,695)=9.08$, $p<.001$, and non-Greeks, $F(3,1473)=4.59$, $p=.003$. Further, a series of Fisher's least significant difference (LSD; Fisher, 1935) post-hoc analyses was used to determine which means were significantly different within each category, with the exception of females due to the non-significant ANOVA. Means and post-hoc analyses are reported in Table 3.

3.5. Consequences

For each of the 25 dichotomized RAPI items, chi-square goodness-of-fit tests were used to determine if the proportion of DG players reporting that specific consequence was equally distributed across the four categories. If a significant chi square was found, indicating that the proportion of DG players experiencing that consequence did vary by category, a series of z tests for two independent proportions were carried out to determine which proportions differed from each other. RAPI items that differed significantly from each other are presented in Table 4.

4. Discussion

The current study replicates previous research demonstrating that a large majority of college students participate in DGs (Borsari, 2004) and that women participated in DGs just as frequently as men (Newman, Crawford, & Nellis, 1991; Pedersen & LaBrie, 2006). Given the high prevalence and widespread participation in DGs, there is a need to better understand this phenomenon. To this end, the current study focused on exploring different types of DGs on college campuses by establishing a novel DG categorization scheme and performing preliminary analyses of relevant variables between DG categories. And the use of two campuses resulted in greater diversity of the demographic characteristics, thus increasing the generalizability of findings.

Previous research acknowledged many examples of DGs and suggested general game types (Borsari, 2004; Green & Grider, 1990; Zamboanga et al., 2007). This is the first study to create an empirically supported categorization system and then categorize 100 distinct DGs. The results produced five mutually exclusive DG categories: Targeted and Skill, Communal, Chance, Extreme Consumption, and Even Competition games (see Table 1 for category definitions and examples). Although conceptually similar to previously reported DG categories, the presented categorization scheme embodied two advantages over previous work. First, it utilized qualitative data from a large sample. Second, the categories are distinct and mutually exclusive from one another based on the manner and causes of in-game alcohol consumption, better allowing for empirical research.

4.1. Popularity of DG categories

When considering all types of DGs played in the past month, Even Competition games were most popular, with nearly three quarters of all DG players participating in an Even Competition game in the past month. This large percentage for Even Competition games is likely driven by the current popularity of Beer Pong. However, Chance and Targeted and Skill games were common as well, with about 50% and 25% of players respectively participating in one of these games types. Extreme Consumption and Communal games were played less frequently than the other categories.

4.1.1. Frequency of DG categories associated with peak drinking—DGs which resulted in a player's peak drinking also varied with about half of the participants reporting that Even Competition games and about a third reporting that Chance games were responsible for peak drinking. Fewer participants reported that Targeted and Skill games or Extreme Consumption games were responsible for peak DG drinking, while still fewer reported that their peak drinking occurred during a Communal game. Regardless of sex, race, or Greek-status, the Even Competition games were reported most frequently as the DG category responsible for peak drinks followed by Chance, Targeted and Skill, and Extreme Consumption games.

4.1.2. Demographic differences in DG categories associated with peak drinking—Analyses also explored differences between which DG categories participants reported peak DG drinking by sex, race, and Greek status and found similar patterns. When compared to their respective counterparts, a significantly greater percentage of females, non-Whites, and non-Greek-affiliated students reported peak DG drinking during Chance games and a significantly greater percentage of males, Whites, and Greek-affiliated students reported peak DG drinking during Even Competition games. Finally, a significantly greater percentage of males as compared to females reported peak DG drinking during Extreme Consumption games. To summarize, the results suggest that males, Whites, and Greek-affiliated students have a greater tendency than their counterparts to engage in peak DG drinking during Even Competition games, while females, non-Whites, and non-Greek affiliated students have a greater tendency to engage in peak DG drinking during a Chance game. Although peak DG drinking is reported most commonly during Even Competition games, there are tendencies for certain groups to report peak DG drinking while playing games from other categories.

4.2. DG categories' associations with number of peak drinks

Differences in the number of peak DG drinks consumed for each category were evidenced for all DG players, as well as by sex, race, and Greek status. Overall, players reporting peak DG drinking during an Extreme Consumption game drank the most, nearly six drinks. Players reporting drinking their peak drinks during Targeted and Skill games reported the second highest number of drinks, and players reporting both Chance and Even Competition games were not significantly different and were the lowest among the categories.

Slightly different results emerged when taking into consideration sex, race, and Greek status. When analyzed by sex, female drinking did not differ between categories while male drinking was highest for Extreme Consumption and Targeted and Skill games. For both Whites and non-Whites, Extreme Consumption and Targeted and Skill games were responsible for the highest number of peak DG drinks. For Greek-affiliated students, Extreme Consumption games were responsible for the highest peak drinks and for non-Greek-affiliated students, extreme and Targeted and Skill games were responsible for the greatest number of peak drinks.

Considering all players and players by sex, race, and Greek status, a general trend revealed that Extreme Consumption games were responsible for the greatest number of peak drinks. Targeted and Skill games also appeared to be responsible for elevated levels of peak drinking for some groups. Given that Extreme Consumption games are solely focused on heavy drinking to the exclusion of any other rules and requirements these findings make intuitive sense. Also, considering the rules of Targeted and Skill games allow players to 'target' other players to drink and that students often team up to target specific players (Green & Grider, 1990), it would be expected that this game style would also be responsible for elevated consumption. However, the range of peak drinks was often less than one drink and not greater than two drinks, indicating that although differences existed, they were subtle. Finally, females did not exhibit any differences between DG categories. The lack of a significant difference may in part be driven by females' general tendencies to drink less than males (Ham & Hope, 2003).

4.3. DG categories and alcohol consequences

A preliminary analysis of past three month RAPI alcohol consequences revealed that only four of the consequences differed in their frequency between DG categories. For the consequences of "caused shame of embarrassment" and "felt feelings of going crazy," players reporting peak DG drinking in Extreme Consumption games reported significantly higher frequencies of these consequences than those whose peak DG drinking occurred in the other categories. For "spent too much money on alcohol" players reporting peak DG drinking during Extreme Consumption and Chance games reported significantly higher frequencies than those in the other categories. Finally, for "memory loss," players reporting peak DG drinking during Chance games reported significantly lower frequencies of this consequence. Although these results may suggest an elevated risk for Extreme Consumption games with almost half of players reporting peak DG drinking in this category also reporting shame and embarrassment and over a third reporting memory loss because of their drinking, it should be noted that for the majority of the consequences items considered, there were no significant differences between DG categories. Additionally, though some consequences are experienced at lower frequencies in certain game categories, this should not be taken as evidence that some DGs may be lower risk. Roughly 28–42% of DG players reported experiencing memory loss and shame and embarrassment as a result of drinking across all game types; a concerning statistic. It must be noted that these results are only a preliminary analyses of DG consequences since they cannot directly link DG participation to specific consequences. Future research can greatly expand on these results and draw more conclusive implications by documenting event-level DG specific consequences by category.

4.4. Implications

Although exploratory, the current study holds implications for educators, clinicians, and researchers working to address problematic alcohol behaviors. DG research has largely considered all DGs to be comparable across relevant variables. Whether this was because differences between types of games were previously unrealized or there was no categorization system available is unclear. The current study addresses both these points by establishing an empirically supported categorization system and determining that differences do exist between DG types. There are three primary benefits of the findings. First, the categorization system allows educators, clinicians, and researchers to better understand the exact nature of DGs with a specific focus on the manners and causes of in-game alcohol consumption. This can in turn allow for more tailored prevention and intervention programs. For example, specific behavioral strategies to avoid elevated alcohol consumption can be customized to each category instead of a one size fits all approach. Targeted and Skill game players may benefit more from a strategy such as counting drinks whereas in Even Competition games it is clearer how many drinks one has consumed per game round.

Second, a more general DG approach may work well with women who do not evidence any consumption level differences between categories while men may benefit from a more targeted effort addressing the games more likely to result in higher levels of peak drinking.

Third, this study calls for substantial future research on DG categories. Future research can utilize the categorization system to explore a number of potential hypotheses. Two areas ripe for exploration are exploring average drinks consumed per occasion and analyzing DG specific consequences to better understand average DG drinking behavior and directly resulting alcohol consequences.

4.5. Limitations and future directions

Despite the contributions the study provides, it should be viewed in the light of several limitations. DG rules and styles of play likely vary by region. Since our focus groups were conducted on one campus, it is possible some DG definitions were influenced by regional nuances. However, regional differences likely are not enough to shift a particular DG from one category to another. For example, Beer Pong, as it is known to most west coast college students or Beirut as it is known to most east coast students varies widely in regards to rules and styles of game play (Borsari, 2004). Yet, none of these variations change the Even Competition nature of the game, thus it would be consistently categorized based on the proposed categorization scheme.

The DGs reported by participants should also not be considered an exhaustive list, however, the proposed categorization scheme allows for individuals with knowledge of unlisted games to easily categorize them. Additionally, it has been suggested that DG players may refuse drinks or may have "side drinks" (i.e., drinks that are consumed while playing DG that are in addition to drinks they consume as a results of the game) (Correia & Cameron, 2010). Future research should try and account for refusals of game drinks or consumption of additional drinks. It may also be worthwhile to determine if the frequency of DG participation or the nature of DG playing changes at different points in the school year (e.g., after final examinations, during school holidays). Finally, the consequences examined were neither DG specific nor DG event specific. Although considerable evidence links DG participation to increased consequences (Nagoshi et al., 1994; Polizzotto et al., 2007), further research is needed to determine if specific consequences are a results of specific participation in certain DGs.

4.6. Conclusion

The current study extends research on DGs in several important ways and points to fruitful avenues for future research. DGs were shown to vary on a number of characteristics, but it is worth nothing that differences in peak drinks were not very large, often under two drinks. Furthermore, consequences were generally equivalent across game categories, indicating that all DGs are indeed risky. The analyses of differences between game categories are limited due to the exploratory nature of the study and lack of an experimental design. Nevertheless, utilizing the categorization system established in the current study, future research can better investigate important differences between DG categories to expand the initial work presented in the current study. The novel scheme also provides those working directly with college students and other youth for whom DG is a normative experience with an understanding of the games that are being played and with useful information to reduce risks associated with DGs.

Acknowledgments

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HIGHLIGHTS

- Documented, defined, and categorized 100 distinct drinking games.

- Recorded frequency of games played in each drinking game category.

- Reported typical player profiles for each drinking game category.

- Analyzed peak drinking differences between categories.

Table 1

DG definitions and reported DG.

Game category	DG definitions and examples					
Targeted and Skill games	This game type has a single loser (of 3 or more, no teams) who has to drink or a winner who sets to pick who drinks. These games usually involve some sort of skill or strategy to avoid personal drinking or target certain players to make them drink.					
	Apples to apples	Balls to the wall	Baskin robins 31	Beer hockey	BS	Catch phrase
	Celebrity	Chandeliers	Counting game	Darts	Drink driver	Eights
	Flip pong	Fuck you	Hearts	Jenga	Jeopardy	Kentucky draw 1
	Landmines	Montana	Moose	Numbers	Web	Quarters
	Questions	Spoons	3, 6, 9	Thumper	Presidents and assholes	Truth or dare
	UNO	Zip-zap-zop	Touretts	What the fuck	Videogame drinking game	
Communal games	This game type has no official winner or losers. Everyone participates simultaneously following an agreed upon set of rules that dictate how much and when they will drink. All players drink in response to an agreed upon action, phrase, event, etc.					
	Movie drinking game	Never have I ever…	Spin the bottle	Song game	Drinking game to debate	TV drinking game
Chance games	This game type involves no (or very little) skill or strategy and each person drinks in turn. Often these games involve the rolling of dice, guessing of playing card values, or randomly drawing playing cards to see what action you or others must complete.					
	Beer slut	Candy land	Circle of death	Connections	Dice	Drinko
	Electricity	Fuck the dealer	3-Man	Horse races	Indian poker	Kings cup
	Let's get fucked up	High/low, black/red	1, 2, 3, drink beer	Shots and ladders	The good, the bad, the ugly	Queens cup
	Ride the bus	7, 11, or doubles	Poker	Suits	Mushroom	Pyramid
	Titanic	Tower	Up the river			
Extreme Consumption games	This type of game involves extreme isolated chugging episodes. Typically one or more standard drinks. Rules (if there are any) are simple and rarely progress beyond drinking a lot, drinking fast, or finishing your drink.					
	Beer bong	Bucket	Edward 40 hands	Chugging	Century club power hour	Cowboy face
	Dizzy bat	Drunk ball	Case race	Frisbee challenge	Keg stand	
	Shotgun(ning)	Shots	Waterfall	Wine slapping	Wisest wizard	
Even Competition games	This game type is defined by one versus one or team versus team competition where the losing side must drink as punishment. The winner(s) do not have to drink.					
	Baseball	Beer die	Beer pong	Black out	Boat races	Chess checkers
	Civil war	Cranium	Flip cup	Foosball	Up chicken down chicken	Rock, paper, scissor
	Taboo	Tic-tac-toe	Hit 'em up			

Table 2

Peak DG drinking independent proportions tests by gender, race, and Greek status.

Game category	Sex		z	Race		z	Greek status		z
	Male % (*n*=1038)	Female % (*n*=1194)		White % (*n*=1016)	Non-White % (*n*=1168)		Greek % (*n*=1348)	Non-Greek % (*n*=836)	
Targeted	10.33 (105)	9.33 (109)	0.71	9.50 (128)	10.29 (86)	0.53	9.59 (67)	9.94 (147)	0.18
Chance	22.44 (228)	37.33 (436)	7.50 **	27.60 (372)	34.93 (292)	3.57 **	26.75 (187)	32.12 (475)	2.49 **
Extreme	5.22 (53)	3.42 (40)	1.97 *	4.01 (54)	4.67 (39)	0.63	4.15 (29)	4.33 (64)	0.08
Competition	62.01 (630)	49.91 (583)	5.63 **	58.90 (794)	50.12 (419)	3.97 **	59.51 (416)	53.62 (793)	2.54 **
χ^2 (3) ***	761.15	670.70		958.41	423.61		515.00	842.84	

Note. Table lists *z* values from a 1-tail *z* test for two independent proportions.

*
 $p < .05$.

**
 $p < .01$.

***
 $p < .001$.

Table 3

Peak DG drinking means and ANOVA comparisons overall and by gender, race, and Greek status.

Game category	Means: Peak DG drinks							
	Overall	Sex		Race		Greek status	
		Male	Female	White	Non-white	Greek	Non-Greek
Targeted	5.16	6.22[BC]	4.15	5.08[E]	5.29[G]	5.39[I]	5.06[J]
Chance	4.43[A]	5.59[BD]	3.82	4.37[F]	4.50[H]	4.14	4.54[K]
Extreme	5.83	6.77[C]	4.58	5.70[E]	6.00[G]	6.62	5.47[J]
Competition	4.61[A]	5.32[D]	3.83	4.57[F]	4.67[H]	4.74[I]	4.53[K]

Note: Means with the same letter in their superscripts do not significantly differ from one another according to a LSD test with $p<.05$.

Table 4

Significant overall and between groups differences in consequences experienced by game types.

Dichotomized RAPI item	Percent of targeted players (*n*=201)	Percent of chance players (*n*=641)	Percent of extreme players (*n*=91)	Percent of competition players (*n*=1157)	χ^2 (3) ***
Spent too much money on alcohol	12.43[A] (25)	18.10[B] (116)	25.27[B] (23)	14.87[A] (172)	190.12
Caused shame or embarrassment	31.84[C] (64)	27.63[C] (177)	42.86 (39)	28.69[C] (332)	349.90
Memory loss	36.32[D] (73)	26.52 (170)	34.07[D] (31)	31.98[D] (370)	424.88
Felt you were going crazy	8.46[E] (17)	9.98[E] (64)	18.68 (17)	9.25[E] (107)	109.60

Note: An overall chi square is reported for each RAPI item and superscripts indicate results from *z* tests of independent proportions.

In each row, means with the same letter in their superscripts do not significantly differ from one another in the same row according to *z* tests of independent proportions test with *p*<.01.

***
 p<.001.