

PERCEPTIONS OF PARENTING AND COLLEGE STUDENT ALCOHOL USE

A Thesis
by
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Abstract

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Many college students consume alcohol and experience negative consequences. Research has shown that in addition to peer influences, parenting practices are associated with alcohol use and alcohol-related consequences among college students. However, previous research has not examined the multitude of possible parenting variables in a single study. The present study examined the predictive utility of perceptions of parental monitoring, permissiveness, and modeling as well as specific parental disciplining responses in relation to college student alcohol use and related consequences above and beyond perception of peers. College student participants ($N = 290$; 67.3% female) reported on their alcohol use and alcohol-related consequences as well as perceptions of their parents' parenting behavior and their peers' drinking. After controlling for perception of peers, parental monitoring remained significant for both quantity-frequency and alcohol-related consequences, and permissiveness remained significant for alcohol-related consequences. The present findings are discussed in relation to previous research and implications for parent-based interventions. The present study is limited due to use of a cross-sectional methodology and self-report measures.

Keywords: Parental monitoring, parental alcohol permissiveness, parental alcohol modeling, alcohol-specific parenting, college student alcohol use, perceptions of peer norms

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Perceptions of Parenting and College Student Alcohol Use

Alcohol is a commonly consumed psychoactive substance that can be dependence-inducing. Heavy or problematic alcohol consumption is associated with substantial health and safety risks that not only impact the individual user, but society as well. Problematic alcohol consumption is among the top risk factors for claiming disability, contracting disease, and mortality. Some of the health-related risks associated with problematic or long-term alcohol consumption are cirrhosis of the liver, alcohol use disorder, unintentional or intentional injuries, and greater risk of some cancers (Brown et. al, 2009; Hingson & Rehm, 2013; WHO IRIS, 2014).

The consumption of alcohol poses a substantial health risk throughout the lifespan, yet there is significant concern for late-adolescent, college-age users, as the prevalence of onset of alcohol use disorder (AUD) is higher during this time than any other in the life span (Brown et. al., 2009). It is estimated that 90% of college students report consuming alcohol, with about 35% of these students reportedly engaging in excessive alcohol consumption, also known as heavy episodic drinking or binge drinking (Langberg, Dvorsky, Kipperman, Molitor, & Eddy, 2015; Thayanukulvat & Harding, 2015). Heavy episodic drinking is defined as four or more drinks for women and five or more drinks for men in a single sitting (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Individuals engaging in heavy alcohol consumption at this stage in life are at high risk for negative consequences (Hingson & Rehm, 2013). Wechsler et al., (1994) found that college students who frequently engaged in binge drinking (i.e., binged 3 or more times in the past 2 weeks) were significantly more likely than those who did not frequently engage in binge drinking to have experienced consequences including poor academic performance, unwanted sexual activity, and injury.

Traditional college students are in the developmental period of emerging adulthood which covers approximately the ages 18-25, and occurs after adolescence and before young adulthood. Additionally, it is a time of increased alcohol use and misuse (Arnett, 2000; White & Jackson, 2004). For emerging adults attending college, binge drinking during this developmental period is often seen as normative in North America and other Western countries (Arnett, 2005). Moreover, researchers have found that college students drink more than their same-aged non-college student peers (Abar & Turrisi, 2008).

Social Learning Theory and College Drinking

Social learning theory (SLT) emphasizes the role of social interactions and observation in the learning process (Bandura, 1977). SLT is based on the premise that people learn from observing others' behaviors as part of their own self-identification, and their imitation of these behaviors is guided and shaped by reinforcement contingencies (Scheier & Hansen, 2014; Trujillo, Suárez, Lema, & Londoño, 2015).

College students, and others, may learn alcohol use behaviors by observing and emulating behaviors of their parents and peers. In this way, observational learning is governed by four component processes according to Bandura (1977). First, Bandura considers *attentional processes* (e.g., what behaviors are observed given the abundance of potential modeling influences). Emerging adult college students are most likely to observe and attend to the behavior of their close peers or parents. The second major process of observational learning concerns *retention* of modeled and observed behavior through visual images and initial imitations of the behavior. The third major process concerns the *continued motor reproduction* of the modeled behavior as the observer seeks to transfer the symbolic representations they have retained into actions. The final major process concerns

motivational processes. An observer is more likely to maintain the modeled behavior if it achieves desired outcomes (Bandura, 1977). An example of these processes with reference to college student drinking might be a college student who attends a tailgating event with her parents who are drinking heavily (Abar, Turrisi, & Abar, 2011). The college student may attend most closely to the behaviors of her parents because she is relationally closer to them than other people in attendance. The college student may next begin to retain her observations of her parents' behavior through initial imitations of their drinking behavior. Next, the college student continues to drink at a similar rate as her parents, or continued motor reproduction of the behavior, as she or he continues to become intoxicated. Lastly, the college student in the example is more likely to replicate the behavior (i.e., binge drinking) if it leads to increased bonding with parents and an enjoyable experience.

In addition to modeling alcohol use behavior, children and adolescents may learn drinking behaviors in other socially-derived ways. Youth may also learn drinking behaviors through verbal persuasion or instruction relating to the desired behavior (i.e., offers of alcohol, parental permissiveness of drinking), or via symbolic modeling in which a child or adolescent observes the behavior in the media (Scheier & Hansen, 2014; Preston & Goodfellow, 2006).

Peers and College Student Alcohol Use

Peer drinking behavior reliably correlates with adolescent, emerging adult, and college student drinking (Parra, Krull, Sher, & Jackson, 2007; Perkins, Haines, & Rice, 2005; Quinn & Fromme, 2011; White, Fleming, Kim, Catalano, & McMorris, 2008; White & Jackson, 2004; Wood, Read, Palfai, & Stevenson, 2001). Borsari and Carey (2001), consistent with SLT, discussed three ways that peers may influence others' drinking

behaviors, which include offering alcoholic drinks, modeling, and perceived social norms. Of these three influences, perceived norms is among the strongest correlates of drinking behavior among emerging adults (White & Jackson, 2004; Borisari & Carey, 2001; Talbott, Wilkinson, Moore, & Usdan, 2014). For example, college students tend to overestimate their peers' approval of drinking (i.e., injunctive norms) as well as the amount of alcohol their peers' consume (i.e., descriptive norms). Greater perceived peer drinking and perceived peer approval of drinking predicts greater personal alcohol consumption and alcohol-related consequences in college students (Lee, Geisner, Lewis, Neighbors, & Larimer, 2007; Perkins, Haines, & Rice, 2005; Prentice & Miller, 1993; Prince, Maisto, Rice, & Carey, 2015).

The majority of studies investigating the relationships between perceived norms and college student alcohol use and consequences are cross-sectional and rely on self-reports. For example, Collins and Spelman (2013) investigated the relationship between descriptive and injunctive norms, and self-reported alcohol use and negative alcohol-related consequences in a cross-sectional survey with a sample size of 837 college student participants. Consistent with SLT (Bandura, 1977), descriptive and injunctive norms were most strongly correlated with alcohol use and negative alcohol-related consequences when participants referenced the views or behaviors of someone closest to them, such as a best friend, as opposed to general perceptions of college student alcohol use. Longitudinal evidence is consistent with cross-sectional findings, as perceived peer approval of drinking has been found to relate significantly and positively with increased rates of reported drinking across time by first-year students (Talbott, Wilkinson, Moore, and Usdan, 2014).

Parental Variables and College Student Alcohol Use

Many believe that peers have a stronger and more important influence on emerging adults as they transition into college than parents (Scalici & Schulz, 2014). However, evidence suggests that parents continue to influence their emerging adult children's alcohol use behaviors even though they are often no longer living at home (Baumrind, 1991; Varvil-Weld, Crowley, Turrisi, Greenberg, & Mallett, 2014). On the other hand, parental over-involvement, also known as "helicopter parenting" or over-parenting, has been negatively associated with college student self-efficacy (Bradley-Geist & Olson-Buchanan, 2014; Reed, Duncan, Lucier-Greer, Fixelle, & Ferraro, 2016). Therefore, parents are tasked with a balance between being involved in their college students' lives but refraining from over-involvement (Bradley-Geist & Olson-Buchanan, 2014).

Both peer and parent influences on recent high school graduates' alcohol involvement were examined by Wood, Read, Mitchell, and Brand (2004). Recent high school graduates preparing to begin their first year of college completed a survey assessing perceived norms of peers' alcohol use, modeling of alcohol use by peers (i.e., observations of peers drinking), and alcohol offers. They also assessed perceptions of a number of parental factors. Alcohol involvement was defined as recent episodes of heavy episodic drinking and alcohol-related negative consequences. The authors found significant associations between both peer and parental variables and alcohol involvement. They also found that perceived parental involvement moderated the relationship between peer influences and alcohol use and problems, as higher levels of perceived parental involvement was associated with a weaker relationship between peer influences and alcohol use and problems (Wood et. al., 2004). This

finding, illustrating the importance of both peers and parents on college alcohol use, was also found by Fairlie, Wood, and Laird (2012).

Parenting Practices

Parental Monitoring. Parents who engage in high levels of monitoring of their children have a well-developed understanding regarding the whereabouts and social connections of their children (Dishion & Loeber, 1985). Offspring who report a lack of perceived parental monitoring during childhood and adolescence are more likely to engage in behaviors such as drug use, delinquency, theft, and other risky behaviors compared with offspring who report high levels of perceived parental monitoring (Coley, Votruba-Drzal, & Schindler, 2008; Dishion & Loeber, 1985; Patlock-Peckham et al., 2011; Wood, et al., 2004).

Beck, Boyle and Boekeloo (2003) examined the relationship between parental monitoring and alcohol-risk behaviors (i.e., getting alcohol from someone other than a parent, drinking without a parent's permission, and illegally buying alcohol from a store. Adolescents who reported that their parents engaged in a high degree of monitoring were significantly less likely to report having engaged in various alcohol-risk behaviors. Coley, Votruba-Drzal, and Schindler (2008) assessed trajectories of adolescent substance use. Parental behaviors were examined through adolescent reports of their parents' monitoring and engagement in family activities such as eating dinner or leisure activities. Adolescent participants were interviewed between ages 12-16 and again annually for four years. Substance use was examined by asking about use of marijuana, alcohol, and cigarettes in the last 30 days. Over four waves of data collection, decreases in parental monitoring by both parents as well as decreases in family activities were associated with increases in substance use.

Low parental monitoring is a well-established correlate of alcohol use and alcohol-related consequences among adolescents (Coley, Votruba-Drzal, & Schindler, 2008). It is conceivable that this relationship could function similarly with emerging adult college students, even if they have transitioned to living out of the home (Patlock-Peckham et al., 2011). Strunin et al., (2013) found that higher perceived parental monitoring was strongly associated with less alcohol use among a sample of college students; however, this study was conducted in Mexico which could limit generalizability to college students of other cultures. In addition, the majority of the studies examining college student alcohol use and parental monitoring are cross-sectional in design. However, Walls, Fairlie and Wood (2009) conducted a longitudinal study first assessing adolescents the summer before college compared with the end of freshman and sophomore years. The researchers found that students who perceived higher parental monitoring were significantly less likely to experience alcohol-related consequences in freshman and sophomore years of college (Walls, Fairlie and Wood, 2009).

Parental Modeling. Parental modeling of alcohol use has also been associated with offspring alcohol-related behaviors (Abar, Abar, & Turrisi, 2009; Van Der Vorst et al., 2013; White, Johnson, & Buyske, 2000). Past research has mostly focused on adolescents, therefore further research is warranted to better understand how parental modeling of alcohol use relates to college student drinking and related problems (Abar, Abar, & Turrisi, 2009). Parental modeling is defined as parental interaction and experience with alcohol that is observable to the child. An association between parental modeling of alcohol use and their children's alcohol use and related problems fits within SLT, in that offspring may imitate behaviors demonstrated by a parent (Bandura, 1977; Abar, Turrisi, & Abar, 2011). Previous

research has found that children who grow up in a home where one or both parents drink alcohol are at increased risk to drink problematically (Abar, Turrisi, & Abar, 2011; Barnes, Reifman, Farrell & Dintcheff, 2000; Brook, Balka, Crossman, Dermitas, Galanter & Brook, 2010) compared to children who grow up with parents who do not consume alcohol. Additionally, students transitioning out of college who grew up with family members who modeled heavy or problematic drinking were found to be less likely than those without this family history to mature out of, or cease, heavy drinking as they moved into young adulthood (Jackson, Sher, Gotham, & Wood, 2001).

Abar, Turrisi, and Abar (2011) examined the relationship between perceived parental modeling of alcohol use in the specific context of tailgating before a sporting event. College freshmen were asked about their perceptions of their parents' drinking behavior when tailgating as well as perceptions of their own drinking behaviors and experiences of alcohol-related consequences. They found that higher perceived parental heavy episodic drinking while tailgating was associated both with greater student drinking and negative alcohol-related consequences. This study was clearly limited by a correlational design, and examining perceptions of parental modeling of alcohol use in a specific context, but suggests parental drinking may relate to college student drinking via modeling.

Permissiveness of Alcohol Use. Permissiveness of alcohol use relates to the degree to which parents allow or approve of alcohol consumption by their children (Kaynak, Winters, Cacciola, Kirby, & Arria, 2014). The role of parents permitting their adolescent children to try or use alcohol has been proposed by some as a protective factor against later heavy drinking and negative consequences (Cloud, 2008; Donovan & Molina, 2008; Peele, 2007). However, more recent researchers have found that parental permissibility of alcohol

use is associated with increased alcohol use and negative alcohol-related consequences among both adolescents and college students (Abar, Abar, and Turrisi, 2009; Varvil-Weld, et. al., 2014). Recent research also provides support for decreasing parent permissiveness of alcohol use as an important target for interventions for college student alcohol use that target parenting as part of an intervention (Fairlie, Wood, & Laird, 2012; Varvil-Weld, et. al., 2014). Parent-based interventions that target parental permissiveness and attitudes about drinking and provide booster brochures on the material have been shown to reduce college student drinking compared to control groups (Doumas, Turrisi, Ray, Esp, & Curtis-Schaeffer, 2013).

Recent research suggests that permissiveness of alcohol use in adolescence relates positively with college student drinking and negative consequences, although many studies have not controlled for or measured potential confounding variables such as parental drinking or monitoring (Livingston, Testa, Hoffman, & Windle, 2010; Varvil-Weld, et. al., 2014; Yu, 2003). For example, Abar, Abar, and Turrisi (2009) found that retrospective reports of perceived parent permissibility of high levels of alcohol consumption, particularly in the late high school years, was associated with higher levels of alcohol consumption and negative alcohol-related consequences during college (Abar, Abar, and Turrisi, 2009).

The relationship between parental permissiveness of alcohol use before college and college student drinking and subsequent consequences was also examined by Varvil-Weld et. al (2014). The authors accounted for potential confounding variables of family history and parental drinking. A sample of U.S. incoming college students completed a baseline questionnaire regarding parental permissiveness of alcohol use in adolescence. The participants completed a follow-up questionnaire 15 months later reporting their drinking and

alcohol- related consequences in college (Varvil-Weld et. al, 2014). The more college students perceived they were permitted to drink by their parents at baseline, the more they reported drinking and experiencing negative alcohol-related consequences at the 15-month follow-up (Varvil-Weld et. al, 2014).

Alcohol-Specific Parenting Practices. Previous research has found that parenting practices of high monitoring, low modeling of heavy drinking, and low permissiveness of alcohol use correlate with less heavy college student drinking and fewer alcohol-related consequences (Patlock-Peckham, et al., 2011; Van Der Vorst, et al., 2013). However, while the practice of permissiveness is specific to alcohol consumption, additional research is warranted concerning parenting behaviors directed specifically at preventing heavy alcohol consumption and alcohol-related consequences (Zehe & Colder, 2014). Research on alcohol-specific parenting behaviors has found that establishing direct rules against alcohol use is associated with less alcohol use and related consequences among adolescents (Mares, Lichtwarck-Aschoff, Burk, van der Vorst, & Engels, 2012; van der Vorst, Engels, Meeus, & Deković, 2006).

In addition to establishing alcohol-specific rules, recent research has also found that parental messages specific to alcohol use may influence adolescent alcohol use above the influence of parenting style and parental modeling of alcohol use (Abar, Fernandez, & Wood, 2011; Reimuller, Hussong, & Ennett, 2011). Reimuller, Hussong, and Ennett (2011) assessed parent-adolescent pairs' perceptions of alcohol-specific communication, and the relationship with alcohol use and related consequences. The researchers assessed both permissive messages and negative alcohol messages and found that permissive messages had a significant positive relationship with adolescent alcohol use and consequences (Reimuller,

Hussong, & Ennett, 2011). Abar, Fernandez, and Wood (2011) surveyed college students about their drinking behavior, and asked parents about specific alcohol-related communication and other aspects of their parenting. Active parent-adolescent communication about alcohol use and consequences, low modeling of use, high monitoring, and relationship satisfaction correlated negatively with college student drinking. These findings support the idea that parents continue to influence their offspring in late adolescence and emerging adulthood, and suggest that quality of parent-teen communication about alcohol use may inform future parent-based preventive interventions (Abar, Fernandez, & Wood, 2011).

In a 2014 longitudinal study of adolescent alcohol use, Zehe and Colder assessed four domains of alcohol-specific parenting including parent permissibility of alcohol use, parent communication of alcohol-related consequences, parental disciplining of drinking, and parents' perceptions of their efficacy in preventing their adolescent from drinking. Three annual interviews with both parents and their adolescent children (beginning at age 11-12) were conducted. The researchers found that as adolescents aged, both parental permissiveness of drinking, and likelihood of disciplining drinking declined significantly. Additionally, they found that more rapid declines in parental disciplining of adolescents' drinking were associated with increased adolescent alcohol use (Zehe & Colder, 2014). The authors suggest that parental permissibility of alcohol use and lower likelihood of disciplining adolescent drinking could communicate to adolescent offspring that drinking alcohol is acceptable (Zehe & Colder, 2014). Their findings are consistent with correlational research that greater parental permissiveness of alcohol use, low disapproval of alcohol use, low discipline of adolescent drinking, and low communication of alcohol-related

consequences increase the risk for adolescent drinking (Foley, Altman, Durant, & Wolfson, 2004; Yu, 2003; Zehe & Colder, 2014)

Present Study

Previous literature has shown that perceptions of peers' drinking behaviors and approval of drinking, as well as perceptions of parental monitoring, parental permissiveness, parental drinking behavior, and alcohol-specific parenting are all associated with college drinking behaviors. Although each of these variables has been examined separately (Abar, Abar & Turrisi, 2011; Patock-Peckham & Morgan-Lopez, 2007; Zehe & Colder, 2014), and in some cases together (Abar, Abar, & Turrisi, 2009; Fairlie, Wood, & Laird, 2012), all of these factors had not previously been examined in the same study relative to college student drinking. *Figure 1* depicts a graphical representation of the peer and parental constructs tested in the present study relative to the prediction of alcohol use (quantity-frequency of alcohol use) and alcohol-related consequences. Peer influences of descriptive and injunctive norms, an established correlate of college student drinking, was controlled for by being entered into the model first. Then, factors related to parenting were entered into the model, beginning with parenting practices (i.e., monitoring, modeling, and permissiveness), and followed by alcohol-specific parental responses to examine if these responses accounted for additional variance in college student quantity-frequency of drinking and alcohol-related consequences.

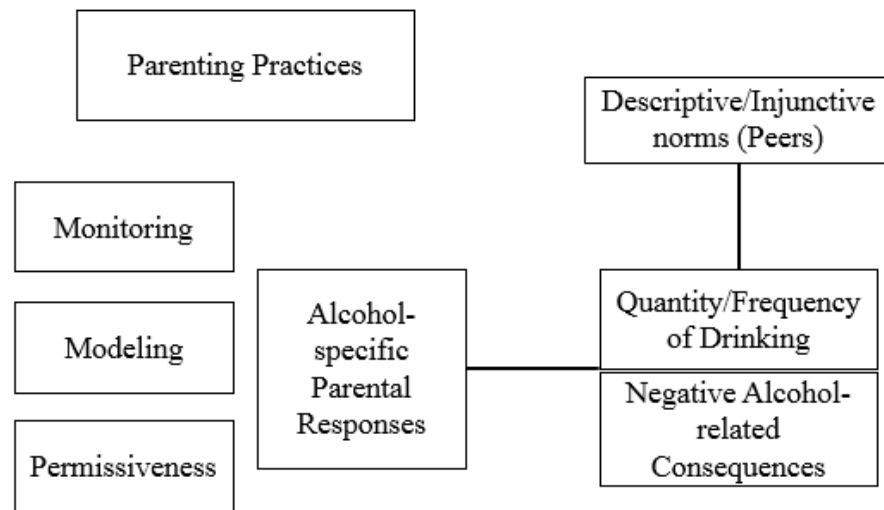


Figure 1. Representations of the peer and parental constructs to be examined in analyses.

In the present study, a college student sample reported on perceived peer alcohol use and provided retrospective reports on perceived parenting practices and behaviors, as well as their current alcohol use and alcohol-related consequences. These constructs were assessed with a single-informant approach, as Varvil-Weld, Turrisi, Scaglione, Mallett, and Ray (2013) found that college students' perceptions of their parents' parenting practices were more reliably associated with their drinking and alcohol-related consequences than parents' retrospective reports of their parenting practices.

Drawing from previous research, it was hypothesized that: greater perceived descriptive/injunctive norms relative to peer alcohol use would predict greater college student alcohol use and alcohol-related consequences; and that perceived parenting (high parental monitoring, low parental alcohol use modeling, low parental alcohol permissiveness, and use of alcohol-specific parental responses [e.g., discipline efforts]) would add

significantly to the prediction of college student alcohol use and consequences above and beyond that accounted for by perception of peer norms.

Methods

Participants

A statistical power analysis (Faul, Erdfelder, Buchner, & Lang, 2009) revealed that a sample of at least 211 college students would be needed to detect the same level of correlational relationships found in preceding research on similar concepts ($r = .2$, $\alpha = .05$, $\beta = .10$; Abar, Turrisi, & Abar, 2011; Fairlie, Wood, & Laird, 2012; Patock-Peckham et. al., 2011). A sample of 290 college student participants (67.3% female, 81.3% Caucasian, 83.3% first and second year students, 77.7% 18-19 years old) were recruited through the subject pool and SONA system used by the Psychology Department at Appalachian State University. On average, participants were 19.16 ($SD = 1.22$) years of age. Participants reported drinking an average of 4.17 times per month ($SD = 4.49$; Range = 0-30), and consuming 2.9 drinks per occasion ($SD = 2.87$, Range = 0-12.50), and 16.51 drinks per month (quantity frequency) ($SD = 22.72$; Range = 0-180.00). Male participants averaged 21.26 drinks per month ($SD = 29.80$) and female participants averaged 14.4 drinks per month ($SD = 18.18$), with a significant difference between the two groups $t(289) = 2.41$, $p = .001$. In the present study, 22.8% of respondents reported no alcohol consumption over the last month.

The Psychology Subject Pool consists of students enrolled in introductory and intermediate psychology classes who have elected to enter the Psychology Subject Pool to fulfill an Experiential Learning Credit (ELC) for the course. In their classes students were offered alternatives to earning their ELC to participating in research, such as writing an essay, in order to avoid coercion. Participants entered the Psychology Subject Pool by

registering through a program called SONA, and once they had access to SONA, they had the opportunity to select from among a number of studies.

Measures

Demographics questionnaire (Appendix B). Participants reported their age, sex, academic year, involvement in athletics, clubs and/or Greek life organizations, intended major, religious affiliation, and race or ethnicity.

Alcohol Consumption Measure (ACM; Dillard, Midbow, & Klien, 2009; Appendix C). The ACM is a four-item measure that assesses the frequency and quantity of self-reported drinking in the past week and past month. Sample items include, “How many times in a typical month do you drink alcohol?,” “How many drinks have you had in the past week?,” and “How many drinks do you typically have at one time?” For the present study, quantity/frequency (QF) of alcohol use was calculated by multiplying answers to two questions “how many times in a typical month do you drink alcohol?” by “how many drinks do you typically have at one time?” to create an estimate of average number of drinks per month. The scale reliabilities for this measure (alphas) were .81 at T1 (after first semester of freshman year) and .87 at T2 (after second semester of college; Dillard, Midbow, & Klien, 2009).

Brief Young Adult Alcohol Consequences Questionnaire. (B-YAACQ; Kahler, Strong, & Read, 2005; Appendix D). The B-YAACQ is a 24-item measure of young adult alcohol use consequences experienced in both the last 30 days and in the last year. The measure was developed by Rasch model analyses of the 48-item version of the YAACQ on a sample of college students who drank on at least a weekly basis. The B-YAACQ was highly correlated with the Rutgers Alcohol Problem Index (RAPI), a measure of adolescent alcohol

use consequences, and obtained alpha levels of .83, indicating good internal consistency. Participants were instructed to indicate whether or not a consequence has happened in the past 30 days by selecting either “yes” or “no.” Examples of consequences include: “I have had less energy or felt tired because of my drinking,” “While drinking, I have said or done embarrassing things,” and “My physical appearance has been harmed by my drinking.” Scores range from 0 to 24 with higher scores indicated more consequences. Alpha obtained in the present study was .86.

Drinking Norms Measure (DNM; Lac, Crano, Berger, & Alvaro, 2013, Appendix E). This 6-question measure was developed to assess both injunctive and descriptive alcohol use norms among adolescent peers. Injunctive norms were measured by asking how much closest friends, friends, and typical students approve of drinking, with answer choices on a 7-point scale (1 = strongly disapprove, 7 = strongly approve). Descriptive norms were measured by asking respondents their perceptions on how much closest friends, friends, and typical students drink, with answer choices ranging from 1 = never to 7 = daily. In a young adult sample, both descriptive (alpha = .74) and injunctive norms (alpha = .76) obtained acceptable reliability, and Cronbach’s alpha for the complete measure was .79. Total scores ranged from 6 to 42, and higher scores indicated increased perceptions of drinking approval and quantity/frequency. Lac, Crano, Berger, and Alvaro (2013) used the measure in assessing underage drinking in a college student sample with similar characteristics as the present study (e.g., 18-20 year-old college student sample). Alpha obtained in the present study was .77.

Parental Monitoring Scale (PMS; Small & Kerns, 1993; Appendix F) The PMS is an eight-item measure that assesses the extent to which parents know the whereabouts of

their children, know their friends, and discuss their children's social plans. The measure was adapted to the past tense to assess college student participants' perceptions of their parents' parental monitoring when they were adolescents. Participants were instructed to complete the measure on their primary parent figure or parental figures; after completing all parenting measures, the participant were asked to identify if they completed the measure on their parental figures as a group, or on one parental figure (and indicate the individual's relationship). Sample items include: "My parent(s) knew who my friends were," and "When I went out at night, my parent(s) knew where I was." Response choices range from 1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, and 5 = always. The items were summed and higher values indicated higher levels of perceptions monitoring. Total scores on the PMS range from 8 to 40. Patlock-Peckham et al. (2011) obtained alphas ranging from .88-.93 when monitoring was assessed with respect to mother and father monitoring specifically, and found that the PMS related significantly and negatively with college student drinking. Alpha obtained in the present study was .90 when monitoring was assessed for the "primary parental figure(s)".

Parent Permissibility of Alcohol Use Measure. (PPAUM; Abar, Abar, & Turrisi, 2011; Appendix G). The PPAUM is a three-item measure developed to examine incoming college students' perceptions of their parents' permissibility of alcohol use. The items asked about students' perceptions of their parents' permissibility of them drinking on special occasions, drinking only once in a while, and drinking under any circumstances. The item "My parent(s) disapproved of me drinking alcohol under any circumstances" was reverse coded. Participants were instructed to complete the measure on their primary parent figure or parental figures; after completing all parenting measures, the participant was asked to

identify if they completed the measure on their parental figures as a group, or on one parental figure (and indicate the individual's relationship). The PPAUM has an internal consistency alpha reliability of .90, and was used by Mallett et al. (2011) to assess parental permissibility of alcohol use in a college student sample. The items were each rated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater perceived parental permissibility of alcohol use and scores ranging from -3 to 9. Alpha obtained in the present study was .88.

Parent Modeled Behavior Scale. (PMBS; Abar, Abar, & Turrisi, 2009; Appendix H). The PMBS is a 5-item measure developed to assess the alcohol-related behaviors specific to mothers, fathers, and parents in general. The PMBS assesses two parent-specific items about quantity and frequency of alcohol use including, "how often do you think your parent(s) drank alcohol in the past year," with respondents answering on an eight-point scale ranging from 0 = not at all to 8 = every day. Participants were instructed to complete the measure on their primary parent figure or parental figures; after completing all parenting measures, the participant was asked to identify if they completed the measure on their parental figures as a group, or on one parental figure (and indicate the individual's relationship). The PMBS also includes three general parent modeled behavior items which ask how often alcohol was on the dinner table while growing up (0 = never, 3 = once a week, 5 = nearly every day), how often they saw their parent(s) drink alcohol, and how often they saw their parents drunk from alcohol. These items were internally consistent in a sample of college students (Cronbach's $\alpha=.70$). Responses to the five questions were summed (range from 0 to 40), and higher scores indicated higher levels of modeling alcohol use. Alpha obtained in the present study was .84.

Parental Responses to Adolescent Drinking Measure (PRADM; Zehe & Colder 2014; Appendix I). This originally 22-item measure was adapted for the current study to assess retrospective accounts of past parental disciplining responses to adolescent alcohol use (Zehe & Colder, 2014). The Parental Disciplining, Efficacy, and Communication about Adolescent Drinking Measure was adapted by Zehe and Colder (2014) from an adolescent cigarette use measure (Kodl & Mermelstein, 2004). Zehe and Colder (2014) found evidence for a three-factor measure including parental disciplining of adolescents' drinking, parental efficacy about preventing adolescent drinking, and parental communication of alcohol-related consequences. The measure was internally consistent with Cronbach's alphas ranging from .71 to .90.

The present measure only utilized the items from the parental disciplining factor and adapted items that originally assessed current parental disciplining of adolescents' drinking to inquire about past alcohol-specific parental responses to adolescent drinking behavior (3 items). Participants were instructed to complete the measure on their primary parent figure or parental figures; after completing all parenting measures, the participants were asked to identify if they completed the measure on their parental figures as a group, or on one parental figure (and indicate the individual's relationship). The questions included: "If your parent(s) knew you drank alcohol or tried alcohol how likely is it that they would, "Take away privileges, like watching TV, driving, etc." Answer choices range from 1 = Not at all likely, 2 = A little likely, 3 = Somewhat likely, 4 = Very likely. Total scores represent a sum of responses to the three alcohol-specific discipline items and range between 3 and 12 and the alpha obtained in the present study was .95.

Procedures

Once college student participants selected the present study in the SONA program, they were redirected to an electronic survey and granted informed consent prior to completing the survey (Appendix A). Participants were informed that the primary risk of participation in the study was the possibility of a breach of confidentiality, as participants could disclose illegal activity (i.e., consuming alcohol under the age of 21). Participants were also informed that the risk of a data breach was minimal as identifying information was not linked with their survey responses. A phone number and email of the principal investigator and faculty advisor were given to participants to utilize if they had any questions or concerns pertaining to the study. Participants were informed that they could discontinue participation in the study at any time for any reason.

After consenting to participate, participants actively chose to begin and complete the electronic survey on Qualtrics. They completed the following measures in the following order: Demographics questionnaire, Alcohol Consumption Measure (ACM), Brief Young Adult Alcohol Problems Consequences Questionnaire (B-YAACQ), Drinking Norms Measure (DNM), Parental Monitoring Scale (PMS), Parent Modeled Behavior Scale (PMBS), Parent Permissibility of Alcohol Use Measure (PPAUM), and Parent Responses to Adolescent Drinking Measure (PRADM). Once a participant completed the survey they were awarded 2 ELCs for their time and participation.

Results

Missing data were less than 5% for all variables, and prior to calculating total scale scores, multiple imputation was utilized to estimate missing values using SPSS. Multiple imputation is an appropriate manner of dealing with missing data when data missing is

random, and the percentage of missing data is low (Schafer and Graham, 2002). See Table 1 for means, SDs, and bivariate correlations between all variables. Self-reported QF correlated significantly and positively with DNM and PPAUM, and negatively with PMS and PRADM. Similarly, self-reported B-YAACQ correlated significantly and positively with DNM, PPAUM, and PMBS, and negatively with PMS and PRADM.

In order to test the hypothesis that perceived parenting (high parental monitoring, low parental alcohol use modeling, low parental alcohol permissiveness, and use of alcohol-specific parental responses [e.g., discipline efforts]) would add significantly to the prediction of college student alcohol use and consequences above and beyond that accounted for by perception of peer norms, a hierarchical multiple regression analysis was conducted. The DNM was entered on the first step, parenting practices of PMS, PMBS, and PPAUM, were entered on the second step, and PRADM was entered on the final step. Self-reported QF served as the criterion variable (see Table 2).

The analysis predicting QF revealed that at Step 1, DNM contributed significantly to the regression model, $F(1, 289) = 39.11, p < .001$ and accounted for 12% of the variation in QF. On Step 2, introducing PMS, PMBS, and PPAUM into the model explained an additional 5.4% of variation in QF and this change in R^2 was significant, $\Delta F(3, 286) = 6.28, p < .001$. The addition of PRADM to the regression model on Step 3 did not explain any additional variation in QF, $\Delta F(1, 285) = .002, p = .97$. Consistent with the hypothesis, greater DNM scores were predictive of greater QF. Also, consistent with hypotheses, PMS remained significant above and beyond that accounted for by DNM. Contrary to hypotheses, PMBS, PPAUM, and PRADM did not remain significant above that accounted for by DNM.

To test the hypothesis that perceived parenting (high parental monitoring, low parental modeling of alcohol use, low parental alcohol permissiveness, and use of alcohol-specific parental responses would add significantly to the prediction of college student alcohol-related consequences above and beyond that accounted for by perception of peer norms, an identical hierarchical regression analysis was conducted. The second analysis predicting B-YAACQ revealed that at Step 1, DNM contributed significantly to the regression model, $F(1, 289) = 40.07, p < .001$ and accounted for 12.2% of the variation in B-YAACQ scores. On Step 2, introducing PMS, PMBS, and PPAUM explained an additional 5.9% of variation in B-YAACQ, and this change in R^2 was significant, $\Delta F(3, 286) = 6.80, p < .001$. The addition of PRADM to the regression model on Step 3 did not explain any additional variation in B-YAACQ scores, $\Delta F(1, 285) = .02, p = .90$. Consistent with the hypothesis, greater DNM scores were predictive of greater B-YAACQ. Also consistent with the hypothesis, PMS and PPAUM remained significant above and beyond that accounted for by DNM. Contrary to the hypothesis, PMBS, and PRADM did not remain significant above that accounted for by DNM.

Discussion

The present study is the first to examine the parental variables of parental monitoring, parental modeling of alcohol use, parental permissiveness of alcohol use, and alcohol-specific disciplining practices, after controlling for perception of peer norms relative to alcohol use, using a college student sample. Peer variables are a reliably strong predictor of college student alcohol use, but the potential influence of parents is less well known. Consistent with hypotheses and theory, greater perceived descriptive (e.g., perceptions how much peers drink) and injunctive norms (e.g., perceptions of how much peers approve of

drinking) was predictive of greater self-reported drinking and greater self-reported negative alcohol-related consequences (Quinn & Fromme, 2011; White, et al., 2008). Perceived parental monitoring remained a significant predictor of alcohol use and consequences after accounting for peer norms, and perceived parental permissiveness of alcohol remained a significant predictor of consequences but not alcohol use.

Notably, contrary to the hypothesis, perceptions of alcohol-specific parenting disciplining strategies did not add to the prediction of college student alcohol use and alcohol-related consequences above and beyond known predictors of peer norms and other parenting variables despite significant, although small, univariate relationships. In addition, contrary to hypotheses, parental modeling did not add to the prediction of college student use and consequences. These variables were examined after controlling for peer norms, a known strong predictor of college student use and related consequences.

The finding that perceptions of alcohol-specific disciplining strategies did not add to the prediction of college student alcohol use and consequences after accounting for peer norms and other parenting variables may relate to a number of factors. The present sample reported somewhat lower quantity-frequency of alcohol use compared to similar samples that also included non-drinking students (e.g., LaBrie, Hummer, Neighbors, & Larimer, 2010; Wei, Barnett, & Clark, 2010), which may have impacted the strength of the relationship. Approximately one in five participants in the present study (22.8%) indicated they abstained from drinking in the previous month. This proportion of abstainers is typical of general college student samples in recent research (LaBrie, Hummer, Neighbors, & Larimer, 2010; Wei, Barnett, & Clark, 2010). The sample also reported somewhat lower alcohol-related consequences than samples in previous studies (e.g., Wei, Barnett, & Clark, 2010) which

similarly may have impacted the strength of the relationship. In addition, the measure of alcohol-specific discipline strategies correlated moderately with parental permissiveness that was already entered into the model. It is possible that perceptions of parental alcohol permissiveness may have already accounted for some of the variance in consequences (Zehe and Colder, 2014). Additionally, the measure of disciplining strategies used in the present study was one of three factors of a previous measure, and was adapted to the past tense from a measure assessing current perceptions of parenting in adolescence. It is possible that modifying the measure may have affected its relationship to current use and consequences (Zehe and Colder, 2014).

Similarly, parental modeling of alcohol use did not add to the prediction of college student alcohol use and related consequences after accounting for known predictors of peer norms and other parenting variables. However, the construct significantly correlated with both self-reported use and alcohol-related consequences, and this is consistent with previous findings (Abar, Abar, and Turrisi, 2009; White, Johnson, & Buyske, 2000). The measure used for the present study has not been examined in many studies to date, limiting knowledge of its predictive utility.

Consistent with previous studies, college student perceptions of peer drinking and peer approval of drinking was the most powerful predictor of self-reported drinking and negative alcohol-related consequences (Parra, Krull, Sher, & Jackson, 2007; Perkins, Haines, & Rice, 2005; Quinn & Fromme, 2011; White, Fleming, Kim, Catalano, & McMorris, 2008; White & Jackson, 2004; Wood, Read, Palfai, & Stevenson, 2001). Although the present sample reported somewhat lower quantity-frequency of drinking and experience of negative consequences compared to previous studies, a similar amount of variance was accounted for

by perception of peer norms (LaBrie, Hummer, Neighbors, & Larimer, 2010; Wei, Barnett, & Clark, 2010). Peer variables may be a stronger predictor of college student drinking as it may be developmentally appropriate for the behavior of emerging adult college students to identify with their peers' behavior as they continue to individuate from parents (Arnett, 2005; Borsari, & Carey, 2001; White & Jackson, 2004; Wood, Read, Mitchell, & Brand, 2004). From a SLT perspective, college students may attempt to assimilate themselves with potential friends by emulating their drinking behaviors, or their perceptions of their peers' drinking behaviors (Bandura, 1977).

Notably, some parental variables remained significant after controlling for the variance accounted for by descriptive and injunctive norms, particularly perceptions of parental monitoring. This suggests that parents who have a high level of knowledge of their children's whereabouts and habits, and who do not permit underage use in adolescence tend to have college students who drink less and experience fewer related consequences (Coley, Votruba-Drzal, & Schindler, 2008; Dishion & Loeber, 1985; Patlock-Peckham et al., 2011; Wood, et al., 2004). The findings are consistent with findings from Turrisi and Ray (2010) suggesting that "sustained" parenting behaviors (e.g., continued from the summer before offspring begin college into the first fall semester) of monitoring, accessibility, and disapproval of high-risk drinking were associated with less self-reported high-risk drinking. Turrisi and Ray (2010) also explain that these parenting behaviors may be "sustained" via electronic communication such as texting or phone conversations as emerging adults transition into college and live outside the home. Additionally, Messler, Lee and Emery (2016) suggested that continuance of parental monitoring behaviors when offspring are in college may be perceived by some as more of a friend maintaining a close relationship than

attempting to “keep tabs” and thus may be perceived as more acceptable to emerging adult college students as they individuate from parents.

As noted, parental monitoring was uniquely predictive of college student alcohol use and consequences. In addition, it obtained small but significant relationships with other parenting variables, suggesting a unique aspect to the construct. Parental monitoring is associated with other parenting behaviors or attitudes in the development literature. Greater perceived parental monitoring correlates with greater parent-child attachment (Dane, Kennedy, Spring, Volk, & Marini, 2012; Kerns, Aspelmeier, Gentzler, & Grabill, 2001; Reese, 2008), and parental warmth (Patrick, Snyder, Schrepferman, & Snyder, J., 2005). Both Patrick et al. (2005) and Kerns et al. (2001) found early childhood attachment and warmth to be associated with later parental monitoring. Perhaps when these behaviors were present in college students’ relationship with their parents, the continuation of monitoring behaviors upon college matriculation may be perceived more of a caring and maintained relationship as suggested by Messler, Lee, and Emery (2016). Parental practices of permissiveness or discipline may contrast with these associations, and perhaps are seen as more punitive and less “caring” in nature than more general parental monitoring behaviors.

Interestingly, the present study did not find a significant relationship between parental monitoring and parental permissiveness of alcohol use, even though both constructs had significant, but inverse, univariate relationships with quantity-frequency and negative alcohol-related consequences. Perhaps some parents who engaged in high levels of monitoring, also permitted their children to drink, perhaps believing that it may “prepare” them for college and be associated with their children exhibiting less risky drinking behavior (Livingston, Testa, Hoffman, & Windle, 2010; Varvil-Weld, et. al., 2014). This notion was

corroborated by recent findings by Messler, Lee, and Emery (2016). Messler and colleagues (2016) found that when perceived parental approval of drinking was high, and perceived parental monitoring was high, college students reported greater alcohol use than when perceived approval of drinking was low, and perceived parental monitoring was high. The concepts of parental approval of drinking and permissiveness, as examined in the present study, may be related as the measure for the present study included questions about general disapproval of drinking.

Both peer norms and parenting variables were generally more predictive of alcohol-related consequences than quantity-frequency, suggesting consequences of use may be a better measurement of the impact of drinking, rather than quantity-frequency alone (Barnett, Merrill, Kahler, & Colby, 2015; White & Ray, 2014). As mentioned previously, there remained a lot of variance unaccounted for by peer and parenting variables in both quantity-frequency and alcohol-related consequences, suggesting other variables not examined in the present study are important. Individual factors may include personality factors such as impulsivity (Caswell, Celio, Morgan, & Duka, 2016; Gonzalez, Reynolds, & Skewes, 2011; Keough, Badawi, Nitka, O'Connor, & Stewart, 2016), psychopathology such as depression (Gonzalez, Reynolds, & Skewes, 2011; Seigers & Carey, 2010) or anxiety (Keough, Badawi, Nitka, O'Connor, & Stewart, 2016), alcohol expectancies (Anthenien, Lembo, & Neighbors, 2017), personal drinking history (Gotham, Sher, & Wood, 1997), and family history of substance abuse (Kendler et al., 2015; LaBrie, Migliuri, Kenney, & Lac, 2010). In addition, other environmental or social variables such as availability of alcohol (Chaloupka, & Wechsler, 1996), living arrangements (Gfroerer, Greenblatt, & Wright, 1997), participation

in the Greek system (Park, Sher, & Krull, 2008; Patrick, Macuada, & Maggs, 2016) or athletics (Yusko, Buckman, White, & Pandina, 2008) may be important to consider.

Limitations and Future Directions

The present study, like all empirical investigations, has limitations. First, the present study relied on self-report measures of alcohol use and experience of negative alcohol-related consequences, which are susceptible to bias, such as the reporting of behavior viewed as socially desirable (Del Boca & Noll, 2000; Rehm, 1998). Second, the present study relied on retrospective reports of college students' perceptions of their parents' parenting behavior, which are also subject to bias, such as recall bias in which participants may not be able to accurately recall and report information over time (Del Boca & Noll, 2000; Rehm, 1998). However, self- and retrospective reports of college student alcohol use have been found to be reliable and valid measurements of the alcohol use and parenting variables examined (Midanik, 1988; Roberts, Siegel, DeJong, & Jernigan, 2014; Varvil-Weld et al., 2013). For parenting variables in particular, college students' perceptions of their parents' parenting practices have been found to be more reliably associated with their drinking and alcohol-related consequences than parents' retrospective reports of their parenting practices, suggesting relying on a single-informant approach in assessing parenting behaviors in the present study was appropriate (Varvil-Weld et al., 2013).

The present study was also limited in reliance on the use of cross-sectional data and correlational analyses. A more powerful or meaningful method would utilize a longitudinal design, rather than retrospective reports, to more carefully elucidate the relationship of particular parenting behaviors over time with offspring alcohol use and consequences. Future research should utilize a longitudinal approach, and attempt to obtain real-time estimations of

alcohol use. Such measures of alcohol use could include the use of diaries (Rehm, 1998), or phone applications (Collins, Kashdan, & Gollnisch, 2003), as well as collateral reports, blood/urine tests, or breathalyzers to validate self-reports (Midanik, 1988).

The findings from the present study support previous findings that parent-based interventions may affect college student alcohol use and consequences, and that some “sustained” parenting practices, particularly parental monitoring, may play an important role in college student drinking behavior (Abar, Fernandez, & Wood, 2011; Turrisi & Ray, 2010). Additionally, findings suggest that perception of peer behavior is very important relative to college student alcohol consumption and related consequences. However, parents may also play a role in college student drinking, and continued communication or involvement of parents in college orientation may facilitate greater influence over college student use and consequences (Booth-Butterfield, & Sidelinger, 1998; Turrisi, Wiersma, & Hughes, 2000).

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Table 1

Correlations and Descriptive Statistics Among Variables

Measure	1	2	3	4	5	6	7
QF	—						
B-YAACQ	.53***	—					
DNM	.35***	.35***	—				
PMS	-.20***	-.17**	-.02	—			
PMBS	.20***	.18***	.25***	-.11*	—		
PPAUM	.22***	.28***	.30***	-.04	.34***	—	
PRADM	-.13*	-.16**	-.13*	.12*	-.18**	-.59***	—
Variable	1	2	3	4	5	6	7
<i>M</i>	16.51	2.91	28.90	34.50	11.00	2.56	8.35
<i>SD</i>	22.72	3.53	5.14	5.11	7.38	3.81	3.47

Note. QF = self-reported quantity-frequency alcohol use past 30 days; B-YAACQ = Brief-Young Adult Alcohol Consequences Questionnaire; DNM = Drinking Norms Measure; PMS = Parental Monitoring Scale; PMBS = Parental Modeled Behavior Scale; PPAUM = Parental Permissiveness of Alcohol Use Measure; PRADM = Parental Responses to Adolescent Drinking Measure.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 2

Summary of Hierarchical Regression Analysis for Variables Predicting Self-Reported Quantity-Frequency of Drinking

Variable	β	t	R	R^2	ΔR^2
Step 1			.34	.12	.12**
DNM	.35	6.25**			
Step 2			.42	.17	.06**
DNM	.30	5.17**			
PMS	-.18	-3.33**			
PMBS	-.08	1.32			
PPAUM	.10	1.64			
Step 3			.42	.17	.00
DNM	.30	5.15**			
PMS	-.18	-3.30**			
PMBS	-.08	1.32			
PPAUM	.10	1.32			
PRADM	-.00	-.04			

** $p \leq .01$

Table 3

Summary of Hierarchical Regression Analysis for Variables Predicting Self-Reported Alcohol-Related Consequences

Variable	β	t	R	R^2	ΔR^2
Step 1			.35	.12	.12**
DNM	.35	6.33**			
Step 2			.43	.18	.06**
DNM	.29	5.05**			
PMS	-.16	-2.88**			
PMBS	.03	.47			
PPAUM	.18	3.03**			
Step 3			.43	.18	.00
DNM	.29	5.03**			
PMS	-.16	-2.90**			
PMBS	.03	.46			
PPAUM	.18	2.55**			
PRADM	.00	.13			

** $p \leq .01$

Appendix A

**SONA Informed Consent Statement for
“Understanding College Student Alcohol Use & Related Behaviors”**

You are invited to participate in a research project about the relationships between alcohol use, perceived parenting practices, and different associated behaviors in college students. You will be asked to answer a number of questions related to your experiences. This online survey must be completed in a single session and should take around 60 minutes to complete. Participation in this study is voluntary. No identifiable information about you will be collected; even the researchers will not have access to your individual answers. Due to the nature of internet access, however, the security of your responses cannot be guaranteed. To further protect your privacy, you are encouraged to complete the survey in a private location.

While there are no direct benefits to you, we hope this research will contribute to the body of knowledge regarding the relationships of various experiences on college drinking behavior. The data from this survey will be used as part of research studies and will have the potential to be published and used for professional presentations. All data is deidentified.

Though it is not believed that this survey will pose a risk greater than that experienced in daily life, there is a possibility that some items could cause mild discomfort. In the unlikely event of emotional distress, you should contact the ASU Counseling Center at (828) 262-3180. The greatest risk to you would be if someone was able to link your responses to you, however, as previously stated, even the researchers will not be able to link your individual responses to you.

You will not be paid for your participation in this study, but you can earn two (2) ELC credits for participation. The SONA system generates an identification number for you in order award credit, assuring that your responses will not be linked to your identity. There are other research and nonresearch options available for obtaining ELCs. You may wish to consult your professor to see if any other nonresearch options are available.

Your participation in this study is voluntary, and you may refuse to participate without penalty. If you choose to participate, you may withdraw from the study at any time, without needing a reason.

If you have any questions about any part of the study you can contact either principal investigator: Stephanie Moss, mossse@appstate.edu or Chelsea Gruenwald, gruenwaldce@appstate.edu. Additionally, you may contact the faculty advisor, Dr. Lisa Curtin, curtinla@appstate.edu, Appalachian State University, 309C Smith-Wright Hall. Questions regarding the protection of human subjects may be to the IRB Administrator, Research and Sponsored Programs, Appalachian State University, Boone, NC 28608, (828) 262-2130, irb@appstate.edu.

Proceeding with the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

If you wish to participate, please click the button below.

Appendix B
Demographics

Gender: ___Male ___Female

Age: _____

Class rank: ___Freshman ___Sophomore ___Junior ___Senior

Race/Ethnicity: _____ (Fill in appropriate number)

1=White (not of Hispanic origin)

2=Black

3=Native American

4=Alaskan Native

5=Asian of Pacific Islander

6=Hispanic-Mexican

7=Hispanic-Dominican

8=Hispanic-Puerto Rican

9=Hispanic-Cuban

10=Other: _____

Are you involved in the Greek system? _____ yes _____no

Are you involved in college athletics? _____ yes _____no

If yes, do you play for an ASU team? _____yes _____no

If yes, do you play intramural sports? _____yes _____no

Appendix C

Alcohol Consumption Measure

1. How many times in a typical month do you drink alcohol?
2. How many drinks have you had in the past week?
3. How many drinks do you have in a typical week?
4. How many drinks do you typically have at one time?

Appendix D

Brief Young Adult Alcohol Consequences Questionnaire

Below is a list of things that sometimes happen to people either during or after they have been drinking alcohol. Next to each item below, please mark an "X" in either the NO or the YES column to indicate whether that item describes something that has happened to you IN THE PAST 30 DAYS.

In the past 30 days...

NO YES

1. I have had a hangover (headache, sick stomach) the morning after I had been drinking.
2. I have taken foolish risks when I have been drinking.
3. I've not been able to remember large stretches of time while drinking heavily.
4. The quality of my work or school work has suffered because of my drinking.
5. I have had less energy or felt tired because of my drinking.
6. My drinking has gotten me into sexual situations I later regretted.
7. I often have ended up drinking on nights when I had planned not to drink.
8. My physical appearance has been harmed by my drinking.
9. While drinking, I have said or done embarrassing things.
10. I have felt very sick to my stomach or thrown up after drinking.
11. I have not gone to work or missed classes at school because of drinking, a hangover, or illness caused by drinking.
12. When drinking, I have done impulsive things I regretted later.

13. I have been overweight because of drinking.
14. I have woken up in an unexpected place after heavy drinking.
15. I have spent too much time drinking.
16. I have felt badly about myself because of my drinking.
17. My drinking has created problems between myself and my boyfriend/girlfriend/spouse, parents, or other near relatives.
18. I have felt like I needed a drink after I'd gotten up (that is, before breakfast).
19. I have driven a car when I knew I had too much to drink to drive safely.
20. I have neglected my obligations to family, work, or school because of drinking.
21. I have often found it difficult to limit how much I drink.
22. I have passed out from drinking.
23. I have become very rude, obnoxious, or insulting after drinking.
24. I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high or drunk on the amount that used to get me high or drunk.

Appendix E

Drinking Norms Measure

1. How much do the following people drink?

(a) Typical Students

(b) Friends

(c) Closest Friends

Note . Descriptive norms were on a 7-point scale: 1 = never , 2 = less than once a month , 3 = once a month, 4 = 2–3 times a month , 5 = once a week , 6 = 2–3 times a week , and 7 = daily

.

2. How much do the following people approve of drinking?

(a) Typical Students

(b) Friends

(c) Closest Friends

Note . The responses for injunctive norms ranged from 1 (strongly disapprove) to 7 (strongly approve).

Appendix F
Parental Monitoring Scale

Instructions: Please complete the following measure on your primary parent, or if you feel like both parents parented you equally, both of your parents.

1. My parent(s) usually knew what I did after school.
2. My parent(s) knew how I spent my money. ++
3. My parent(s) knew who my friends were.
4. My parent(s) knew where I was after school.
5. If I was going to be home late, I was expected to call my parent(s) to let them know.
6. I told my parent(s) whom I was going to be with before I went out.
7. When I went out at night, my parent(s) knew where I was.++
8. I talked to my parent(s) about the plans I had with my friends.

Response categories are never (1), rarely (2), sometimes (3), a lot of the time (4), always (5).

Scale score is derived from totaling all items.

++can be dropped to create 6 item version of scale

Appendix G

Parent Permissibility of Alcohol Use Measure

Instructions: Please complete the following measure on your experience growing up with your primary parent, or if you feel like both parents parented you equally, both of your parents. Please indicate how much you agree or disagree with the following statements:

1. My parent(s) thought it was okay if I drank alcohol on special occasions outside the home (e.g., at a friend's party)
2. My parent(s) disapproved of me drinking alcohol under any circumstances
3. My parent(s) didn't mind if I drank alcohol once in a while.

1 = strongly disagree, 2 = moderately disagree, 3 = neutral, 4 = moderately agree, 5 = strongly agree

Appendix H

Parental Modeled Behavior Scale

Instructions: Please complete the following two questions on your experience growing up with your primary parent, or if you feel like both parents parented you equally, both of your parents.

Parent-specific Items

1. How often do you think your parent(s) drank alcohol in the past year?

(8 point scale; 0 = not at all , 1 = 1 to 5 times a year , 3 = about once a month , 6 = 3 to 4 times a week , 8 = every day)

2. In the past year, how many drinks do you think your parent(s) had per drinking occasion?

(8 point scale; 0 = 0 drinks, 1 = 1 drink , 5 = 5 drinks, 7 = 7 or 8 drinks, 8 = 9 or more drinks)

General Parent Modeled Behavior Items

3. While growing up, how often was alcohol on the dinner table?

(6 point scale; 0 = never , 3 = once a week , 5 = nearly every day)

4. While growing up, how often did you see your parent(s) drink alcohol?

(8 point scale; 0 = not at all , 1 = 1 to 5 times a year , 3 = about once a month , 6 = 3 to 4 times a week , 8 = every day)

5. While growing up, how often did you see your parent(s) drunk from alcohol?

(8 point scale; 0 = not at all, 1 = 1 to 5 times a year , 3 = about once a month , 6 = 3 to 4 times a week , 8 = every day)

Appendix I

Parental Response to Adolescent Drinking Measure

Instructions: Please complete the following measure on your experience growing up with your primary parent, or if you feel like both parents parented you equally, both of your parents. Answer the following questions about how likely your parent(s) were to respond if they found out you drank alcohol while growing up (before coming to college) with answers ranging from: 1 = Not at all Likely, 2 = A little likely, 3 = Somewhat likely, 4 = Very likely

1. Take away privileges, like watching TV, driving, etc.
2. Take away something from me (like allowance, treats)
3. Ground me.

Vita

Stephanie Elizabeth Moss was born in Raleigh, North Carolina, to Charles and Karen Moss. She graduated from Athens Drive High School in May 2010. The following spring, she entered Appalachian State University in North Carolina to study Global Studies, with minors in Non-profit Management, Spanish, and Psychology, and in May 2014 she was awarded the Bachelor of Arts degree. In the fall of 2015, she accepted a graduate teaching assistantship in Psychology at Appalachian State University and began study toward a Master of Arts degree in Clinical Psychology. The M.A. was awarded in December 2017.