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Understanding parents' communication about alcohol with their first-year college student: an application of the theory of normative social behavior and the model of family decision making

Erica Lea Spies

University of Iowa

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UNDERSTANDING PARENTS’ COMMUNICATION ABOUT ALCOHOL WITH THEIR FIRST-YEAR COLLEGE STUDENT: AN APPLICATION OF THE THEORY OF NORMATIVE SOCIAL BEHAVIOR AND THE MODEL OF FAMILY DECISION MAKING

by

Erica Lea Spies

A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Community and Behavioral Health in the Graduate College of The University of Iowa

August 2013

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ABSTRACT

Heavy episodic drinking (HED) among college students remains a significant public health concern in the United States, particularly among first-year students. Parents have been identified as a protective factor in college students’ drinking behaviors and past parent-based interventions have been successful at reducing HED. However, there are a limited number of parent-based alcohol prevention strategies and a general lack of research on parent-child communication about alcohol use among first-year college students, particularly from the parent perspective. The three studies included in this dissertation assist in filling this gap by examining parent-college student communication about alcohol from a parents’ perspective and identifying implications for future parent-based interventions. Study 1 classified parents into segments based on constructs from the Theory of Normative Social Behavior (TNSB), differences in parents’ perceptions of student’s alcohol use, and content of communication. A modification of the TNSB was used in Study 2 to explore intrapersonal and interpersonal factors that moderate the relationship between parents’ descriptive norms related to students’ alcohol use and the breadth of topics covered when they communicate with their college student about alcohol. Finally, building upon the first two studies, Study 3 used the Model of Family Decision Making (MFDM) to provide a contextual understanding of parents’ communication about alcohol with their first-year college student.

Studies 1 and 2 used a web survey conducted in 2010, 2011, and 2012 with a random sample of parents of first-year college students (N = 890) at a large Midwestern university. Results of a K means cluster analysis from Study 1 identified three parent clusters using constructs from TNSB. In Study 2, hierarchical linear regression analyses
were conducted to explore what constructs of TNSB predicted parents’ communication about alcohol, including descriptive norms, injunctive norms, outcome expectations, communication efficacy, and perceptions of severity and susceptibility of the negative consequences associated with alcohol use for their student. The study found the relationship between descriptive norms and parents’ communication was moderated by injunctive norms, outcome expectations related to communication, and parents’ perceptions of their student’s susceptibility to negative consequences associated with alcohol use. Study 3 used qualitative interviews to further explore parents’ communication about alcohol with their first-year college student. Using MFDM as a guide, Study 3 found several factors influenced parents’ communication about alcohol with their student including role, skills, social structure, awareness, norms, utilization of resources, and other constraints. While parents reported talking about appropriate drinking behavior, the negative consequences of alcohol use, family experiences with alcohol, and family values and rules related to alcohol with their student, they often presented mixed messages, such as identifying drinking under age as illegal, but also describing the behavior as “typical.” Across all three studies, it was evident parents held misperceptions of other college students’ drinking behaviors and were likely underestimating their own students’ alcohol use. The studies in this dissertation provide further understanding of the frequency and content of this communication and provide insight on how theoretical constructs can guide future parents-based interventions.
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CHAPTER 1
UNDERSTANDING PARENTS’ COMMUNICATION ABOUT ALCOHOL WITH THEIR FIRST-YEAR COLLEGE STUDENT: AN APPLICATION OF THE THEORY OF NORMATIVE SOCIAL BEHAVIOR AND THE MODEL OF FAMILY DECISION MAKING

Introduction

Alcohol use by college students is a significant public health concern in the US. Among young adults in the US, alcohol is considered the “drug of choice” (Hingson, Zha, & Weitzman, 2009; Johnston, O’Malley, Bachman, & Schulenberg, 2004) and is found to be the substance most misused by college students (Perkins, 2002). Heavy episodic drinking (HED) is a particular problem among those ages 18-24 enrolled in college. HED is defined as the consumption of 5 or more drinks in a sitting for men and four or more for women (Johnston et al., 2004; Wechsler & Nelson, 2008).

Approximately 20% of college students participate in HED frequently, which is classified as 3 or more times in a 2 week period (Dowdall & Wechsler, 2002). HED is associated with multiple negative health outcomes to self and others on college campuses (Boyd, McCabe, & Morales, 2005; Courtney & Polich, 2008), including alcohol poisoning (Wechsler, Lee, Kuo, & Lee, 2008), automobile accidents (Wechsler, Lee, Kuo, & Lee, 2008), and sexual assault (Parks, Romosz, Bradizza, & Hsieh, 2008). As a result, reducing HED among college students remains a national priority (Healthy People, 2020).

Parents can be considered an important factor in the prevention of HED in their college-age children. While parents have been found to influence their young adult
children’s drinking behavior prior to college (Abar & Turrisi, 2008; Booth-Butterfiled & Sidelinger, 1998; Wood, Read, Mitchell, & Brand, 2004), many underestimate their role in their child’s life once they go to college, instead thinking this is something they only had to address prior to their child moving away from home and starting college due to geographic distance (Turrisi, Wiersma, & Hughes, 2000). Beyond the simple modeling of responsible alcohol behaviors, parents are also thought to influence their child’s behavior through the conscious communication of both societal and individual expectations for behavior (Latendresse, Rose, Viken, Pulkkinen, Kaprio, & Dick, 2008). Research has shown that positive parenting factors, such as communication of expectations and support, warmth, and supportiveness, have a protective influence over adolescents’ substance use (Macaulay, Griffin, Gronewold, Williams, & Botvin, 2005; Padilla-Walker, Nelson, Madsen, & Barry, 2008). However, little is known about how this pattern continues after adolescence and into young adulthood, such as during the transition to college. Furthermore, an emerging approach to reduce alcohol use and HED are parent-based interventions. Despite research suggesting that parents have an influence on their college students’ behaviors, there are a limited number of parent-based alcohol prevention strategies (Fernandez, Wood, Laforge, & Black, 2011; Ichiyama et al., 2009; Turrisi, Abar, Mallett, & Jaccard, 2010; Turrisi, Jaccard, Taki, Dunnam, & Grimes, 2001) to curb college student HED. Therefore, it is important to continue to discern what factors motivate parents to continue to communicate with their college students about alcohol.

There is a general lack of research on parent-child communication about alcohol use among college students (Wheeler & Kennedy, 2009) and, there has been a call for more research for the study of parents and families as contexts for substance use and
substance use disorders (Chassin & Handley, 2006). This may reflect an assumption that parents are universally opposed to alcohol and drug use and that communication in that area is generally one-dimensional in that parents employ abstinence messages when they talk with their college students. Even though previous research has supported that most parents are opposed to substance use, there is very likely a variation in the tone and content of the parent-child communication in this area (Ennett, Bauman, Foshee, Pemberton, & Hicks, 2001). The discussions could range from generally talking about the negative consequences of use, to working through how best to handle a situation where one is pressured to use, to giving explicit rules for use, to role modeling or actually supporting risky behavior. Additionally, much of the research on parent-child communication about alcohol has conceptualized interactions globally (i.e., classifying communication about drinking as good or bad) or in terms of openness and frequency, rather than focusing on the specific content or topics covered (Miller-Day & Kam, 2010). While a considerable amount of research has focused on parent-communication about alcohol from the child’s perspective (Turrisi et al., 2001; Wheeler & Kennedy, 2009), theoretically-framed research is still needed to understand what motivates this process of communication from the parental perspective (Jaccard, Dodge, & Dittus, 2004; Miller-Day, 2002; Miller-Day & Dodd, 2004). Therefore, the contribution of this dissertation research is that it focuses on both the frequency of parent-child communication regarding alcohol in first-year college students and on the content of parent-child communication regarding alcohol, in a theoretical context.

This dissertation examines (1) how descriptive norms, in conjunction with other moderators, impact parents’ communication about alcohol with their college students and
explores (2) individual, social, familial, and environmental factors associated with this communication. The Theory of Normative Social Behavior (TNSB) (Rimal & Real, 2005) and the Model of Family Decision Making (MFDM) (Settles, 1999) were used as the frameworks guiding this research. The literature review provided in this chapter outlines the key issues and theoretical constructs for the studies outlined in Chapters 2-4. The first study (Chapters 2-3) is a secondary data analysis of a parent survey from parents of first year students at the University of Iowa. This survey included items that assessed parents’ descriptive norms and injunctive norms related to college students’ drinking, as well as their perceptions of their student’s susceptibility to negative consequences associated with drinking and the severity of these consequences and their communication with their student about alcohol. The second study (Chapter 4) used a retrospective interview technique with parents of first year college students to allow for an in-depth exploration of the factors associated with parents’ communication about alcohol over their student’s life. Chapter 5 provides a review of the studies’ findings, study limitations, and implications for public health practice and future research. Below, Chapter 1 examines alcohol use and its consequences among college students, summarizes past interventions aimed at reducing alcohol use among college students, examines previous studies on the influence of parents on college students’ drinking behaviors, explores the literature on the association between parents’ normative perceptions and possible moderating factors with parents’ communication about alcohol, and identifies and defines the constructs from TNSB and MFDM that are utilized in this dissertation.
Review of the Literature
Alcohol Behaviors in College Students

Past research (Johnston, O’Malley, Bachman, & Schulenberg, 2010) has found that 66% of college students report drinking alcohol at least once in the previous month. When comparing full-time college students ages 18-22 to their non-college counterparts, those in college report drinking more (O’Malley & Johnston, 2002; Substance Abuse and Mental Health Services Administration, 2007). In particular, heavy episodic drinking is a significant public health concern among college students (Hingson, Zha, & Weitzman, 2009).

HED rates among college students have remained relatively stable between 40% and 50% (Johnston, O’Malley, Bachman, & Schulenberg, 2008; Johnston, O’Malley, Bachman, & Schulenberg, 2009; Vicary & Karshin, 2004; Wechsler & Nelson, 2008). When drinking behavior is assessed across a longer time period, research indicates that nearly 85% of college students have engaged in HED in the previous 3 months (Vik, Carrello, Tate, & Field, 2000).

Past research (Dhuse, 2005; Dolan, Nathan, & Dhuse, 2002; Nathan, 2003) has consistently shown that undergraduates at the University of Iowa engage in high-risk drinking at higher levels than the national average. According the most recent National College Health Assessment (2012), 64.5% of students at the University of Iowa had engaged in high-risk drinking in the past two weeks. On average, students consume 6.39 drinks per occasion and 30.4% of students reported drinking on 10 or more days in a month. Participating in HED is concerning because it puts college students and others at
risk for a wide range of negative health-related consequences (Mallet, Lee, Neighbors, Larimer, & Turrisi, 2006).

Consequences of College Students’ Drinking Behaviors

**Harm to Self**

Survey data indicate that over 600,000 college students sustain alcohol-related injuries each year, and 1,800 die annually as a result of such injuries (Hingson, Zha, & Weitzman, 2009). Elevated rates of academic problems, such as missing class, poor performance on assignments and exams, and lower grades have also been linked with heavy alcohol use among college students (Engs, Diebold, & Hansen, 1996; Presley, Meilman, & Cashin, 1996a, 1996b; Wechsler et al., 2002), as have health problems (Hingson et al., 2002) and suicide attempts (Presley, Leichliter, & Meilman, 1998). Over 2 million college students drive while under the influence of alcohol each year (Hingson et al., 2002). Additionally, vandalism (Wechsler et al., 2002), property damage (Wechsler et al., 1995), and police involvement (arrests for public drunkenness or driving while intoxicated; Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002) are frequent among alcohol-intoxicated college students. Finally, based on self-reported data on their drinking, 31% of college students meet the criteria for a diagnosis of alcohol abuse and 6% meet the diagnosis for alcohol dependence (Knight et al., 2002).

Participating in HED specifically puts college students at risk for a wide range of negative health and health-related consequences. HED results in rapidly increasing blood alcohol concentrations to .08 percent or greater, a level at which most alcohol injuries have been reported (Wechsler & Nelson, 2008). This includes physical and sexual assault and personal injury (Mallett, Lee, Neighbors, Larimer, & Turrisi, 2006). Over 97,000
college students are victims of alcohol-related sexual assault or date rape each year (Hingson et al., 2009). Other consequences associated with HED include missing class, studying less, maintaining a lower grade point average, and participating in vandalism (Broadwater, Curtin, Martz, & Zrull, 2006; Brown, Salsman, Brechting, Carlson, 2007; Powell, Williams, & Wechsler, 2004; Wechsler, Lee, Kuo, Seibring, Nelson, & Lee, 2002). Additionally, individuals who participate in HED are five times as likely to encounter negative consequences for their actions compared to other levels of drinking (Presley, Meilman, & Lyerla, 1995).

Another consequence of HED is risky sexual behavior (Broadwater et al., 2006; Brown et al., 2007; Powell et al., 2004). Previous studies have identified alcohol use in college students as a behavioral factor associated with increased sexual behavior, particularly sexual behaviors that can be classified as “risky” (Cooper, 2002; Desiderato & Crawford, 1995). Hingson and colleagues (2005) report that over 400,000 have had unprotected sex while under the influence of alcohol. Another 100,000 reported being too intoxicated to know whether or not they consented to having sex (Hingson et al., 2002). Research also suggests that college students who report a higher frequency of alcohol use are more likely to have sexual intercourse with someone known less than 24 hours (Gute & Eshbaugh, 2008).

The consequences associated with HED have been found to be different for men and women (Perkins, 2002). Compared to men, women are more likely to use other drugs with alcohol (Perkins, 2002) and be involved in car crashes (Gordis, 2002). Additionally, because women metabolize alcohol slower, or less efficiently, they are more susceptible to long-term, chronic health problems such as liver damage, heart disease, and breast
cancer (Gordis, 1999). Compared to women, men who participate in risky drinking behaviors are more likely to experience decreased academic performance, blackouts, unintended sexual activity, and self-injury, however, these differences are decreasing (Perkins, 2002).

Harm to Others

HED can also have consequences for the individuals whom college students interact with regularly or know personally. Wechsler (1996) has suggested that the “secondhand” effects of HED impact most college students. Secondhand effects for college students include being assaulted, insulted, experiencing unwanted sexual advances, having sleep interrupted, and “baby-sitting” friends or roommates. College students’ alcohol use can also impact others the students’ do not know. Almost 700,000 students between the ages of 18 and 24 are assaulted by another student who has been drinking (Hingson et al., 2009). Additionally, Wechsler and colleagues (2002) found that families living close to colleges with high rates of HED were more likely to report lower quality of neighborhood life due to disturbances such as noise, vandalism, and public intoxication. About 11% of college student drinkers report that they have damaged property while drinking (Wechsler et al., 2002).

Consequences at the University of Iowa

At the University of Iowa, students have been shown to be more at risk for negative consequences associated with HED (Dolan et al., 2002; Nathan, 2003) and have experienced an array of negative consequences associated with alcohol use (National College Health, Assessment, 2011). Negative consequences range from being behind in school work to forgetting where they were the night before, to being in trouble with the
police and experiencing unplanned or unsafe sex (Nathan, 2003). Recent data (National College Health Assessment, 2011), suggests almost half did something they later regretted (46.2%) or forgot where they were or what they did (45.9%). Approximately one-quarter had unprotected sex, and 17.7% of students had physically injured themselves as a result of alcohol use. Compared to a national sample of college students (National College Health Assessment, Spring 2011 Reference Group Executive Summary, 2011), students at the University of Iowa experience all of these consequences at a higher frequency than national averages. Numerous factors can help reduce the occurrence of and the risk factors associated with HED, including parents. To address college students’ problematic drinking and the consequences associated with it, various interventions, including parent-based interventions, have been implemented at universities across the nation and at the University of Iowa.

Factors Associated with College Students’ Drinking

Past research has examined factors that are associated with college students drinking (Barnett, Goldstein, Murphy, Colby, & Monti, 2006; Ham & Hope, 2003; Ingle & Furnham, 1996; Reis & Rile, 2000). These include demographic and psychosocial factors. College students’ sex and ethnicity are associated with drinking. Compared to women, men drink alcohol more frequently and in larger quantities than women (Corbin, Vaughan, & Fromme, 2008). Men are more likely to report they have engaged in HED or risky drinking and are more likely to meet the criteria for an alcohol use disorder. Women are more likely to participate in heavy episodic drinking during their first year at college compared to the sophomore, junior, and senior years (McCabe, Boyd, Couper, Crawford, & D’Arcy, 2002). Compared to other racial or ethnic groups, white American students
tend to drink more and experience more consequences as the result of drinking (Corbin et al., 2008; Wechsler, Moekens, Davenport, Castillo, & Hansen, 1995). Additionally, college students in the north central region of the United States experience higher rates of HED compared to college students in other regions (O’Malley & Johnston, 2002).

Psychosocial factors are also related to college student drinking. Alcohol use and alcohol use disorders have been associated with mental health problems, including depression, anxiety disorder, and borderline personality disorder (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Chowla & Ostafin, 2007; Hayes, Luoma, Bond, Masuda, & Lisllis, 2006). Students who are high sensation seekers report higher levels of problem drinking (risky drinking and alcohol use disorders and heavy episodic drinking compared to low sensation seekers (Ham & Hope, 2003). Additionally, research suggests (Dhuse, 2005) students who have higher levels of impulsivity or disinhibition, and antisocial or risky behavior have higher levels of alcohol consumption. Ingle and Furnham (1996) found that college students’ alcohol consumption is influenced by their parents’ drinking habits, and their own positive outcome expectancies (or the positive and negative beliefs about the effects of consuming alcohol). Barnett (2006) found an association between students’ level of discomfort with drinking and their willingness to cease or minimize their drinking behaviors. Finally, Reis and Rile (2000) suggest that alcohol expectatancies, perceived norms of alcohol consumption, and perceived skill (i.e., ability to refuse alcohol or ability know when to stop drinking) in using alcohol impact behavior. Overall, all of these factors are influenced by students’ parents’ expectations, values, and drinking habits (Wheeler & Kennedy, 2009).
Alcohol Interventions on College Campuses

Interventions that target college students’ drinking behaviors are abundant throughout campuses in the United States (Wechsler et al., 2002). The Task Force on College Drinking, part of the National Institute on Alcohol Abuse and Alcoholism, has created a ranking of recommended strategies to assist colleges and universities in preventing alcohol misuse and abuse among college students (National Institute of Alcohol Abuse and Alcoholism, 2002). The task force has broken up the recommended strategies into three tiers including: 1) individuals, including at-risk or alcohol-dependent drinkers, 2) the student population as a whole, and 3) the college and surrounding communities. Additionally, some research suggests that social norms approaches may be an effective strategy for decreasing problematic alcohol use among college students (Perkins & Berkowitz, 1986; Agostinelli, Brown, & Miller, 1995; Agostinelli & Grube, 2002; Johannessen & Glider, 2003). What follows are the strategies that are known to be effective.

Individuals

The first tier includes strategies aimed at reducing individual problem, at-risk, or alcohol dependent drinking (National Institute of Alcohol Abuse and Alcoholism, 2002). Strategies at this level are aimed at getting students who exhibit problem drinking behaviors appropriate screening and interventions services on campus.

A consistent link has been found between alcohol expectancies and college students’ drinking behaviors (Brown, 1985; Sher, Wood., Wood, & Raskin, 1996; Wood, Sher, & Strathman, 1996). Research has shown that interventions that conduct cognitive-behavioral skills training aimed at changing college students’ expectancies about
alcohol’s effects can reduce alcohol consumption among college students (Larimer & Cronce, 2002). The most promising types of these interventions incorporate training in drinking skills, self-monitoring, and challenging students’ expectations related to drinking alcohol. In addition, cognitive behavioral approaches used in conjunction with norms clarification that refutes incorrect perceptions regarding the amount of alcohol other students consume and beliefs about the acceptability of drinking behavior have also been successful at reducing alcohol consumption among college students (Larimer & Cronce, 2002). Additionally, interventions where students receive personalized motivational enhancement (use of acceptance, understanding, and increasing motivations to change) sessions have been successful in reducing alcohol consumption and negative consequences such as driving after drinking (D’Amico & Fromme, 2000; Larimer & Cronce, 2002; Cronce & Larimer, 2011). Finally, interventions that challenge alcohol expectancies (i.e., students’ beliefs that alcohol produces positive effects) (Darkes & Goldman, 1998; Lau-Barraco & Dunn, 2008; Wood et al., 2007) have been found to be more effective at reducing these beliefs among men compared to women (National Institute of Alcohol Abuse and Alcoholism, 2002).

The Student Body

To affect the behavior of the general student population, research (Dejong & Langford; Perkins, 2002) suggests that the key is to address the factors that encourage high-risk drinking. These include targeting the availability of alcoholic beverages to underage and intoxicated students, the social and commercial promotion of alcohol, the amount of unstructured student time, inconsistent publicity and enforcement of laws and campus policies, and student perceptions of heavy alcohol use as a norm. Environmental
approaches at this level include a) increased enforcement of minimum drinking age laws, 
b) restrictions on alcohol retail outlet density, c) increased prices and excise taxes on 
alcoholic beverages, and d) responsible beverage service policies in commercial settings
(National Institute of Alcohol Abuse and Alcoholism, 2002).

College and Surrounding Community

The third tier is aimed at reinforcing interventions between the college and 
surrounding community that can change the broader environment and help reduce 
alcohol-related problems over the long term (National Institute of Alcohol Abuse and 
Alcoholism, 2002). In order for both campus and community leaders to address college 
student drinking comprehensively, college drinking should be reframed as a community, 
as well as a college, problem. The joint activities that typically result help produce policy 
and enforcement reforms that, in turn, affect the total drinking environment. Strategies in 
this tier include a) increasing enforcement at campus based events that promote excessive 
drinking, b) increase publicity about the enforcement of underage drinking laws, c) 
consistently enforcing disciplinary actions associated with policy violations, and d) 
informing new students and their parents about alcohol policies and penalties during 
orientation (National Institute of Alcohol Abuse and Alcoholism, 2002). At this tier, 
campus and community alliances also improve relationships overall and enable key 
groups such as student affairs offices, local police, retail alcohol outlets, and the court 
system to work cooperatively in resolving alcohol-related issues involving students 
(Hingson & Howland, 2002; Perry & Kelder, 1992).
Social Norms Approaches

Social norms marketing approaches have emerged as one way to decrease problematic alcohol use on college campuses across the United States (Perkins & Berkowitz, 1986). This area of research and practice posits that individuals misperceive the attitudes and behaviors of relevant others in ways that encourage unhealthy behaviors (Berkowtiz, 2003). Interventions that have utilized this approach assume that students tend to overestimate the number of drinks typical students consume when drinking alcohol (i.e., the descriptive norm). This overestimation is associated with an increased likelihood of the student trying to “drink-up” to the perceived norm. In order to curb these types of drinking behaviors, interventions have “deflated” the perceived norm with the actual average number of drinks consumed by students. Additionally, students have been found to overestimate the extent to which other students believe HED use is appropriate (i.e., the injunctive norm). By reducing the perceived appropriateness of heavy drinking, student alcohol use has been decreased (Bosari & Carey, 2003; Schroeder & Prentice, 1998).

To distribute information about campus norms related to alcohol use, social norms approaches have taken many forms and have varied in their level of effectiveness. Interventions have utilized posters, radio and television broadcasts, public raffles, and other forms of media to convey the average number of alcoholic beverages the average student drinks (Agostinelli & Grube, 2002). The normative messages these interventions convey have reflected a number of norms including: the average number of drinks consumed per week, the average number of drinks consumed per sitting, and the number or percent of non-drinkers on campus (e.g., Thombs & Hamilton, 2002; Wechsler,
Nelson, Lee, Seibring, Lewis, & Keeling, 2003). While there is some evidence of their effectiveness (Agostinelli et al., 1995), some studies have found that these approaches had little, to no effect on college student alcohol use (Thombs, Dotterer, Olds, Sharp, & Raub, 2004).

However, some researchers argue that there is not enough research to support the effectiveness of social norms marketing approaches (Campo, Brossard, Frazer, Marchell, Lewis, & Talbot, 2003; Campo & Cameron, 2006; Rimal, 2003; Wechsler, Nelson, Lee, Seibring, Lewis, & Keeling, 2003; Yanovitzkey, Stewart, & Lederman, 2006). While Campo and colleagues (2003) did find that drinking behavior was positively associated with perceptions of students’ friends drinking, they not find support for the idea that student’s misperceptions of the general student body’s alcohol use was associated with their own drinking behavior. This, along with other research (Festinger, 1954; Latane, 1981; Yanovitzky et al., 2006), suggests that proximal norms (normative perceptions of people closest to the target individual, such as friends), have a strong influence on behavior compared to distal norms (normative perceptions of those further away from the target, such as typical university students). Rimal and Real (2003), have found that perceived prevalence of alcohol use among undergraduates is not predictive of alcohol use when other normative mechanisms are taken into account. Several barriers exist to the effective implementation of the social norms approach. Campus culture has been shown to be one factor that must be accounted for in order for these interventions to be successful (Yanovitzkey et al., 2006). Rimal and Real (2003) have found that social norms approaches are less effective when students harbor more rebellious feelings or believe they are defying a societal norm when they consume alcohol. Additionally,
Thombs and colleagues (2007) found that even in the presence of social norms information, students who view HED as a source of pride continue to drink excessively. Finally Cox and Bates (2011) have shown that on campuses where alcohol use is relatively rare, there is a negative relationship between perceptions of other students’ alcohol use and students’ own use. These findings suggest that if campus culture is not accounted for, social norms approaches may be ineffective or produce paradoxical effects, including the increase in alcohol use.

More current research (Lewis & Neighbors, 2006) also suggests that social norms approaches must convey believable norms in a personalized manner. In a study that personalized the normative message to the individual, Lewis and colleagues (2007) found that incoming-freshman who received a personalized normative message, such as a message that included information related to personal drinking behavior and personal perceptions of others’ drinking behavior, reduced the number of days per week students drank and reduced the number of drinks students consumed in a week.

Additional personalized assessment interventions have found that normative messages related to alcohol use can reduce the number of drinks college students consume in a week (Neal & Carey, 2004; Neighbors, Lewis, Bergstrom, & Larimer, 2006; Walters & Neighbors, 2005; Walters, Vander, & Harris, 2007). The Brief Alcohol Screening and Intervention for College Students (BASICS) is a prevention program for college students who drink alcohol heavily and have experienced or are risk for experiencing negative consequences associated with alcohol course that draws on motivational interviewing techniques (Dimeff, Baer, Kivlahan, & Marlatt, 1999). Motivational interviewing (MI) is based on the tenets that motivation is (1) dynamic and
not a personality trait and (2) individuals do not enter a consultation/intervention in a state of readiness to change (Rollnick, Healther, & Bell, 1992). MI matches an intervention to an individual’s readiness to change to help people work through ambivalence about changing a behavior (Miller & Rollnick, 1991). This intervention is delivered in two 1-hour interviews with a brief online assessment taken by the student following the first session. In the first interview, students are asked information about their recent alcohol consumption patterns, personal beliefs about alcohol, and drinking history. Then, information from the online assessment is used to provide customized feedback to the student for the second interview which compares personal alcohol use with alcohol use norms, reviews individualized negative consequences, clarifies perceived risks and benefits of drinking, and provides options for decreasing or abstaining from alcohol. Similarly, the online *electronic-Check-Up to Go* (http://www.e-chug.com; San Diego State University Research Foundation, 2009) is an intervention designed to motivate students to reduce their alcohol consumption. This intervention draws on motivational interviewing techniques and Social Norms Theory (Perkins & Berkowitz, 1986) and takes approximately 20-30 minutes to complete. After college students take an online assessment, they are provided personal feedback related to quantity and frequency of use, amount of alcohol consumed, normative comparisons at campus and national levels, physical health information, amount of income spent, negative consequences feedback, and advice and local referrals. These interventions have been shown to reduce risky drinking behaviors due in part to correcting normative perceptions (Neal & Carey, 2004; Walters & Neighbors, 2005; Walters et al., 2007).
While norms play a role in behavior, the social norms approach may be too one-dimensional (Campo & Cameron, 2006). Even though the BASICs and electronic-Check-Up to Go interventions have shown that personalized normative feedback is effective at reducing risky drinking behaviors, relatively little is known about from whom feedback is more or less effective and what reference groups (friends, sex, athlete, Greek status) might be more or less motivating. (Walters & Neighbors, 2005). Yet, it is possible that parents may be potentially effective at delivering normative feedback or act as a more optimal reference group. Research is needed to explore under what theoretical and contextual situations norms are effective and impacting behavior. This dissertation examines normative perceptions and influences, not from the college student’s perspective, but from their parents’ perspective. It considers how parents’ normative perceptions of the average university students (distal norms) and their son/daughter’s friends (proximal norms) influence their communication about alcohol with their college student. Additionally, this dissertation aims to identify how normative influences impact parents’ communication with their college student among different social, familial, environmental, and individual contexts.

Parent-Based Interventions

The Task Force on College Drinking is also devoted to parent involvement to reduce problem drinking behaviors among college students (National Institute of Alcohol Abuse and Alcoholism, 2002). The Task Force encourages parents to discuss alcohol risks with first year students, a time when students are particularly vulnerable to HED. Recommendations given to parents include inquiring about campus alcohol policies, calling or communicating with their college student frequently, asking their student about
their roommates and living arrangement, discussing the consequences of HED, and discussing the penalties for underage drinking (National Institute of Alcohol Abuse and Alcoholism, 2002).

Some parent-based interventions on drinking behaviors have been successful at reducing the rate of HED among college students (Fernandez et al., 2011; Ichiyama et al., 2009; Turrisi et al., 2001; Turrisi et al., 2010). A number of parent-based interventions have used Turrisi’s (2001) “A Parent Handbook for Talking with College Students about Alcohol” (Ichiyama et al., 2009; Turrisi et al., 2001; Turrisi et al., 2010). The handbook is approximately 35 pages long and provides a number of approaches for parents to use when talking to their college-aged children about alcohol. Information includes incidences and consequences associated with college students’ alcohol consumption and HED, strategies parents can use to improve conversations with their college-bound students, methods parents can use to teach their college-aged children how to handle peer pressure and encourage alternate activities, and an overview of college student alcohol consumption with findings from research. Generally, parents are provided the handbook at their summer orientation and asked to read the handbook in its entirety and then discuss it with their child before he or she entered college (Ichiyama et al., 2009; Turrisi et al., 2010).

This parent-based intervention has been shown to be effective at improving drinking behaviors, increasing negative attitudes toward drinking, and decreasing heavy drinking behavior among first-year college students (Ichiyama et al., 2009; Turrisi et al., 2010). Students who were part of the parent-based intervention have been found to be
less likely to transition from a nondrinker to a drinker and had a lower increase in alcohol use (consumed fewer drinks per week consumed) over the course of the school year.

Future interventions using parents would benefit from better understanding (1) the role parents play in the prevention process (Deakin & Cohen, 1986; Wood, Mitchell, Read, & Brand, 2004), (2) how parents communicate with their students about issues of alcohol use (Keppler, Mullendore, & Carey., 2005), (3) parents’ misperceptions regarding their student’s alcohol use (Bylund et al. 2005), (4) what materials serve as resources for parents’ conversations with students (Rainey, 2006), and (5) how to encourage parent-student communication after the student starts college. This dissertation assists in understanding the above mentioned concerns, specifically, exploring how parents communication with their college student about alcohol and identifying ways to encourage parent-student communication.

The Role of Parents in College Student’s Decision-Making

Research suggests that parents play an active role in their child’s life as they prepare for college, and they maintain this influence as their children move to campus (Abar & Turrisi, 2008; Coburn, 2006; Howe & Strauss, 2003; Taub, 2008). Parents’ have been found to impact their student’s life across academic, social, emotional, financial, and health domains (American College Health Assessment, 2005; Lehr, DiIorio, Dudly, & Lipana, 2000; Wintre & Yaffe, 2000). Savage (2006) and Coburn (2006) have been investigating the changing nature of parental involvement to understand how and why parents continue to affect their college student’s decision-making. Both suggest that parents play a vital part in influencing their student’s college experience. Savage indicates that parents can be used to reinforce messages delivered by universities, provide
additional information, and personalize these messages within the context of individual and family history. Interestingly, research (Howe & Strauss, 2000) also indicates that students are showing more dedication to their families during the family years (i.e., the time they spend in their parents’ home) and are less likely to separate from the parents as they enter college compared to previous generations. Furthermore, this generation of college students has more involved parents than any preceding generation of parents (Lum, 2006; Pizzolato & Hicklen, 2011). In general, today’s parents of college students are showing more interest in their student and gaining more information leading to the longer-term involvement of parents (Wartman & Savage, 2008).

Parental involvement throughout the college years also benefits students. For those whose families are involved throughout their collegiate careers, students experience a better transition to college, perform better academically, think more positively about school, and become more responsible (Henderson & Berla, 1994; National Survey of Student Engagement, 2007; Wintre & Yaffe, 2000). College students who indicate they have more positive attachment relationships with their parents report higher levels of social competence and psychological well-being while on campus (Kenny & Donaldson, 1991). Academically, college students who perceive their parents to display more social support maintain higher grade point averages (Cutrona, Cole, Colangelo, Assouline, & Russell, 1994). Additionally, during the college years, parents’ need to continue to help students develop into more effective decision-makers, problem-solvers, and independent thinkers (Coburn, 2006; Kastner & Wyatt, 2002).
Parents’ Communication with College Students

The majority (74%) of college students have reported talking with their parents two to three times a week, and 1/3 of them talk to their parents at least once a day (Rainy, 2006). Research suggests that 70% of college students are communicating “very often” with parents via electronic means (National Survey on Student Engagement, 2007). Compared to students who parents do not communicate with them frequently, students with more communicative parents are more likely to report higher levels of campus engagement, involvement in more learning activities, more likely to achieve desired college goals, and have greater satisfaction with their college experience. Additionally, the more frequently students communicate with family members, the less stress they report (Gemmill & Peterson, 2006).

Parents and their college students use a variety of mediums to communicate. They are using the phone, email, text, and other social media to communicate. Gemmill and Peterson (2006) reported that students used instant messaging, the internet, and cell phone technologies to communicate with family members on average 4 times a day. However, research also suggest cell phones are the most important communication device for college students and cell phones are used to manage their relationships and stay in touch with families (Gentzler, Oberhauser, Westerman, & Nadorff, 2011; Vykoukalova, 2007).

Researchers (Baxter, Egbert, & Ho, 2008; Birch & O’Toole, 1997) have looked at college students’ perspectives on their communication with their social networks, including their parents about health-related issues. This area of work has looked at how parents and students talk about nutrition and diet, body fitness, sex, drugs, alcohol, and
HIV/AIDS (Baxter et al., 2008; Birch & O’Toole, 1997). Overall, Birch and O’Toole found that over half of students believe their communication with their parents about health was important for promoting their own healthy behaviors. When college students talk about health-related topics, 75% of these interactions occur in an interpersonal context (face-to-face, telephone, and personal email) (Baxter et al., 2008). Family members were one of the most frequent interaction partners. For college students, family members were most likely to be involved in health communication related to topics of mental health, stress, and major health concerns (Baxter et al., 2008).

The Role of Parents in College Students’ Drinking Behaviors

Parents continue to have a strong influence on the behavior of their college-aged students, especially during the first year of college (Abar & Turrisi, 2008; Patock-Peckham & Morgan-Lopez, 2006; Patock-Peckham & Morgan-Lopez, 2010; Reifman, Barnes, Dintcheff, Farrell, & Uhteg, 1998; Turrisi et al., 2000; Turrisi et al., 2001). Specifically, parental factors may represent an important protective influence on late adolescents’ drinking (Jaccard & Turrisi, 1999; Turrisi et al., 2000; Wood et al., 2004). These influences range from parental nurturance and support to parents’ attitudes toward drinking. Parents who display more social support are more likely to have college-aged children who are less likely to participate in risky drinking behavior in college (Mason & Windle, 2001). College students’ alcohol use has also been found to be related to their parents’ alcohol use (Ingle & Furnham, 1996; Jung, 1995; Reeves, 1984; Yu, 2003). This research has consistently found that parents who drink more in quantity and frequency have students who are more likely to drink more in quantity and frequency.
Parenting styles have also been found to influence the alcohol use patterns of adolescents. “Parenting style” can be described as a global attribute of parenting behavior; it refers to how parents interact with their children (Jackson & Dickinson, 2009). Baumrind (1967, 1971, 1991) has outlined three typologies of parenting styles known as authoritative, authoritarian, and permissive. These parenting styles are operationalized using two dimensions of parenting behavior: (1) “demandingness” or “control” and (2) “responsiveness” or “support” (Baumrind, 1967, 1971, 1991). Demandingness or control refers to the way parents discipline their children and provide supervision and monitoring. Responsiveness or support refers to how affectionate the parent is toward the child and how capable they are at meeting a child’s needs. Authoritative parents provide a balance between high responsiveness and high control. Authoritarian parents use high control and are low in responsiveness. Permissive parents are high in responsiveness, but low in control. Authoritative parenting has been linked to positive outcomes for college students, including higher grade point averages and better adjustment to college life (Strage, 2000). Ennett and colleagues (2001) found that parents who lack control or who are excessively controlling are more likely to have children who participate in negative drinking behaviors. Past research (Beck, Scaffa, Swift, & Ko, 1995) suggests that under hypothetical circumstances, most parents report they would respond with discussion of a drinking incident and some form of light discipline, however it is unclear if this translates over to real world circumstances concerning HED. More recent research (Abar, 2012; Fairlie, Wood, & Laird, 2012; Patock-Peckham & Morgan-Lopez, 2006) found that college students of permissive parents are more likely to be impulsive and drink more frequently. Additionally, low parental drinking permissive has
been found to be a protective factor; students of these parents are less likely to be influenced by their peers and drink less compared to students with more permissive parents (Fairlie et al., 2012).

Wheeler and Kennedy (2009) advocate that factors such as communication, social support, honest dialogue, consistent involvement, and appropriate attitudes about alcohol are an area for further research. In particular, parents can exert influence on their children’s behavior through conscious communication of attitudes, values, and expectations (Latendresse et al., 2008). Therefore, it is essential that public health research attend to the quantity and content of communication about alcohol information and advice that comes from parents.

**Parents’ Communication with Their College Student about Alcohol**

Parents’ communication about harmful and risky behavior is key to the prevention of unsafe behaviors in their children (Dittus, Jaccard, & Gordon, 1999) due to the fact that adolescents and young adults are often seeing information and support about alcohol use from their parents (Miller-Day, 2008). Overall, there is evidence that parents’ communication is associated with a reduction in alcohol-related harm among their children (Foxcroft & Low, 1995). Specifically, among adolescents, past prevention research has found that parent-child communication acts as a buffer against the risks of early use initiation (Brody, Murry, Kim, & Brown, 2002), predicts negative attitudes toward alcohol use (Perry et al., 2000), and reduces HED (Turrisi, Mastroleo, Mallett, Larimer, & Kilmer, 2007). Additionally, research suggests that adolescents and young adults value communication with parents about alcohol (Coleman & Carter, 2005); yet,

Past research examining the effects of parents’ communication from the student’s perspective have found positive results. Students who reported that their mothers had talked with them about alcohol have been found less likely to hold positive beliefs about alcohol and were more likely to believe drinking alcohol can increase negative affect (Turrisi et al., 2000). Furthermore, students whose mothers had talked to them about alcohol were less likely to believe that alcohol causes positive transformation, that it can enhance social behaviors, or that drinking makes you “cool” (Turrisi et al., 2000).

Communication about alcohol among parents and their college students is multi-dimensional. These dimensions include communication frequency, quality, content, and strategy (such as discussion or asking questions) (Boone & Lefkowitz, 2007). This dissertation focuses on the dimensions of frequency and content. Below, a review of two of the dimensions is provided.

**Frequency**

Frequency of communication about alcohol has been shown to be both negatively and positively related to adolescents’ alcohol use (Andrews, Hops, Ary, Tildesley, & Harris, 1993; Booth-Butterfield & Sidelinger, 1998; van der Vorst, Engels, Meeus, Dekovic, & van Leeuwe, 2005). Some research suggests that the more parents talk to their child about alcohol, the less likely he or she will initiate drinking over the course of the next year (Andrews et al., 1993) and the more likely he or she will use safe drinking practices while drinking (Booth-Butterfield & Sidelinger, 1998) However, other research (van der Vorst et al., 2005) has found that parent-child communication is positively
associated with adolescents’ alcohol consumption, which may be related to the fact that some parents’ communicate about alcohol as a response to their child’s drinking. Without knowing the content of this communication, it is feasible that some communication about alcohol leads to increased alcohol use. For example, if the content is about how good the alcohol tastes, how much fun their parents had when drinking in college, etc.

Additionally, research (Booth-Butterfield & Sidelinger, 1998) has shown that college students’ perceptions of the amount of talk they have had with parents about alcohol are related to the precautions students take when drinking alcohol. Additionally, among entering college freshman, Turrisi and colleagues (2000) have found that greater frequency of parent-child communication about alcohol prior to entering college is associated with the student having fewer positive expectancies about HED. One aim of this dissertation is to retrospectively examine the frequency of parent-child communication about alcohol throughout the student’s first year of college.

Parents of college students have been found to engage in conversations about alcohol on numerous occasions throughout the student’s time spent at college (Cremeens, Usdan, Brock-Martin, Martin, & Watkins, 2008). Reasons that have been found to be positively associated with parents’ frequency of reactive communication about alcohol include knowing someone who has a drinking problem, their child’s friend getting into trouble for drinking and their child going to a party where alcohol would be involved. Additionally, parents’ perceptions of their effectiveness of their conversations about alcohol, parents’ perceptions of the severity of HED, and the number of children in college are positively associated with the number of preventive conversations they have had with their college student about alcohol (Cremeens et al., 2008).
Content

While research on frequency of communication in parent-child communication is important to understanding parents’ impact on children’s alcohol-related attitudes and behaviors, it is limiting in that it does not account for the messages that are exchanged in these conversations (Miller-Day & Kam, 2010). To fully understand the impact of parent-child communication about alcohol, it is particularly important to assess the content of these targeted conversations. In this case, content refers to the subjects or topics covered by parents when they talk to their student about alcohol. These topics include how alcohol works in the body, alternatives to drinking, and negative consequences associated with alcohol use (Abar, Abar, & Turrisi, 2009). Research with parents of adolescents has shown that parents may cover a variety of topics related to alcohol with their children (Sherriff, Cox, Coleman, & Roker, 2008). These include implications of short and long term alcohol use, the location of drinking, types of alcohol, and media portrayal of alcohol use (Sherriff et al., 2008). Understanding the content of parent-child communication about alcohol is important in order to understand the effect of this communication on alcohol use (Miller-Day & Dodd, 2004).

There is consistent support that parental communication is protective against adolescent alcohol use (e.g., Beck, Boyle, & Boekeloo, 2003). However, there is little research on the influence of parental communication on college students’ drinking behaviors (Abar, Abar, & Turrisi, 2009; Wood et al., 2004). Studies that have examined parents’ communication on college student drinking have evaluated the impact of pre-college parental influence on college freshmen (Ichiyama et al., 2009; Turrisi et al., 2000; Turrisi et al., 2001; Turrisi et al., 2010). Little research has explored the possible
influence of parents’ communication while students are away at school, and, similarly, little research has looked at if, when, and how parents continue to communicate about alcohol while their student is at college (Ennett et al., 2001; Wheeler & Kennedy, 2009). One of the goals of this dissertation, therefore, is to identify factors associated with the frequency and content (topics talked about) of parents’ communication about alcohol with their college student.

Parents’ Perceptions of College Students’ Drinking

Parents have been found to have apprehension about the impact of alcohol use on their child’s college experience (Johnson, 2004). Parents also recognize that adverse events occur on college campuses due to alcohol use by students, but they often perceive these events to be caused by other students who are not like their child (Bogenschneider, Wu, Raffaelli, & Tsay, 1998; National Center on Addiction and Substance Abuse, 2007, Deakin & Cohen, 1986). Overall, parents tend to perceive their college student as capable of making responsible decisions about alcohol (Bylund et al., 2005; Deakin & Cohen, 1986). However, parents also indicate a lack of awareness of their own college students’ drinking (Wheeler & Kennedy, 2009). This reflects an optimistic bias, or the tendency for individuals to report that they, or in this case, their college student, are less susceptible to experience negative events compared to others (Helweg-Larsen & Shepperd, 2001; Weinstein, 1987).

In order for parents to influence and communicate about alcohol with their college students, parents must have an accurate perception of the alcohol use of their student. Deakin and Cohen (1986) and Shutt and colleagues (2006) have examined parents perceptions of college students’ alcohol use. Deakin and Cohen found in a matched
sample of first-year college students and parents, 84% of students reported drinking, while only 40% of parents believed their student drank. Similarly, Shutt, and colleagues discovered that parents underestimate both their student’s alcohol use and intention to use. At the University of Iowa, a web-survey of first-year college students’ parents also indicated parents have misperceptions of their college students’ alcohol use (Campo, Askelson, & Spies, 2011). For example, on average, parents reported that their student consumes 1.49 drinks in social settings with alcohol. However, according to the National College Health Assessment data from the University of Iowa (2011), students under the age of 21 report UI students consumed 5.92 drinks on average the last time they socialized. On a whole, it appears that parents have inaccurate perceptions of their student’s alcohol use. This lack of awareness related to their student’s alcohol consumption can lead to parents neglecting to have conversations with their student about alcohol (Bylund et al., 2005; Wheeler & Kennedy, 2009). Therefore it is important recognize and understand parents’ perceptions related to their student’s alcohol use in order to assist them in communicating messages about alcohol that may impact their student’s decisions related to this behavior.

Social norms approaches have emerged as one way to decrease problematic alcohol use on college campuses across the United States (Perkins & Berkowitz, 1986). Interventions that have utilized this approach assume that students tend to overestimate the number of drinks typical students consume when drinking alcohol (i.e., the descriptive norm). However, research also suggests that the one-dimensional nature of past social norms approaches is not universally effective (Campo et al., 2003; Campo & Cameron, 2006; Rimal, 2003; Wechsler et al., 2003; Yanovitzkey et al., 2006). Rather, it
is important to understand how social norms approaches interact with other interventions on college campuses. This dissertation explores how both proximal and distal social norms regarding college students’ drinking impact parents’ communication about alcohol with their student.

Theory of Normative Social Behavior

The Theory of Normative Social Behavior (TNSB) (Rimal & Real, 2005) is based on the premise that individuals’ perceptions of what others are doing influences individual behavior and that this relationship can be attenuated or intensified by a variety of factors. This theory focuses specifically on the effects of descriptive norms. Descriptive norms are the perceived prevalence of others’ behavior. Social norms, which have been described as rules that are understood and acted upon by group members without the force of laws (Cialdini & Trost, 1998), are of different types including examples such as subjective norms (Ajzen & Fishbein, 1980), social norms (Perkins & Berkowitz, 1986), or simply norms (Bendor & Swistak, 2001). Rimal (2008) has stressed the importance of differentiating descriptive norms, as captured in TNSB, from other types of norms and, in particular, differentiating between descriptive and injunctive norms.

Injunctive norms are conceptualized as one’s perception of what others believe to be appropriate behavior (Cialdini, Reno, & Kallgren, 1990). Injunctive norms share similarities with the subjective norms of the theory of reasoned action (Ajzen & Fishbein, 1980). Rimal and Real (2005) believe both injunctive and subjective norms play a role in influencing behavior; individuals may engage in a behavior because they believe that others important to them expect them to do so (subjective norms) and because failure to
engage in the behavior will result in social sanctions (injunctive norms). Descriptive norms, on the other hand, refer to individuals’ perceptions about the prevalence of others’ behavior (e.g., most college students drink).

In TNSB, Rimal and Real (2005) propose that descriptive norms do not act alone (See Figure 1). Instead, the influence of descriptive norms on individual behavior is suggested to occur through interactions with moderators (Bagozz, Wong, Abe, & Bergami, 2000). Rimal and Real propose that these moderators may exert a direct influence on behavior, their primary role is to heighten the influence descriptive norms have on behavior. The potential moderators proposed by Rimal and Real include injunctive norms, outcome expectations (belief that action will lead to benefits; Bandura, 1977), and group identity (psychological connection with reference group or social network; Rimal, 2008). A fourth moderator, ego-involvement, the extent to which individuals’ self-concept is associated with their stance on a particular issue (Lapinski & Boster, 2000) was added to the model after the theory was initially proposed (Lapinski & Rimal, 2005). By using TNSB as a framework, this dissertation explores the normative perceptions related to parents’ communication with their college student about alcohol in order to inform future interventions targeting parent communication in order to reduce HED among their college students.
TNSB proposes that descriptive norms and injunctive norms, outcome expectations, group identity, and ego involvement have an interactive effect on behavioral intentions (Rimal & Real, 2003; 2005). For example, in the context of parent communication, this theory might suggest that parents who perceive that many college students engage in drinking or HED (descriptive norms) may be more likely to communicate about alcohol if they also believe that there exists high social pressure for college students to participate in drinking or HED (injunctive norm). Past research using TNSB has been applied to individuals’ alcohol consumption (Real & Rimal, 2007; Rimal, 2008; Rimal & Real, 2005). Overall, the results of these studies have supported the proposition that descriptive norms positively impact behavior or behavioral intentions.
Specifically, related to alcohol behavior, college students’ injunctive norms, outcome expectations, and group identity related to alcohol moderate the relationship between descriptive norms and alcohol-use intentions. Additional research has examined how parents can act as a moderator between descriptive norms and behavioral intentions. Jang, Rimal, and Cho (2011) have explored how parental influences (monitoring and disapproval) moderate the relationship between descriptive norms and Korean adolescents past drinking behaviors and drinking intentions. They found that the effect adolescents’ perceptions about their peers’ alcohol consumption (descriptive norms) have on drinking intentions can be mitigated by active parent involvement.

Model of Family Decision Making

In addition to quantitatively exploring factors associated with parents’ communication about alcohol with their college student, a call has been put out to explore parents’ communication about alcohol qualitatively (Wheeler & Kennedy, 2009). There has been limited use of interviews and focus groups to understand communication between parents and students about alcohol. Therefore, the Model of Family Decision Making (MFDM) is used to gain a contextual understanding of this communication.

Settles’ (1999) Model of Family Decision Making takes a macro-level perspective of family interaction and focuses on how social, familial, environmental, and individual factors impact family communication and decision-making (See Figure 2). This model suggests that family interactions and choices or decisions about when to communicate and what to communicate about are made in an environment of conflicting perceptions and limited information. Settles’ model suggests that an individuals’ awareness, role, the
social structure, available resources, skills, personality, norms, and other constraints are all factors that impact their family interaction.

Figure 2. Model of Family Decision Making

Awareness is the extent to which the family is aware of decisions and options. For parents in this alcohol context this includes their awareness of their role and influence on their college student’s alcohol use (Ratelle, Larose, Guay, & Senecal, 2005). A role is the expected behavior of family members. Related to communication about alcohol, this might be how active parents are in their children’s plans for college and their involvement in providing academic, social, emotional, financial, and health information (Abar & Turrisi, 2008; Henning, 2007). Social structure refers to what society allows.
With regards to parents’ communication with their students, this refers to the college or university setting and environmental factors that exist (Ham & Hope, 2003; Wechsler et al., 2002). Resources are the time, energy, money, expert advice, and social support available to families. For parents to communicate about alcohol with their students, this might include campus resources, support, and provision of information (Carney-Hall 2008). It could also include policies such as parental notification of student violations of alcohol-related campus policies. Skills refer to an individual’s communication abilities. For parents, this means their ability to demonstrate care, compassion, and affirmation, as well as to set expectations, limitations, transmit values, and share information (Abar & Turrisi, 2008). Personality refers to a person’s predispositions and sense of self, and limits options related to the decision he or she makes. Parents’ warmth and supportiveness have been found to be associated with communication about alcohol and are a protective influence on alcohol use (Macaulay et al., 2005). Norms are expectations of appropriate behavior. Related to alcohol, drinking in late adolescence and early adulthood is a normal, common, and accepted behavior (Schulenberg & Maggs, 2002). Finally, other constraints include barriers or other life events that limit individuals’ choices and control. For parents’ communication about alcohol, this might be factors such as the student no longer lives in the family home (Turrisi et al., 2000).

**Dissertation Aims and Overview**

The synthesis of literature on the role of parents’ can play in their student’s drinking behaviors provides the foundation for the two studies described in the next three chapters. The specific aims of this dissertation are:
**Specific Aim 1:** Categorize parents based on the Theory of Normative Social Behavior constructs and examine differences in their perceptions of their first-year college student’s drinking and topics covered when communicating with their first-year college student about alcohol (see chapter 2).

**Specific Aim 2:** Examine how the relationship between descriptive norms related to college students’ alcohol use and the topics parents cover when they communicate about alcohol with their first-year student is affected by various moderators (see chapter 3).

**Specific Aim 3:** Using the Model of Family Decision Making as a guide, determine what additional factors impact parents’ decisions to talk and the frequency and content of their communication about alcohol with their first-year college student (see chapter 4).

Chapter 2 presents a study that classifies parents based on TNSB constructs (descriptive norms, injunctive norms, and outcome expectations) and, based on this classification, examines differences in parents’ perceptions of student’s alcohol use and content of communication. Chapter 3 examines how intrapersonal and interpersonal factors moderate the relationship between parents’ descriptive norms related to students’ alcohol use and the breadth of topics covered when they communicate with their college student about alcohol. Finally, Chapter 4 builds upon the first two studies and provides a contextual understanding of parents’ communication about alcohol with their college students by examining social, familial, environmental, and individual factors that affect the content and frequency communication. This research is innovative because it will fill a void in the current literature by examining parent-college student communication about alcohol from a parents’ perspective and through a theoretical framework. In addition to filling a void in the current literature, this research is significant because it has the
potential to help researchers, policy makers, and public health practitioners identify possible parent-based interventions and prevent negative outcomes associated with HED.
CHAPTER 2
EXPLORATORY CLUSTER ANALYSIS OF PARENTS’ PERCEPTIONS OF COLLEGE STUDENTS’ ALCOHOL USE: IMPLICATIONS FOR USING THEORY TO TAILOR PARENT-BASED INTERVENTIONS AIMED AT REDUCING HEAVY EPISODIC DRINKING

Introduction

Alcohol use by college students remains a significant public health concern in the US. In particular, reducing heavy episodic drinking (HED) among college students remains a national priority (Healthy People, 2020). Parents have been considered an important factor in the prevention of HED in their college-age children, yet there is limited research and parent-based intervention strategies aimed at reducing HED (Fernandez, Wood, Laforge, & Black, 2011; Ichiyama, Fairlie, Wood, Turrisi, Francis, Ray & Stanger, 2009; Turrisi, Abar, Mallett, & Jaccard, 2010). For parents to be effective at preventing problematic alcohol use in their college students, they must have awareness of the normative perceptions related to HED among college students to motivate communication with their child (Beck & Lockhart, 1992). The goal of this study was to classify or segment parents based on constructs from the Theory of Normative Social Behavior (TNSB; Rimal & Real, 2005) including descriptive norms, injunctive norms, and outcome expectations. Through this classification of parents, parent profiles can be established in order to inform how future public health interventions and campaigns aimed at reducing HED might segment parents based on their perceptions of typical college students’ drinking and their belief that talking about alcohol with their student will prevent HED.
Background

The Task Force on College Drinking of the National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2002) has characterized heavy episodic drinking (HED) among college students as “wide-spread, dangerous, and disruptive.” HED is defined as the consumption of 5 or more consecutive drinks in a sitting for men and four or more for women (Johnston, O’Malley, Bachman, & Schulenberg, 2004; Wechsler & Nelson, 2008). Rates of HED among college students have remained relatively stable between 40% and 50% over the last two decades (Johnston, O’Malley, Bachman, & Schulenberg, 2008; Vicary & Karshin, 2004; Wechsler & Nelson, 2008). The College Alcohol Survey has established that the average American college student drinks in excess (Wechsler & Nelson, 2008). More concerning, 90% of the alcohol consumed by the average student is while he or she is participating in HED (Wechsler & Nelson, 2008). At the university where this study took place, undergraduates engage in high-risk drinking at higher levels than the national average; 64.5% of students had engaged in high-risk drinking in the past two weeks (American College Health Association, National College Health Assessment, 2011). While HED is a significant problem among college undergraduates (O’Malley & Johnston, 2002), it is particularly problematic for first-year college students (Hartzler & Fromme, 2003; Ichiyama et al., 2009).

Among adolescents, the transition to college is a key risk period for developing problematic drinking behaviors (Ross & DeJong, 2008). Sher and Rutledge (2007) have found that the transition from high school to college is associated with a significant increase in alcohol use. For some college students, college is the first time they experiment with alcohol, yet for others, it is a time they move from experimentation to
frequent use (Hartzler & Fromme, 2003; Wechsler, Lee, Kuo, & Lee, 2000). Furthermore, the new role as a college student and the college environment creates additional risks not faced by those who do not attend college (O’Malley & Johnston, 2002). At an individual level, first-year students experience an increase in personal responsibility, such as taking control of their own class schedules and homework, completing tasks of daily living, and finding part-time work, and associated stress as they make decisions that will impact their future academic and professional goals, and some may expect alcohol use, and even heavy alcohol use, to be a normal part of the college experience (Bachman, O’Malley, & Johnson, 1984; O’Malley & Johnston, 2002). At an environmental level, first-year college students are entering an environment that may have easier access to alcohol and marketing that glamorizes risky drinking behaviors (DeJong & Langford, 2002). It is particularly important to address the public health issue of HED among first-year college students, particularly in the first four to six weeks of the semester, because it is a time when students are forming drinking behaviors that may be more difficult to change over time (Del Boca, Darkes, Greenbaum, & Goldman, 2004; Hunter & Gahagan, 2003).

HED has personal, relational, and environmental consequences for college students, particularly first-year students, those they interact with, and the surrounding community (Beets, Flay, Vuchinch, Kin-Kat, Acock, Snyder, & The Tobacco Etiology Research Network, 2009; NIAAA, 2002). College students who participate in HED are at risk for a wide range of negative health and health-related consequences. Harms include physical and sexual assault and personal injury (Mallett, Lee, Neighbors, Larimer, & Turrisi, 2006). Other consequences associated with HED include missing class, studying
less, maintaining a lower grade point average, participating in risky sexual behavior, and vandalizing property (Broadwater, Curtin, Martz, & Zrull, 2006; Brown, Salsman, Brehting, & Carlson, 2007; Powell, Williams, & Wechsler, 2004; Wechsler et al., 2002). HED can also have consequences for the college students’ social networks. “Secondhand” effects of HED impact most college students (Wechsler, 1996) and include being insulted, experiencing unwanted sexual advances, having sleep interrupted, and “baby-sitting” friends or roommates. Additionally, Wechsler and colleagues (2002) found that communities close to colleges with high rates of HED were more likely to report lower quality of life due to noise, vandalism, and public intoxication. Several intervening variables have been found to assist in the reduction of the occurrence of and the risk associated with HED, including parents.

Parents continue to have a strong influence on the behavior of their college-aged students, especially during the first year of college (Turrisi et al., 2001). Specifically, parents may represent an important protective influence on late adolescents’ drinking (Jaccard & Turrisi, 1999; Turrisi, Wiersma, & Hughes, 2000; Wood, Read, Mitchell, & Brand, 2004). Parental influences on students’ drinking behavior range from parental nurturance and support to parents’ attitudes toward drinking. Additionally, the more families discuss alcohol use with their college-aged children, the less likely the college-aged children are to participate in risky drinking behaviors (Booth-Butterfield & Sidelinger, 1998). However, while research on frequency of communication in parent-college student and parent-child communication is important to understanding parents’ impact on children’s alcohol-related attitudes and behaviors, it does not account for the content of messages that are exchanged in these conversations (Miller-Day & Kam,
Additionally, identifying parent clusters may also assist in the design of interventions that can influence the content of these conversations.

Parent-based interventions on drinking behaviors have been successful at reducing the rate of HED among college students (Fernandez et al., 2011; Ichiyama et al., 2009; Turrisi et al., 2001; Turrisi et al., 2010). Turrisi’s (2001) “A Parent Handbook for Talking with College Students about Alcohol” has been used by a number of parent-based interventions (Ichiyama et al., 2009; Turrisi et al., 2001; Turrisi et al., 2010). Typically, parents are provided the handbook at summer orientation and asked to read the handbook and discuss it with their child before he or she enters college (Ichiyama et al., 2009; Turrisi et al., 2010). While these interventions have been successful at reducing HED, these interventions do not take into account that parents may have different perceptions of college students’ alcohol use and their perceptions of their ability to impact their student’s drinking behavior. Additionally, since parents of college students severely underestimate their child’s drinking, and these perceptions may limit parents’ influence communication about alcohol (Shutt, Oswalt, & Cooper, 2006), it is important to identify parents’ variability in these perceptions. One way to improve and build upon the past success of these interventions is to segment parents based on determinants of behavior.

Researchers (Atkin & Freimuth, 1989; Donahew, 1990; Grunig, 1989; Salmon & Atkin, 2003; Slater, 1996) argue that audience segmentation is a vital component of effective public health interventions and communication campaigns. Segmenting an audience is a process that practitioners and researchers can use to break the target audience into smaller subgroups in order to create messages that are most appropriate and
respond to the needs and perspectives of each subgroup. While past interventions and campaigns have relied on socio-demographic characteristics to segment audiences (Andreasen, 2006; Kotler & Lee, 2008; Slater, 1995), this process may not always produce segments that will lead to behavior change. Other research suggests that segmenting strategies should be based on determinants of the health behavior of interest (Rimal, Brown, Mkandawire, Folda, Bose, & Creel, 2009; Slater, Kelly, & Thackeray, 2006). As a result, segmenting on determinants of the health behavior, such as knowledge, attitudes, and beliefs, can assist in the development and tailoring of messages relevant to the subgroups identified. In this study, parents’ will be segmented based on their normative perceptions related to college students’ alcohol use and the expected outcomes they associate with talking to their student about alcohol. One analytic method that can be used to define subgroups is cluster analysis (Slater, 1996; Slater & Flora, 1991; Williams & Flora, 1995).

Parents of first-year college students are not a homogenous population (Brand, 2010). Rather, they are different based on not only socio-demographic factors such as race or income, but also levels of engagement. One method for identifying subgroups in a heterogeneous population is cluster analysis. Past research has used cluster analyses to identify meaningful subgroups based on common risk factors (Jobson, 1992). The commonalities have potential implications for the subgroups’ outcomes and implications for interventions. For example, several cluster analyses have resulted in the evaluation of current programming, the creation of monitoring practices and the identification of interventions to prevent negative outcomes (Haapasalo, 2000). When looking at college students’ perceptions of their relationships with their parents, past research (Abar, 2012;
Fairlie, Wood, & Laird (2012) has identified four profiles of parenting based on parenting style and perceptions of parental approval of alcohol use. Parenting style refers to how parents interact with their children (Jackson & Dickinson, 2009). Baumrind (1967, 1971, 1991) has outlined typologies of parenting styles known as authoritative, authoritarian, and permissive. These parenting styles are defined using two dimensions of parenting behavior: (1) “demandingness” or “control” and (2) “responsiveness” or “support.”

Demandingness or control refers to the way parents discipline their children and provide monitoring, while responsiveness or support refers to how affectionate the parent is toward the child. While these unique profiles may be helpful for targeting interventions with college students, it is also important to identify more parent-specific profiles in order to target and enhance intervention efforts. Past research suggests that parents have a range of attitudes, beliefs, and perceptions related to their college student’s alcohol use (La Brie, Hummer, Lac, Ehret, & Kenney, 2011), and these beliefs may play a role in the content, quality, and frequency of communication about alcohol (Turrisi et al., 2007; Wood et al., 2004). Therefore, segmenting based on these attitudes, beliefs, and perceptions, not just parenting style, may allow interventions to more effectively target parents by providing them with more tailored messages.

Theoretical Framework: Theory of Normative Social Behavior

The purpose of this study was to identify the clusters or subgroups of parents based on the Theory of Normative Social Behavior (TNSB) constructs and if they are meaningfully related to factors such as parents’ perceptions of their own student’s drinking and communication about alcohol. TNSB is based on the idea that individuals’ perceptions of what others are doing influences their own behavior (Rimal & Real, 2005).
Research (Kuther & Higgins-D’Alessandro, 2003) has found that parents’ norms related to alcohol, particularly parental approval of college drinking behaviors, has an effect on college students’ alcohol use, and likely the parents’ own communication about alcohol. Specifically, TNSB focuses on the relationship between descriptive norms (the perceived prevalence of others’ behavior) and behavior. Rimal and Real (2005) posit that the influence of descriptive norms on behavior occurs through a series of interactions with moderators that heighten the influence of descriptive norms on behavior and that may also directly influence behavior. These moderators include injunctive norms (perception of what others believe to be appropriate behavior; Cialdini, Reno, & Kallgren, 1990) and outcome expectations (belief that action will lead to benefits; Bandura, 1977). In the context of this study, descriptive norms are parents’ perceptions of college students HED, injunctive norms are parents’ perceptions of the social pressures that encourage college student alcohol use, and outcome expectations are parents’ perceptions of that communicating with their college student will in fact prevent him or her from participating in HED. In the past, TNSB has been used to understand the relationship between college students’ descriptive norms and the student’s own drinking behavior (Real & Rimal, 2007; Rimal, 2008; Rimal & Real, 2005). In this study, TNSB is being used to segment parents based on the parents’ perceptions of the norms of typical college students’ alcohol use, their perceptions of their son or daughter’s behavior, and their outcome expectations related to communication about alcohol with their student.

Differences in parents’ perceptions of their own student’s alcohol use and content of conversations about alcohol were also explored. Classifying parents based on theoretical constructs can help organize large quantities of multivariate data and aid
researchers and public health practitioners in the design of future interventions by identifying the needs of subgroups (Clatworthy, Buick, Hankins, Weinman, & Horne, 2005). The aim of this research was to classify parents based on TNSB constructs and examine differences in their perceptions of student’s drinking and content of communication. This study’s research questions were:

RQ1: Using TNSB constructs, do identifiable clusters or risk profiles of characteristics exist among parents of first-year students?

RQ2: How do the clusters differ on socio-demographic variables, such as sex, age, marital status, employment, and level of education?

RQ3: How do clusters vary in their perceptions of (a) the frequency of student’s drinking, (b) severity of the negative consequences associated with student drinking, and (c) their student’s susceptibility to the negative consequences associated with drinking?

RQ4: How do clusters vary in the number of topics covered by parents in their communication about alcohol with their first-year college student?

**Method**

Data for this study were collected using three independent web surveys in 2010, 2011, and 2012. Each year, the same web survey was administered to a random sample of first year parents at the University of Iowa. Parents of first-year students were identified using student’s application and registration information from the Office of Admissions. On student’s application and registration information, an email is provided for one primary contact (parent or guardian). Each year, the sampling frame included 2,000 parent emails obtained from the University of Iowa’s Office of Admissions at random.
Parents were invited to take the survey through an email sent to them in November following their student’s enrollment from the Office of Admissions to give parents the opportunity to talk about alcohol with their college student. The email included a link to the web survey. Two weeks after the initial email, a reminder email was sent to them. The data collection was conducted in conjunction with the evaluation of a parent intervention conducted during summer orientations on campus in 2010, 2011, and 2012. The web survey consisted of 42 items that assessed parents’ perceptions of their college student’s drinking, their communication about alcohol with their college student, their attitudes toward college student drinking, and their perceptions of other student’s drinking. This web survey was reviewed and approved by the University of Iowa’s Institutional Review Board. No incentives were provided. The response rates in 2010 (N = 420) and 2012 (N = 433) were right around 21%. The response rate in 2011 was 26.7% (N = 534). Prior to collapsing the data from both years into one data set, data was checked for differences, such as socio-demographics, parenting style, and content of communication by year.

Measures

Parents completed a set of self-report measures toward the end of the first semester of their son/daughter’s first year of college. In addition to socio-demographic variables like sex, age, marital status, income, education, sex of first-year college student, and number of children they had sent to college, parents completed items on constructs from TNSB: descriptive norms, injunctive norms, and outcome expectations. Additionally, parents were asked to complete items on authoritative parenting style, their perceptions of student’s alcohol use and their content of communication.
Descriptive Norms

Four questions assessed parents’ perceptions about college students’ drinking behaviors. These questions asked participants to estimate how many drinks his/her son/daughter’s male friends, female friends, typical male University of Iowa students, and typical female University of Iowa students consume when they socialize in a setting with alcohol at the University of Iowa (Campo, Brossard, Frazer, Marchell, Lewis, & Talbot, 2003). Parents were asked to consider that a drink was a bottle of beer, a shot glass of liquor, or a mixed drink. Each item was used in the analysis individually.

Injunctive Norms

To assess parents’ perceptions of the societal appropriateness of college student drinking two items will be used: “It is okay for my student to drink because he/she is 18 or older” and “It is okay for my student to drink at college.” Items were assessed using a 1 (strongly disagree) to 5 (strongly agree) Likert scale. One continuous item was created by averaging the two items (α = .86).

Outcome Expectations

To assess parents’ belief that communicating about alcohol will result in positive outcomes, two items will be used: “Talking about drinking will prevent my student from binge drinking” and “Why bother talking to my student about alcohol use – he/she won’t listen anyway.” Items were assessed using a 1 (strongly disagree) to 5 (strongly agree) Likert scale. The second item was reverse coded and one continuous item was created by averaging the two items (α = .72).
Authoritative Parenting Style

Since parenting style has been found to influence children’s drinking behaviors (Ennett Bauman, Foshee, Pemberton, & Hicks, 2001), it was included as a control variable. The parenting items will assess the extent to which the participants can be classified as an “authoritative” parent. Authoritative parents provide a balance between high responsiveness and high control. Nine previously identified items (Stephenson, Quick, Atkinson, & Tschida, 2005) that assess authoritative parenting style were used. The items fit a single factor and the average score of all 9 items were used in the analysis ($\alpha = .88$).

Parents’ Perceptions of Student’s Alcohol Use

Parents’ perceptions about their own college student’s drinking behaviors were captured. Parents were asked to estimate how many drinks his/her student consumes when they socialize in a setting with alcohol at the University of Iowa.

Perceptions of the Susceptibility and Severity of Negative Consequences Associated with Alcohol Use

To assess parents’ perceptions of their student’s risk (susceptibility) and the severity of their student experiencing negative consequences associated with drinking alcohol, parents were asked to rate how likely their child was to experience 14 consequences and how negative those consequences would be if they happened to their student (Abar, Abar, & Turrisi, 2009; Turrisi et al., 2007). An example of one of the consequences is “Having a headache (hangover) the morning after drinking.” To assess susceptibility, all responses were recorded on a 5-point scale ranging from 1 (not at all likely) to 5 (this has already happened to my student). Susceptibility was a single factor calculated as the
average to these 14 consequences (α = .89). For severity, all responses were recorded on a 5-point scale ranging from 1 (extremely positive) to 5 (extremely negative). For analysis in this study, all items were reverse coded. Severity was a single factor calculated as the average to these 14 consequences (α = .92).

Content of Communication

To assess content of communication about alcohol, parents were asked to indicate what topics they had talked to their student about during summer prior to college enrollment and during the current academic semester (Abar, Abar, & Turrisi, 2009; Turrisi, Mastroleo, Mallett, Larimer, & Kilmer, 2007. The 27 topics were adopted from the Alcohol-Based Parent-Teen Communication Scale (Boyle & Boekeloo, 2009). For analysis, two continuous variables were created: 1) the total number of topics talked about during the summer and 2) the total number of topics talked about during the current semester.

Analysis

Data was cleaned and examined for outliers and cases with missing data were removed prior to analysis, leaving 890 cases. K-means cluster analysis was selected as the method for identifying clusters. Cluster analysis allows for the analysis of similarities and differences between unknown subgroups of individuals (Jobson, 1992). To perform k-means clustering, it is necessary to identify the number of clusters. The ability to select the number of clusters is important for public health interventions and campaigns. Limited time and resources do not allow for an infinite number of clusters to be targeted. For this analysis, 4 clusters were initially selected. However, convergence could not be reached and one cluster had very few participants (under 5), so 3 clusters were selected,
which also allowed for more adequate segment distribution. The k-means cluster
algorithm assigns cases to clusters based on smallest distance to the cluster means. The
first step in this analysis is to identify the k centers through an iterative process. Using
SPSS Version 19, cases are assigned and re-assigned to clusters until the cluster means
do not change significantly between steps. To perform the cluster analysis, all variables
were standardized so that they are all on similar metrics because cluster analyses are
sensitive to means. The segmenting strategy used TNSB constructs (descriptive norms,
injunctive norms, and outcome expectations).

Once the clusters are identified, a descriptive profile of parents based on TNSB
was established. To explore if parents in different clusters vary on socio-demographic
variables, perceptions of student’s alcohol use, parenting style, and content of
communication about alcohol, Chi-square tests and ANOVAs were performed. Chi-
square tests were used to look at how clusters are different based on categorical variables.
To look at differences in continuous variables, one-way ANOVAs were utilized. OLS
linear regression was used to further explore differences in parents’ perceptions of their
student’s alcohol use and the number of topics talked about during the summer and
current semester.

Results

A description of the participants is presented in Table 1. The majority of parents
in this study were female (74.1%), married (88.5%), and had completed a Bachelor’s
degree or higher (76.6%). Most (82.2%) participants in this study had a household
income over $75,000. For participants in this study, their average age was 49.48 years
(SD = 4.86). On average, participants had approximately 2 children and had not sent
another child to the same university. Approximately 55% of the participants had sent a female student to the university. The majority of parents indicated high levels of authoritative parenting (M = 6.18, SD = .67). On average, parents reported their student consumed 1.58 drinks (SD = 1.96) when their student socialized. During the summer, parents reported they talked with their student on average of 16.74 times (SD = 7.49) about alcohol, but only 8.04 times (SD = 8.36) during the current semester. Overall, parents did not indicate their student was at risk for experiencing the negative consequences associated with drinking (M = 1.30, SD = .42), however, they did find the consequences associated with drinking to be negative (M = 4.74, SD = .43).

Table 2 illustrates the 3 parent clusters and the centroids (means of the clusters) and Figure 3 provides a visual depiction of how the clusters compare to one another. Table 3 provides the descriptive statistics for the 3 parent clusters. Cluster 2 perceives the lowest amounts of drinks consumed across all four questions, while Cluster 1 perceived the highest amounts of drinks consumed. Cluster 2 has the highest level of disagreement with the injunctive norm statements. Cluster 2 is most likely to believe that talking to their student about drinking will be associated with positive outcomes (i.e., outcome expectations).
Figure 3. Visual illustration of clusters
When examining the relationship between the parent clusters on other variables, additional differences are seen (See Table 4). There were no significant or meaningful differences in cluster membership based on parents’ sex or the sex of the first-year student. While age and authoritative parenting varied across the clusters, the differences were not meaningfully different. The average age of parents in all the clusters were in the same generation (means between 48 and 50 years of age). Cluster differences did emerge when examining authoritative parenting, perceptions of student’s drinking, the number of topics talked about during the current semester, and their perceptions of their student’s susceptibility to the negative consequences associated with alcohol.

Perceptions of the amount their student’s drank varied significantly between clusters. Parents in Cluster 2 perceived their students to be drinking the least (M = 0.47, SD = 1.07) in social settings at the university, while parents in Clusters 1 and 3 perceived their students to be drinking the most (M = 2.77, SD = 2.50 and M = 2.43, SD = 1.75, respectively). While there were no significant differences in the number of topics discussed during the summer, Clusters 1 (M = 10.03, SD = 8.88) and 3 (M = 8.97, SD = 7.93) talked about significantly more alcohol-related topics during the first semester compared to Cluster 2 (M = 6.56, SD = 8.33). There were no significant differences across clusters when looking at parents’ perceptions of the severity associated with the negative consequences related to alcohol use. While parents’ perceptions of their student’s susceptibility to the negative consequences associated with alcohol were low overall, significant differences did exist across clusters. Clusters 1 (M = 1.46, SD = 0.54) and 3 (M = 1.48, SD = 0.45) contained parents who believed their students were at more risk compared to parents in Cluster 2 (M = 1.12, SD = 0.23).
Results from the regression analyses are presented in Table 5. When examining parents’ perceptions of their own student’s drinking when they socialized in settings with alcohol, cluster membership was a significant predictor, holding all else constant. Parents in Cluster 1 believed their students consumed the most drinks, approximately 2.5 more drinks than Cluster 2 on average, when they socialized in settings with alcohol, followed by parents in Cluster 3. Additionally, when holding all else constant, parents of male students perceived their child to be drinking more, almost 1 drink more on average, when they socialized in settings with alcohol. Cluster membership was also predictive of the number of alcohol-related topics talked about during the current semester. Parents in Clusters 1 and 3 talked about more topics, almost 3.5 and 2.5 respectively, during the current semester compared to Cluster 2. Additionally, parents of male students reported talking about significantly fewer topics during the current semester. Further, while holding all else constant in both regression analyses, parents who indicated higher levels of authoritative parenting reported they talked about more topics related to alcohol in the summer and during the current semester.

Discussion

This study used a web survey of parents across three years to identify profiles or segments of parents of first-year college students defined by the TNSB constructs. The resulting clusters suggest that using behavioral theory, in this case TNSB, is a feasible and appropriate choice for profiling or segmenting parents for future parent-based interventions aimed at reducing HED. Three clusters were identified, suggesting a continuum from low to high perceptions of other students alcohol use (descriptive norms), agreement that drinking is appropriate for college students (injunctive norms),
and agreement that talking about alcohol would prevent HED in their student (outcome expectations).

Beck and Lockhart (1992) suggest that in order for parents to be effective at preventing problematic alcohol use in their college students, they must have awareness, acceptance, take action, and understand the consequences associated with drinking for their college students. Overall, parents in this study had perceived their students drank little, 1.58 drinks on average, when s/he socialized in settings with alcohol. National data on the university used in this study has found that students under the age of 21 consume 5.92 drinks per occasion (American College Health Association, National College Health Assessment, 2012). Clusters did vary significantly on parents’ perceptions of their own student’s drinking. In this study, perceptions of their own student’s drinking corresponded to their perceptions of other students’ drinking. For example, on average, a parent in Cluster 2 believed his/her student consumed 0.47 drinks when s/he socialized in settings with alcohol compared to 2.77 drinks in Cluster 2. Yet, parents in all clusters most likely significantly underestimated their own student’s drinking given that the average student under the age of 21 on this campus consumes almost 6 drinks on average when they consume alcohol when he/she socializes. This aligns with other research (Shutt, Oswalt, & Cooper, 2006) that has found parents of college students to severely underestimate their child’s drinking. Shutt and colleagues suggest that these inaccurate perceptions may limit parents’ influence on and communication about alcohol.

Parents in this study appeared to have an optimism bias (Weinstein, 1980, 1987) when it comes to their student’s drinking behaviors; they did not perceive their students to be at risk for experiencing any of the consequences associated with alcohol use
regardless of cluster. However, at the university where this study took place, students experience an array of negative consequences associated with alcohol use (American College Health Association, National College Health, Assessment, 2012). Almost half have done something they later regretted (46.2%) or forgot where they were or what they did (45.9%). Approximately one-quarter have had unprotected sex, and 17.7% of students have physically injured themselves as a result of alcohol use. Compared to a national sample of college students (American College Health Association, National College Health Assessment, Spring 2011 Reference Group Executive Summary, 2011), students at this university experience all of these consequences at a higher frequency than national averages. Since parents’ perceptions of their student’s risk of experiencing negative consequences associated with alcohol use may be associated with their communication about alcohol (Bylund, Imes, & Baxter, 2005), and research says in order to change behavior, optimism biases must be addressed (Weinstein, 1987) it is important future interventions and campaigns inform parents of their student’s susceptibility to these consequences.

On average, parents reported substantially more talk about alcohol-related topics during the summer than during the current semester. This may be due to parents’ perception that they do not continue to influence their child once s/he goes to college (Turrisi et al., 2000). Cluster membership was also associated with the number of alcohol-related topics talked about during the current semester. This however, did not seem to be related to the level of outcome expectations, but rather perceptions of other students’ drinking. For instance, Cluster 2 had the highest level of concurrence with the idea that talking to their student about alcohol will prevent HED. However, they talked
about the fewest topics during the current semester. More research is needed to determine this discrepancy in talk. It may in fact be that, while parents in Cluster 2 appear to be talking less about alcohol-related topics, the times when they do talk about such topics is of different quality compared to parents in the other clusters.

Finally, parents in all clusters had high levels of authoritative parenting. In the regression analyses, authoritative parenting was significantly and positively associated with the number of topics talked about during the summer and current semester. This is not surprising since past research (Patock-Peckham, Cheong, Ballhorn, & Nagoshi, 2001) shows college students who have authoritative mothers are less likely to use or abuse alcohol. Authoritative parents have been found to be more likely to engage in preventive parenting practices (Stephenson et al., 2005), and therefore, may be more likely to have more frequent communication with their college-aged student about alcohol.

Implications for Future Interventions and Campaigns

The parent profiles established using K means cluster analysis provide insight for the design of future interventions and campaigns aimed at reducing HED among college students. Below, each cluster is examined individually and implications for future intervention and campaign messages are discussed. A summary of the implications is provided in Table 6.

Cluster 1

Parents in this cluster may be overestimating other university students’ alcohol use, particularly for student’s male friends and typical male undergraduates. On average, parents perceived males and typical undergraduate students on this campus to be drinking 2-3 drinks more per occasion than the campus average. They are also more likely to agree
that it is okay for their student to drink because s/he is 18 and in college than Cluster 2, and more likely than Cluster 3 to believe that talking about alcohol will impact their student’s HED. Interventions aimed at this group of parents might also consider engaging them in conversations about their descriptive and injunctive normative perceptions, where parents can talk about their perceptions and beliefs associated with college students’ alcohol use, discuss the negative consequences associated with alcohol use, and identify alternative social activities that do not include alcohol. Normative feedback aimed at correcting injunctive normative misperceptions among parents would be important for parents in this cluster. TNSB suggests that descriptive norms do not act on isolation, yet through a series of moderators that can amplify or minimize the relationship. In this case, the relationship between perceptions of other student’s drinking, may be attenuated by this group of parents’ view that college student drinking, regardless of age, is acceptable. Since injunctive norms are influenced by an individual’s references or social network (Rimal & Real, 2005), interventions aimed at this cluster might want to engage parents in a normative dialogue about alcohol use on campus, where parents can talk about their beliefs associated with alcohol use and the college experience, discuss the negative consequences associated with alcohol use, and identify alternative social activities that do not include alcohol for their college students.

Cluster 2.

Parents in this cluster are severely underestimating other university students’ alcohol use. Compared to Clusters 1 and 3, they are more likely to disagree that it is okay for their student to drink because s/he is 18 and in college and more likely to believe that talking about alcohol will impact their student’s HED. These parents should be targeted
with messages that inform them of the actual rates of drinking on campus. Messages should continue to support the belief that talking about alcohol with their college student will impact his or her drinking behaviors.

**Cluster 3**

While more accurate than Cluster 2, parents in this cluster are still underestimating college students’ drinking behaviors on this campus. They are more likely to agree that it is okay for their student to drink because s/he is 18 and in college and are least likely to believe that talking about alcohol will impact their student’s HED than Clusters 1 and 2. Messages should also be focused on outcome expectations, informing parents that their communication with their child about alcohol does make a difference in their drinking behaviors. Similar to Cluster 1, interventions aimed at this cluster should also consider engaging parents about the normative behaviors surrounding alcohol use on campus, where parents can talk about their beliefs associated with alcohol use and the college experience, discuss the negative consequences associated with their student’s alcohol use, and identify alternative social activities that do not include alcohol for their college students.

**Across All Clusters**

Parents in all clusters have markedly low perceptions of their own student’s alcohol use when s/he socializes in a setting with alcohol and parents in all clusters noticeably talk about fewer alcohol-related topics during the current semester than they did during the summer semester. Research has shown that if parents are given accurate and credible information about the risky drinking behavior of their students and other students on campus, they may be more likely to communicate about alcohol and set
standards and expectations related to their student’s alcohol use (Linkenbach, Perkins, & DeJong, 2003). Intervention and campaign messages should work to correct parents’ misperceptions about the amount of drinking their own students and typical students are likely consuming. Additionally, messages should emphasize the importance of parents continuing communication, even after their student has enrolled and arrived on campus. Finally, across all clusters, messages need to inform parents that students are susceptible to the negative consequences associated with drinking.

Limitations

This study is not without its limitations. First, this study was conducted at a large, Midwestern university with limited racial and ethnic diversity, limiting the generalizability of these findings. However, research has shown that White students and students from the Midwest consume more alcohol compared to other college students and experience more negative consequences (Wechsler et al., 2002). There may also have been a response bias; parents who completed the web survey may be more likely to communicate about alcohol-related topics compared to those who did not complete the survey. Additionally, the majority of participants were white and college educated. Future research is needed to explore how clusters may be identified in samples with more racial and ethnic diversity and varied education levels, particularly parents of first-generation, first-year college students.

This study also had a limited response rate. However, this rate is fairly consistent with prior research that suggests that web survey response rates range from 25 to 40% (Cook, Heath, & Thompson, 2000; Kittleson, 1997; Shih & Fan, 2008) and response rates for all survey types have declined dramatically over the past two decades (Curtin, Presser
Additionally, this survey did not use incentives, which has also been linked to lower response rates (Manzo & Burke, 2012). Finally, it was beyond the scope of the study to examine the detailed content and quality of the parents’ communication with their college student about alcohol. More information about these conversations would be important to have in order to have a better understanding of the relationship between the cluster membership and parents’ communication about alcohol.

**Conclusion**

Research (Fernandez et al., 2011; Ichiyama et al., 2009; Turrisi et al., 2001; Turrisi et al., 2010) suggests parent-based interventions can be effective at reducing HED among college students. This study found significant heterogeneity in TNSB constructs and has identified how these differences can inform parent-based interventions and campaigns aimed at reducing HED on college campuses. Future research should continue to identify ways to segment parents in parent-based interventions in order to tailor messages effectively.
<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>25.9</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>74.1</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td>49.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4.86)</td>
</tr>
<tr>
<td><strong>Relationship status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>88.5</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>8.2</td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>.9</td>
<td></td>
</tr>
<tr>
<td>Separated</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>.9</td>
<td></td>
</tr>
<tr>
<td>Living with partner</td>
<td>.7</td>
<td></td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>94.1</td>
<td></td>
</tr>
<tr>
<td>Black/African American</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary or middle school</td>
<td>.1</td>
<td>.1</td>
</tr>
<tr>
<td>Some high school</td>
<td>.1</td>
<td></td>
</tr>
<tr>
<td>High school graduate</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Some college or associate’s degree</td>
<td>19.4</td>
<td></td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>46.6</td>
<td></td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>29.9</td>
<td></td>
</tr>
<tr>
<td><strong>Household income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>.6</td>
<td></td>
</tr>
<tr>
<td>$10,000 to under $20,000</td>
<td>.6</td>
<td></td>
</tr>
<tr>
<td>$20,000 to under $30,000</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>$30,000 to under $50,000</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>$50,000 to under $75,000</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>$75,000 to under $100,000</td>
<td>15.7</td>
<td></td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>66.5</td>
<td></td>
</tr>
<tr>
<td><strong>Sex of student</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>44.4</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>55.6</td>
<td></td>
</tr>
<tr>
<td><strong>Number of children</strong></td>
<td></td>
<td>1.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.17)</td>
</tr>
<tr>
<td><strong>Authoritative parenting</strong></td>
<td>6.18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.67)</td>
</tr>
</tbody>
</table>
Table 2. Standardized centroids for parent cluster analysis (N = 890)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your student's <strong>male friends</strong> number of drinks when socializing in a setting with alcohol</td>
<td>1.26</td>
<td>-0.72</td>
<td>0.41</td>
</tr>
<tr>
<td>Your student's <strong>female friends</strong> number of drinks when socializing in a setting with alcohol</td>
<td>1.16</td>
<td>-0.71</td>
<td>0.38</td>
</tr>
<tr>
<td>Typical <strong>male University of Iowa undergraduate students</strong> number of drinks when socializing in a setting with alcohol</td>
<td>1.66</td>
<td>-0.57</td>
<td>0.06</td>
</tr>
<tr>
<td>Typical <strong>female University of Iowa undergraduate students</strong> number of drinks when socializing in a setting with alcohol</td>
<td>1.41</td>
<td>-0.50</td>
<td>0.04</td>
</tr>
<tr>
<td>Injunctive norms</td>
<td>0.03</td>
<td>-0.36</td>
<td>0.23</td>
</tr>
<tr>
<td>Outcome expectations</td>
<td>0.12</td>
<td>0.36</td>
<td>-0.42</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>123</td>
<td>405</td>
<td>362</td>
</tr>
</tbody>
</table>

*Note variables are standardized
Table 3. Description of parent clusters (N = 890)

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>On average, how many alcoholic drinks do you think your student’s <strong>male friends</strong> consume when they socialize in a setting with alcohol at the University of Iowa?</td>
<td>7.12</td>
<td>1.18</td>
<td>4.58</td>
</tr>
<tr>
<td></td>
<td>(3.91)</td>
<td>(1.33)</td>
<td>(1.58)</td>
</tr>
<tr>
<td>On average, how many alcoholic drinks do you think your student’s <strong>female friends</strong> consume when they socialize in a setting with alcohol at the University of Iowa?</td>
<td>5.00</td>
<td>0.83</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>(2.44)</td>
<td>(1.02)</td>
<td>(1.35)</td>
</tr>
<tr>
<td>On average, how many alcoholic drinks do you think <strong>typical male U of I undergraduate students</strong> consume when they socialize in a setting with alcohol at the University of Iowa?</td>
<td>9.88</td>
<td>3.60</td>
<td>5.36</td>
</tr>
<tr>
<td></td>
<td>(2.96)</td>
<td>(1.92)</td>
<td>(1.38)</td>
</tr>
<tr>
<td>On average, how many alcoholic drinks do you think <strong>typical female U of I undergraduate students</strong> consume when they socialize in a setting with alcohol at the University of Iowa?</td>
<td>7.52</td>
<td>2.82</td>
<td>4.15</td>
</tr>
<tr>
<td></td>
<td>(2.88)</td>
<td>(1.50)</td>
<td>(1.24)</td>
</tr>
<tr>
<td>Injunctive Norms*</td>
<td>2.07</td>
<td>1.60</td>
<td>2.32</td>
</tr>
<tr>
<td></td>
<td>(0.92)</td>
<td>(0.72)</td>
<td>(0.94)</td>
</tr>
<tr>
<td>Outcome Expectations*</td>
<td>4.01</td>
<td>4.18</td>
<td>3.62</td>
</tr>
<tr>
<td></td>
<td>(0.64)</td>
<td>(0.65)</td>
<td>(0.68)</td>
</tr>
</tbody>
</table>

*Likert scale: 1 = strongly disagree to 5 = strongly agree
Table 4. Differences between clusters on key variables, results of ANOVAs and Chi-squares

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1 (N = 123)</th>
<th>Cluster 2 (N = 405)</th>
<th>Cluster 3 (N = 362)</th>
<th>F</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>23.0%</td>
<td>26.2%</td>
<td>26.5%</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>77.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex of Student</td>
<td></td>
<td></td>
<td></td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>35.5%</td>
<td>44.2%</td>
<td>47.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>64.5%</td>
<td>55.8%</td>
<td>52.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>48.20c</td>
<td>49.80a</td>
<td>49.56a</td>
<td>5.209, df = 2, p = .006</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(4.50)</td>
<td>(5.00)</td>
<td>(4.75)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritative parenting**</td>
<td>6.25c</td>
<td>6.22</td>
<td>6.11d</td>
<td>3.357, df = 2, p = .035</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.62)</td>
<td>(0.68)</td>
<td>(0.68)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of student’s drinking***</td>
<td>2.77b</td>
<td>0.47ac</td>
<td>2.43b</td>
<td>173.280, df = 2, p = .000</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(2.50)</td>
<td>(1.07)</td>
<td>(1.75)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of topics talked about during the summer</td>
<td>18.09</td>
<td>16.48</td>
<td>16.55</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(7.11)</td>
<td>(8.01)</td>
<td>(6.99)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of topics talked about during the semester</td>
<td>10.03b</td>
<td>6.56ac</td>
<td>8.97b</td>
<td>11.705, df = 3, p = .000</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(8.88)</td>
<td>(8.33)</td>
<td>(7.93)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Susceptibility+</td>
<td>1.46b</td>
<td>1.12ac</td>
<td>1.48b</td>
<td>91.009, df = 2, p = .000</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.54)</td>
<td>(0.23)</td>
<td>(0.45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severity#</td>
<td>4.76</td>
<td>4.76</td>
<td>4.71</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.42)</td>
<td>(0.44)</td>
<td>(0.42)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note for post hoc comparisons: a) significantly different from cluster 1, b) significantly different from cluster 2, c) significantly different from cluster 3
** Likert scale: 1 = never to 7 = always
*** Number of drinks parents’ perceived their own student to consume when he/she socialized in settings with alcohol
+ Likert scale: 1 = not at all likely to 5 = this has already happened to my child
# Likert scale: 1 = extremely positive to 5 = extremely negative
Table 5. OLS Regression examining cluster differences in parents’ perceptions of student’s drinking and communication about alcohol

<table>
<thead>
<tr>
<th></th>
<th>Parents perceptions of student’s drinking</th>
<th>Number of topics summer</th>
<th>Number of topics current semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (vs. female)</td>
<td>-0.19</td>
<td>-1.37*</td>
<td>-0.39</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.62)</td>
<td>(0.70)</td>
</tr>
<tr>
<td>Age</td>
<td>.01</td>
<td>-0.03</td>
<td>-0.08</td>
</tr>
<tr>
<td></td>
<td>(.01)</td>
<td>(0.06)</td>
<td>(.06)</td>
</tr>
<tr>
<td>Male student (vs. female student)</td>
<td>0.85***</td>
<td>0.36</td>
<td>-1.24*</td>
</tr>
<tr>
<td></td>
<td>(.11)</td>
<td>(0.52)</td>
<td>(0.58)</td>
</tr>
<tr>
<td>Authoritative parenting</td>
<td>-0.20*</td>
<td>2.07***</td>
<td>1.34**</td>
</tr>
<tr>
<td></td>
<td>(.08)</td>
<td>(0.38)</td>
<td>(.43)</td>
</tr>
<tr>
<td>Clusters (vs. Cluster 2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cluster 1</td>
<td>2.42***</td>
<td>1.51</td>
<td>3.35***</td>
</tr>
<tr>
<td></td>
<td>(0.17)</td>
<td>(0.79)</td>
<td>(0.88)</td>
</tr>
<tr>
<td>Cluster 3</td>
<td>1.90***</td>
<td>0.35</td>
<td>2.54***</td>
</tr>
<tr>
<td></td>
<td>(.12)</td>
<td>(0.55)</td>
<td>(0.62)</td>
</tr>
<tr>
<td>Constant</td>
<td>1.00</td>
<td>5.29</td>
<td>2.72</td>
</tr>
<tr>
<td></td>
<td>(0.77)</td>
<td>(3.65)</td>
<td>(4.07)</td>
</tr>
<tr>
<td>R²</td>
<td>.335</td>
<td>.046</td>
<td>.044</td>
</tr>
<tr>
<td>F F(6, 832) = 71.439,</td>
<td></td>
<td>F(6, 818) = 7.515,</td>
<td>F(6, 818) = 7.317,</td>
</tr>
<tr>
<td>p = .000</td>
<td></td>
<td>p = .000</td>
<td>p = .000</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001
Table 6. Implications for messages based on cluster analysis results

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Intervention Messages/Components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cluster 1 (13.8%)</strong></td>
<td><strong>Objective:</strong> Engage parents in conversations about their descriptive and injunctive normative perceptions related to college students’ alcohol use</td>
</tr>
</tbody>
</table>
| Overestimating college students’ alcohol use | **Tactics:**  
• Have groups of parents discuss their perceptions and beliefs associated with college students’ alcohol use  
• Encourage parents’ to identify alternative social activities for college students to participate in that do not involve alcohol; have parents talk about these activities with their first-year student |

| **Cluster 2 (45.5%)**           | **Objective:** Messages should inform parents about the actual drinking behaviors on campus and continue to support the belief that parents’ communication about alcohol does impact students’ HED behaviors. |
| Underestimating university students’ alcohol use | **Examples:**  
• *The average university student on this campus consumes under the age of 21 consume almost 6 drinks when they socialize in settings with alcohol.*  
• *Communication matters. Talk with your college students about alcohol, they are listening.* |
|                                  | **Examples:**  
• *The average university student on this campus consumes under the age of 21 consume almost 6 drinks when they socialize in settings with alcohol.*  
• *Communication matters. Talk with your college students about alcohol, they are listening.* |

| **Cluster 3 (40.7%)**           | **Objective:** Messages should inform parents that communication about alcohol with their college student does impact the student’s HED drinking behaviors. |
| **Cluster 3 (40.7%)**           | **Examples:**  
• *What you say does matter. Talk to your college student about alcohol today, it will make a difference later.* |
|                                  | **Example:**  
• *What you say does matter. Talk to your college student about alcohol today, it will make a difference later.* |
CHAPTER 3
UNDERSTANDING PARENTS’ MOTIVATION TO COMMUNICATE WITH THEIR FIRST-YEAR COLLEGE STUDENT ABOUT ALCOHOL: A MODIFICATION AND EXTENSION OF THE THEORY OF NORMATIVE SOCIAL BEHAVIOR

Introduction

Alcohol use on college campuses remains a public health concern, and problematic alcohol use by college students has not changed over the past decade. On average, approximately 2/3 of college students have consumed alcohol within the last month and over 1/3 have participated in heavy episodic drinking (HED) within a two-week period (Johnston, O’Malley, Bachman, & Schulenberg, 2010). Not only do first-year students drink more alcohol than other college cohorts (Wechsler & Kuo, 2000), HED is particularly problematic for first-year college students (Hartzler & Fromme, 2003; Ichiyama et al., 2009). One approach that has been used to reduce HED among college students has been parent-based interventions (Ichiyama et al., 2009; Turrisi, Jaccard, Taki, Dunham, & Grimes, 2001).

During the first year of college, parents continue to have a strong influence on the drinking behaviors of their college-aged students (Abar & Turrisi, 2008; Patock-Peckham & Morgan-Lopez, 2006; Patock-Peckham & Morgan-Lopez, 2010) and parents communication about alcohol can be key in the prevention of unsafe drinking behaviors due to the fact that young adults are often seeking information and support about alcohol use from them (Miller-Day, 2008). Parents also have reported that they lack guidance in having alcohol-related discussions and may not be engaging in them as frequently as they should (Coleman & Carter, 2005; Stace & Roker, 2005). Additionally, research (Ryan,
Jorm, & Lubman, 2010) suggests parents’ attitudes and beliefs are related to college students’ drinking behaviors, and likely transmitted through parents’ communication about alcohol-related topics with their students (Cremeens, Usdan, Brock-Martin, Martin, & Watkins, 2008). Furthermore, it is important to note that in order for parents to be effective at preventing HED in their college students, they must have awareness of the normative perceptions related to HED among college students (Beck & Lockhart, 1992). Therefore, understanding how normative perceptions and parents’ attitudes and beliefs related to college student drinking influence parents’ communication about alcohol is important for informing future interventions. Moreover, little research has looked at when and how parents continue to communicate about alcohol with their college student (Ennett et al., 2001; Wheeler & Kennedy, 2009).

This study used an adaptation of the Theory of Normative Social Behavior to examine how intrapersonal and interpersonal factors moderate the relationship between parents’ descriptive norms related to university students’ alcohol use and communication about alcohol with their student. In this study, communication is being examined for content variables rather than simply whether or not they talked or the frequency of communication. For the purpose of this study, content refers to the topics covered in parents’ communication about alcohol with their college student, such as the negative consequences of drinking.

**Background**

Across college campuses in the United States, college students’ alcohol use remains a significant public health concern. College students consume alcohol more frequently compared to any other age group (Sarkar, Andreas, & de Faria, 2005). Past
research (Timmerman, Geller, Glindemann, & Fournier, 2003) suggests that over 40% of college students drink to become intoxicated and more than 20% do so frequently. In addition to this high rate of drinking, college students also participate in high levels of heavy episodic drinking (HED). HED is the consumption of 5 or more drinks in a sitting for men and 4 or more for women (Wechsler & Nelson, 2008) According to the Centers for Disease Control and Prevention (CDC, 2010), approximately 40% of college students report they have participated in HED in the past two weeks. This drinking behavior is associated with multiple negative health outcomes to college students and others on and around college campuses (Boyd, McCabe, & Morales, 2005; Courtney & Polich, 2008). College students who consume large amounts of alcohol are at an increased risk for experiencing negative health outcomes including unintentional injuries, violence, and death. Additionally, HED in particular is associated with unplanned and unsafe sexual activity, physical and sexual assault, other criminal activities, interpersonal problems, physical or cognitive impairment, and poor academic performance (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Lee, Kuo, & Lee, 2008). Further, “secondhand” effects of HED include students who have not been drinking being assaulted, insulted, experiencing unwanted sexual advances, having sleep interrupted and “baby-sitting” friends or roommates who have been drinking (Wechsler, 1996). Neighborhoods next to campuses with high rates of HED are more likely to experience noise, vandalism, and public intoxication (Wechsler, Lee, Kuo, Seibring, Nelson, & Lee, 2002). To combat the negative consequences associated with college students’ HED, intervention efforts across campuses in the US are abundant (Wechsler et al., 2002). One approach that is becoming more widespread is the use of parent-based interventions
providing parents with communication tips and information about college students
drinking that can be used with their college-bound adolescents (e.g., Cleveland, Lanza,
Ray, Turrisi, & Mallett, 2011; Ichiyama et al., 2009; Mallett et al., 2010; Testa, Hoffman,
Livingston, & Turrisi, 2010; Turrisi et al., 2001; Turrisi et al., 2009).

Role of Parents

In the past, there has traditionally been an (mis)assumption that parents no longer
impact their children’s behavior or decision-making once they leave for college.
However, research has shown some student-reported parenting behaviors are protective
factors for college students’ drinking behaviors (Abar, 2012; Borsari et al., 2007; Fairlie,
Wood, & Laird, 2012; LaBrie & Sessoms, 2012; Patock-Peckham, King, Morgan-Lopez,
Ulloa, & Filson-Moses, 2011; Turrisi & Ray, 2010; Wood, Read, Mitchell, & Brand,
2004; Yu, 2003). These parenting factors include parenting style (Abar, 2012), levels of
social support displayed (Mason & Windle, 2001) and parents’ own alcohol use (Yu,
2003). Specifically, this line of research (Wood et al., 2004) has shown that parental
monitoring and disapproval of HED was associated with fewer occurrences of HED
among their college students.

For parents to communicate with their college students about alcohol, they must
believe their students drink or are capable of drinking or engaging in risky drinking
behaviors. Research has shown that parents underestimate both their student’s alcohol use
and their intention to use alcohol (Deakin & Cohen, 1986; Shutt, Oswalt, & Cooper,
2006). Further, while parents have been found to recognize that college students can
experience negative consequences due to alcohol use, they often believe that their student
is not at risk for these consequences (Bogenschenider, Wu, Raffaelli, & Tsay, 1998; National Center on Addiction and Substance Abuse, 2007; Deakin & Cohen, 1986).

Additionally, it is important to consider that the current generation of college students has more involved parents than any preceding generation (Lum, 2006; Pizzolato & Hicklen, 2011). Parents of today’s college students are showing more interest in their student and gaining more information about their student’s day-to-day lives (Wartman & Savage, 2008). At the same time, college students are reporting that they frequently communicate with their parents (National Survey on Student Engagement, 2007). The content of this communication with family members, including parents, does include health related topics such as alcohol use (Baxter, Egbert, & Ho, 2008).

Parents can influence their college students’ behavior through communication of both societal and individual expectations of their drinking behaviors (Latendresse, Rose, Viken, Pulkkinen, Kaprio, & Dick, 2008). Further, in research with adolescents, parents’ communication with their children has been found to be key in the prevention of unsafe behaviors (Dittus, Jaccard, & Gordon, 1999). Additionally, parent-teen communication about alcohol may lead to parents transmitting drinking-related beliefs and attitudes that could reduce the probability of their student experiencing the negative consequences associated with HED in college (Turrisi, Wiersma, & Hughes, 2000). Finally, past research with first-year college students’ (Boyle & Boekeloo, 2009) has found that the number of negative consequences associated with alcohol use discussed with parents is related to the student’s perceived risk of negative consequences affiliated with drinking and their drinking behaviors. Therefore, it is important to understand how parents’ perceptions of their students’ alcohol use is related to their communication about alcohol,
in particular the number of topics discussed, with them. This study explores how parents’
normative perceptions regarding their students’ drinking impact their communication
about alcohol.

Theory of Normative Social Behavior

Social norms can greatly impact behavior and normative perceptions exist in a
variety of contexts and situations that individuals encounter on a daily basis. Studies have
demonstrated that parenting approaches and practices related to their children’s alcohol
use are influenced by external factors, including norms (King, Wagner, & Hedrick,
2002). In an attempt to explain how normative perceptions can influence behavior,
researchers (Bagozzi, Wong, Abe, & Bergami, 2000; Lapinski & Rimal, 2005) suggest
that the influence of a norm on behavior varies based on the setting where the behavior is
enacted. Some behaviors occur in private settings, where others occur in public, in the
presence of others. For this study, it is argued that parent communication with college
students occurs in a private setting. As a result, it is important to consider that different
normative perceptions (i.e., descriptive vs. injunctive) impact parents communication
about alcohol differently. Therefore, a modified version of Theory of Normative Social
Behavior (TNSB) was used as the framework for this study.

TNSB (Rimal & Real, 2005) proposes that individuals’ perceptions of what others
are doing impacts individuals’ behavior and that this relationship can be affected by a
variety of factors. Specifically, this focuses on descriptive norms, or the perceived
prevalence of others’ behaviors. In the conceptualization of this theory, descriptive
norms do not act alone (Rimal & Real, 2003; Rimal & Real, 2005; Rimal, 2008). Instead,
descriptive norms in conjunction with injunctive norms (one’s perception of what others
believe to be appropriate behavior; Cialdini, Reno, & Kallgren, 1990), outcome
expectations (belief that action will lead to benefits; Bandura, 1977), group identity
(psychological connection with reference group or social network; Rimal, 2008), and ego
involvement (extent to which an individual’s self-concept is associated with an issue;
Lapinski & Booster, 2000) have an interactive effect (i.e., function as moderators) on
behavior. While all these factors may exert a direct influence on behavior, the primary
purpose of injunctive norms, outcome expectations, group identity, and ego involvement
is to heighten the influence of descriptive norms on behaviors. For example, in the
context of this study, TNSB would suggest that parents who believe many college
students are participating in HED (descriptive norm) may be more likely to communicate
about alcohol with their college student if they also believe there is societal pressure for
college students to participate in HED or drinking (injunctive norm).

Past research using TNSB examining alcohol-related behaviors has focused on
college students’ use of alcohol and how their own normative perceptions impact this
individual’s health behavior (Real & Rimal, 2007; Rimal, 2008; Rimal & Real, 2005). In
this current study, perceptions of others’ behaviors will be used to predict communication
behaviors. Previous TNSB research has found that descriptive norms positively impact
college students’ alcohol-related behavior and behavioral intentions and injunctive norms
and outcome expectations moderate the relationship between descriptive norms and
alcohol-use intentions. Within this line of research, Rimal (2008) recognized the need to
test and identify additional moderators of the descriptive norm-behavior relationship.
Jang, Rimal, and Cho (2011) extended TNSB by examining how adolescents’ perceived
parental influences, such as monitoring and disapproval, moderated the relationship
between descriptive norms and Korean adolescents drinking behaviors and intentions, and found the relationship is mitigated by active parent involvement. This study seeks to continue to extend this line of research and modify this theory. In this study, a modification of TNSB will be used to examine how parents’ perceptions of college students drinking (normative perceptions) is related to their own communication (behavior) and how this relationship is impacted by injunctive norms related to college students’ alcohol use and outcome expectations related to their communication about alcohol. Further, this study seeks to extend TNSB by exploring if and how parents’ communication efficacy and perceptions of the severity and susceptibility related to the negative consequences of alcohol use for their college student moderate the relationship between descriptive norms and their communication (See Figure 4).
Figure 4. Study framework: Modification of the Theory of Normative Social Behavior

Injunctive Norms

Injunctive norms are an individual’s perception of what others consider appropriate behavior (Cialdini, Reno, & Kallgren, 1990). Injunctive norms can play a role in influencing behavior because failure to participate in a behavior may result in social sanctions (Rimal & Real, 2005). In this study, injunctive norms refer to parents’ perceptions of the appropriateness of college student drinking. TNSB (Rimal & Real, 2003; 2005) suggests that descriptive and injunctive norms have an interactive effect on behavior. As a result, the first hypothesis for this study is:
H1: Injunctive norms will moderate the relationship between descriptive norms and communication about alcohol-related topics. The magnitude of the association between descriptive norms and communication about alcohol-related topics will decrease as agreement with pro-drinking statements (injunctive norms) increase.

**Outcome Expectations**

Bandura (1977, 1986) proposes in social cognitive theory that behavior is partially driven by individuals’ outcome expectations, or their beliefs that actions will lead to the benefits that one seeks. In this study, outcome expectations refer to parents’ beliefs that talking about alcohol with their college student will prevent risky drinking behaviors, including HED. TNSB proposes that the relationship between descriptive norms and behavior is moderated by outcome expectations. Therefore, the second hypothesis is:

H2: Outcome expectations will moderate the relationship between descriptive norms and communication about alcohol-related topics. The strength of association between descriptive norms and communication about alcohol-related topics will increase as parents’ outcome expectations increase.

Three additional factors have been linked to parents’ communication with their adolescent and college-age children about alcohol. These include (1) their perceptions of efficacy associated with communication about alcohol (Bandura, 1977), (2) their perceptions of the severity of their college student’s drinking (both amount and consequences) (McMahon et al., 2007), and (3) their perceptions of their student’s risk of experiencing negative consequences associated with alcohol (Bylund, Imes, & Baxter, 2005). In addition to injunctive norms and outcome expectations, which have already
been identified as moderators of the relationship between descriptive norms and behavior, these three factors were also explored as possible moderators of the relationship between descriptive norms and behavior, in this case communication to modify and possibly extend TNSB. The final three hypotheses are:

H3: Parents’ efficacy related to communication about alcohol will moderate the relationship between descriptive norms and communication about alcohol-related topics. As parents’ communication efficacy increases, the impact of descriptive norms on communication about alcohol-related topics will increase.

H4: Parents’ perceptions of severity of their college student’s drinking will moderate the relationship between descriptive norms and communication about alcohol-related topics. As parents’ perceptions of severity increases, the impact of descriptive norms on communication about alcohol-related topics will increase.

H5: Parents’ perceptions of their student’s risk of experiencing alcohol-related harm will moderate the relationship between descriptive norms and communication about alcohol-related topics. As parents’ perceptions of their student’s susceptibility increases, the impact of descriptive norms on communication about alcohol-related topics will increase.

**Method**

This study was conducted among parents of incoming college students over a three-year period. First-year students drink more alcohol than other college cohorts (Wechsler & Kuo, 2000) and during the first four to six weeks of the semester first-year students are forming their drinking behaviors and patterns (Del Boca, Darkes,
Greenbaum, & Goldman, 2004; Hunter & Gahagan, 2003). Therefore, understanding how parents can be used to reduce HED among first year students is particularly important.

From 2010 through 2012, three independent web surveys were administered to a random sample of parents at the University of Iowa. Information from first-year students’ application and registration information from the Office of Admissions was used to identify parents. This information contained an email for one primary contact (parent or guardian). In all three years, the sampling frame included 2,000 parent emails. In the November following their first-year student’s college enrollment, these parents were invited through email from the Office of Admissions to take a survey on their communication with their college student about alcohol. A follow-up reminder email was sent two weeks after the initial email invitation. This data was collected in conjunction with the evaluation of the University’s parent-based intervention conducted during summer orientations on campus each year.

Prior to the execution of this study, the web survey was reviewed and approved by the University of Iowa’s Institutional Review Board. No incentives were provided to parents who participated in this study. The web survey used 42 items to assess parents’ perceptions of their college student’s drinking, their communication about alcohol with their college student, their attitudes toward college student drinking, and their perceptions of University of Iowa students’ drinking. In 2010 (N = 420) and 2012 (N = 433), the response rates were approximately 21%. The response rate in 2011 was 26.7% (N = 534). The data for all three years was collapsed into one data set because no differences were found in key variables, including parenting style, content of communication, and socio-demographic items.
Measures

Parents completed a set of self-report measures. In addition to assessing socio-demographic and control variables, parents completed items on descriptive norms, injunctive norms, outcome expectations, efficacy, perceptions of severity of their college student’s drinking, perceptions of their student’s risk of experiencing harm, and content of communication.

Descriptive norms

Four questions asked participants to estimate how many drinks his/her son/daughter’s male friends, female friends, typical male University of Iowa students, and typical female University of Iowa students consume when they socialize in a setting with alcohol at the University of Iowa (Campo, Brossard, Frazer, Marchell, Lewis, & Talbot, 2003). Parents were asked to consider that a drink was a bottle of beer, a shot glass of liquor, or a mixed drink. Four separate continuous descriptive norms items were created for male friends, female friends, typical male University of Iowa students, and typical female University of Iowa students by standardizing the measures mentioned above.

Injunctive Norms

Parents’ perceptions of the societal appropriateness of college student drinking were assessed using two items: “It is okay for my student to drink because he/she is 18 or older” and “It is okay for my student to drink at college.” Items were measured on a 1 (strongly disagree) to 5 (strongly agree) Likert scale. One continuous item was created by averaging the items (α = .86).
Outcome Expectations

Parents’ belief that communicating about alcohol will result in positive outcomes was evaluated using two items: “Talking about drinking will prevent my student from binge drinking” and “Why bother talking to my student about alcohol use—he/she won’t listen anyway.” Items were measured using a 1 (strongly disagree) to 5 (strongly agree) Likert scale. The second item was reverse coded to create an average for one continuous variable ($\alpha = .72$).

Communication Efficacy

Parents’ confidence to communicate their college student about alcohol was assessed using the item “I am confident that I can talk to my student about drinking.” Participants responded to this item on a Likert scale, 1 (strongly disagree) to 5 (strongly agree).

Parents’ Perceptions of Severity of College Student’s Drinking

To assess parents’ perceptions of how negative or positive drinking-related outcomes would be, they were asked to respond to 14 possible alcohol-related outcomes (Abar et al., 2009; Turrisi et al., 2007) on a Likert scale, 1 (extremely negative) to 5 (extremely positive). Alcohol-related outcomes included events/consequences such as driving a car after drinking to getting into physical fits to neglecting to use birth control after drinking. For analysis, the items were reverse coded and the average of all 14 items was used ($\alpha = .92$).
Parents’ Perceptions of Their Student’s Risk of Experiencing Alcohol-Related Harm (Susceptibility)

To assess parents’ perceptions that their student will experience negative consequences associated with alcohol use (susceptibility), they were asked to assess the likelihood their student would experience 14 possible alcohol-related outcomes (Abar et al., 2009; Turrisi et al., 2007) on a Likert Scale, 1 (not at all likely) to 5 (this has already happened to my child). The alcohol-related outcomes are the same as those used to assess parents’ perceptions of college student’s drinking. The average of all 14 items was used in the analysis ($\alpha = .89$).

Communication about Alcohol-Related Topics

To assess communication about alcohol, parents were asked to indicate what topics they had talked to their student about during the summer prior to college enrollment and during the current academic semester (Abar et al., 2009; Turrisi et al., 2007). The 27 topics were adopted from the Alcohol-Based Parent-Teen Communication Scale (Boyle & Boekeloo, 2009). For analysis, one continuous variable was created to assess the total number of topics talked about during the summer after high school graduation and during the current academic semester.

Control Variables

Control variables that were accounted for include parents’ sex, age, number of children living in the household, relationship status, student’s sex, and parents’ perceptions of student’s alcohol use. Additionally, since parenting style has been found to influence children’s drinking behaviors (Ennett et al., 2001), it was also included as a control variable. The parenting items evaluated the extent to which the participants are
classified as an “authoritative” parent. Nine previously identified items (Stephenson, Quick, Atkinson, & Tschida, 2005) that assess authoritative parenting style will be used. The average score of all 9 items were used in the analysis ($\alpha = .88$).

Analysis Plan

Data was cleaned and examined for outliers and cases with missing data were removed prior to analysis, leaving 890 cases. Descriptive data analyses were completed first. The means and standard deviations for continuous variables and the frequencies for categorical variables were calculated. To further explore variables, bivariate analysis using t-tests were conducted to look at differences in mothers and fathers, parents with sons and daughters, content of communication, and perceptions of college student drinking. The Pearson correlations among the variables of interest for this study were also calculated.

Hierarchical regression was conducted to examine the relationships between multiple variables and test this study’s hypotheses. Using hierarchical regression allowed for the evaluation of the relationship between descriptive norms and content of communication when controlling for variables such as parenting style, sex of parent, and sex of student. For each hypothesis, one regression equation predicting the total number of alcohol-related topics discussed was analyzed. Consistent with past research that tests TNSB (Rimal, 2008; Rimal & Real, 2005), control variables were entered in the first step set, descriptive norms added in the second step, the potential moderator in the third step, and the interaction term was added in the fourth step. To determine whether or not the factors identified in the hypotheses moderate the relationship between descriptive norms and content of communication, interaction terms (i.e., descriptive norm x communication
efficacy) were computed and entered into the regression equations. Independent and dependent variables were standardized and centered on their mean and beta coefficients are reported below (Aiken & West, 1991). Below are the regression equations, excluding the control variables:

1. \( Y_{ContentofCommunication} = b_1 X_{DescriptiveNorms} + b_2 X_{Injunctive Norms} + b_3 X_{DescriptiveNorms} \times X_{Injunctive Norms} + b_0 \)

2. \( Y_{ContentofCommunication} = b_1 X_{DescriptiveNorms} + b_2 X_{OutcomeExpectations} + b_3 X_{DescriptiveNorms} \times X_{OutcomeExpectations} + b_0 \)

3. \( Y_{ContentofCommunication} = b_1 X_{DescriptiveNorms} + b_2 X_{CommunicationEfficacy} + b_3 X_{DescriptiveNorms} \times X_{CommunicationEfficacy} + b_0 \)

4. \( Y_{ContentofCommunication} = b_1 X_{DescriptiveNorms} + b_2 X_{Severity} + b_3 X_{DescriptiveNorms} \times X_{Severity} + b_0 \)

5. \( Y_{ContentofCommunication} = b_1 X_{DescriptiveNorms} + b_2 X_{Susceptibility} + b_3 X_{DescriptiveNorms} \times X_{Susceptibility} + b_0 \)

To further understand the nature of significant interaction variables, analyses recommended by Aiken and West (1991) determine the slope and y-intercept of simple regression lines were utilized. When there was a significant interaction, simple regression lines depicting the relationship between descriptive norms and the content of parents’ communication for all levels of the moderating variable were depicted graphically.

The possibility existed that parents were exposed to two or more doses of the parent handbook intervention if they had multiple children start as first year students at the University in the last few years. Therefore, the above mentioned analysis was conducted twice. First, all parents will be included the regression analyses. In order to
check for this effect, parents who indicate they have another student enrolled on campus in addition to their first year student were excluded in the second set of analyses. No differences in the coefficients or R² were noted, so all parents were included in one single regression analysis.

**Results**

**Descriptive Statistics and Preliminary Analyses**

A description of the participants in this study is provided in Table 1 in Chapter 2. The majority of parents who participated in this study were female (74.1%) and married (88.5%) with an average age of 49.48 years (SD = 4.86). On average, parents had 2 children (SD = 2.57) living at home and the majority (82.2%) had not sent another child to the University of Iowa. A little more than half of parent participants had sent a daughter (54.7%) to the University. The overwhelming majority (95.2%) of parents had at least some college education and more than 80.6% reported a household income over $75,000. Overall, parents scored high on the authoritative parenting (M = 6.18, SD = 0.68).

Over the course of the summer and current semester, on average, parents discussed 24.78 alcohol-related topics with their college student (SD = 12.07). Mothers covered more total topics (M = 25.67, SD = 11.78) compared to fathers (M = 22.28, SD = 12.61; t = 3.569, df = 889, p = .000). On average, parents talked about 16.74 (SD = 7.49) alcohol-related topics in the summer before their student enrolled in college compared to 8.04(SD = 8.36) topics during the current semester. The difference in the number of topics talked about during the summer and current semester was statistically significant (t = 28.34, df = 889, p = .001). During the summer, mothers on average talked about
statistically more alcohol-related topics (M = 17.29, SD = 7.28) compared to fathers (M = 15.16, SD = 7.85; t = 3.62, df, 889, p = .000). A similar trend held for the current semester, on average mothers reported discussing 8.38 (SD = 8.38) topics with their student compared to 7.12 (SD = 8.24) topics for fathers (t = 2.14, df = 889, p = .047).

Parents of sons and daughters reported no differences in the amount of topics discussed during the summer prior to college (M = 16.74, SD = 7.49). However, parents of daughters indicated they discussed more alcohol-related topics during the current semester (M = 8.67, SD = 8.69) compared to parents of sons (M = 7.23, SD = 7.84; t = 2.48, df = 889, p = .013).

On average, parents reported their student consumed 1.58 (SD = 1.92) drinks when s/he socialized in settings with alcohol. This was significantly less than the amount they perceived their students’ male friends (M = 3.38, SD = 2.94; t = -22.80, df = 889, p = .000) and female friends (M = 2.39, SD = 2.09; t = -13.03, df = 889, p = .000) consume. Further, it was also significantly less than the average amount they perceived typical male (M = 5.18, SD = 2.80; t = -37.39, df = 889, p = .000) and typical female (M = 4.01, SD = 2.27; t = -26.87, df = 889, p = .000) students at the University of Iowa consume. Overall, parents seemed to disagree with the injunctive norm statements that it is okay for college students to drink because they are 18 or older and at college (M = 1.96, SD = 0.91) and agree that talking about alcohol with their student can prevent drinking behaviors and HED among their college student (M = 3.93, SD = 0.71). Parents reported high levels of efficacy in their ability to communicate with their college student about alcohol (M = 4.37, SD = 1.09). Finally, while parents perceived the consequences associated with their student’s drinking to be severe (M = 4.74, SD = 0.43), they did not
perceive their student to be at risk, or susceptible, to these consequences (M = 1.30, SD = 0.42).

Differences in perceptions of their own student’s drinking and perceptions of their own student’s susceptibility did exist for parents of male and female students. On average, parents of female students thought their daughter consumed 1.17 (SD = 1.57) drinks when socializing in a setting with alcohol, compared to 1.96 (SD = 2.12) drinks for parents of male college students (t = -6.92, df = 889, p = .000). Further, parents of male students believed their son was at slightly more risk to experience the negative consequences associated with alcohol use (M = 1.36, SD = 0.43) compared to parents of female students (M = 1.27, SD = 0.42; t = -3.84, df = 889, p = .000). A significant difference in perceptions of severity did not exist for parents of male and female students.

A correlation table for all variables of interest is presented in Table 7. The results for the regression models used to test the hypotheses are in Tables 8 through 12. All regression models were evaluated using sex of the parent, age of the parent, number of children living in the household, sex of the student, authoritative parenting, and parents’ perceptions of student’s drinking in the first block of the regression model. These variables accounted for very little of variance explained across all models. However, across all models, authoritative parenting remained positively, and significantly associated with communication about alcohol-related topics; parents with higher levels of authoritative parenting discussed more alcohol-related topics with their college students when holding all else constant.

For all regression models, the second block in the regression equations included descriptive norms related to parents’ perceptions of their student’s male friends, female
friends, typical male students at the University of Iowa, and typical female students at the University of Iowa’s alcohol use in settings where they socialized with alcohol. Across all models, male friends’ descriptive norms remained significantly and positively associated with parents’ communication about alcohol-related topics. Normative perceptions associated with female friends, and with typical male and female students at the University of Iowa were not significantly associated with parents’ communication about alcohol-related topics.

Test of Hypotheses

Effect of Injunctive Norms

The main effect of injunctive norms on communication about alcohol-related topics was significant ($\beta = -.160, p = .000$). There was a significant interaction between injunctive norms and parents’ perceptions of their student’s male friends’ alcohol use on communication about alcohol-related topics ($\beta = -.101, p = .042$). Therefore, the effect of parents’ perceptions of their student’s male friends’ alcohol use in settings where they socialize with alcohol is not uniform across the levels of their perceptions of injunctive norms related to college students’ alcohol use (See Figure 5). The more a parent agrees that it is acceptable for college students to use alcohol, the impact of his/her perceptions of his/her college student’s male friends’ alcohol use on communication about alcohol-related topics decreases. This is particularly evident, when examining the relationship between descriptive norms and parents’ communication for parents who strongly agree it is ok for his or her first-year student to drink, where descriptive norms go from being positively associated with communication to negatively associated with the number of topics discussed. The magnitude of the association between descriptive norms and
communication decreased as agreement with pro-drinking statements (injunctive norms) increased. Hypothesis 1 was supported.

Figure 5. Predicted estimates from simple linear regression models depicted for each response for the injunctive norms variable

Effect of Outcome Expectations

The main effect of communication outcome expectations was significant ($\beta = .106, p = .003$). There was also a significant interaction between communication outcome expectations and parents’ perceptions of their student’s male friends’ alcohol use on parents’ communication about alcohol related topics ($\beta = .061, p = .032$). The effect of parents’ perceptions of their student’s male friends’ alcohol use is not consistent across
the levels of their outcome expectations related to communication about alcohol (See Figure 6). The more likely a parent is to believe that talking with his/her student about alcohol will impact the student’s drinking behaviors, the more impact his/her perceptions of his/her student’s male friends’ alcohol use has on alcohol-related topics. The strength of association between descriptive norms and communication about alcohol-related topics increased as parents’ outcome expectations increase. Hypothesis 2 was supported.

![Outcome Expectations - Interaction Effect](image)

**Figure 6.** Predicted estimates from simple linear regression models depicted for each response for the outcome expectations variable

**Effect of Communication Efficacy**

The main effect of communication efficacy was not significant ($\beta = -0.040$, $p = 0.967$). As a result, the interaction term was not tested for this model. Hypothesis 3 was
not supported. This study does not provide support for the hypothesis that the relationship between descriptive norms and communication about alcohol-related topics is moderated by communication efficacy.

Effect of Severity

The main effect of severity was not significant (β = .020, p = .532). Therefore, the interaction term was not tested for this model. Hypothesis 4 was not supported. This study does not provide support for the hypothesis that the relationship between descriptive norms and communication about alcohol-related topics is moderated by parents’ perceptions of severity of their college student’s drinking.

Effect of Susceptibility

The main effect of susceptibility was significant (β = .102, p = .024). There was also a significant interaction between parents’ perceptions of susceptibility and parents’ perceptions of their student’s male friends’ alcohol use on parents’ communication about alcohol related topics (β = .101, p = .038). As parents’ perceptions of susceptibility increases, the impact of parents’ perceptions of male friends’ alcohol use also increases (See Figure 7), with descriptive norms having the most impact for parents who indicated they perceived their student to be moderately likely to be at risk for some of the negative consequences associated with alcohol use. Hypothesis 5 was supported.
Figure 7. Predicted estimates from simple linear regression models depicted for each response for the susceptibility variable.

**Discussion**

The primary purpose of this study was to examine the relationship between parents’ normative perceptions related to college students’ drinking behaviors and their communication with their first-year college student about alcohol-related topics using an adaptation of the theory of normative social behavior (TNSB). Results revealed that parents’ perceptions of their college student’s male friends drinking behaviors were significantly and positively related to their communication about alcohol-related topics. The identification of moderators of this relationship, including injunctive norms, communication outcome expectations, and parents’ perceptions of their college student’s susceptibility to the negative consequences associated with alcohol use continue to support the idea that the relationship between descriptive norms and behavior is complex (Rimal & Real, 2005).
Consistent with past research (Shutt et al., 2006), this study suggests that parents are likely underestimating their first-year student’s alcohol use. When asked about their student’s personal use in settings in which s/he socialized with alcohol, on average, parents reported their student consumes less than two drinks. However, data suggests that the average student under the age of 21 at the University of Iowa consumed 5.92 drinks the last time s/he socialized in a setting with alcohol (American College Health Association, 2012). Additionally, while parents in this study did find the consequences associated with alcohol use to be severe, they did not perceive their student to be at risk for experiencing any of these consequences. However, at this university drinking and negative outcomes are very common. For example, almost 50% of students on this campus have done something they later regretted or forgot where s/he was or what s/he did due to alcohol use (National College Health Assessment, 2012). Further, almost one-fourth of students had had unprotected sex, and approximately one-fifth had injured themselves because of alcohol use. Future parent-based interventions focusing on HED should address these misperceptions parents maintain.

The results also show that parents with higher levels of authoritative parenting discussed more alcohol-related topics with their first-year college student. This is consistent with past research (Stephenson, Quick, Atkinson, & Tschida, 2005) on drug-prevention and parenting style that revealed authoritative parenting was associated with parents’ discussion of strategies to avoid drugs, monitoring daily activities, and knowing children’s plans well. However, it may be the first study to show the continued importance of parenting style on parents’ communication about alcohol with their college students. In light of this current study and past research suggesting parenting style
influences children’s alcohol use patterns, it is essential that future parent-based interventions take into account parenting style.

Extension of TNSB

While past research using TNSB has focused specifically on alcohol-use behaviors and intentions of adolescents and college students (Jang, Rimal, & Cho, 2011; Rimal, 2008; Rimal & Real, 2005), this study successfully applied a modification of this theoretical framework to predict parents’ breadth of communication about alcohol-related topics with their college students.

Theoretically, proximal comparison groups are thought to have a stronger influence on behavior (Festinger, 1954; Latane, 1981). Past research has shown that college students’ perceptions of close friends’ or best friends’ drinking behaviors are better predictors of their own alcohol behaviors (Baer, Stacy, & Larimer, 1991). In this case, even when considering parents of male and female students, proximal normative perceptions, specifically parents’ perceptions related to their student’s male friends’ drinking behaviors were positively and significantly associated with communication about alcohol. This finding is similar to a research conducted by Campo and colleagues (2003) which found that both male and female college students’ drinking behaviors were more strongly associated with their perceptions of male friends’ alcohol use. Future research testing TNSB may also want to consider differentiating between proximal and distal norms. Additionally, future interventions need to take into account that parents’ perceptions of males’ drinking behavior impact their communication with their student, regardless of sex.
Rimal (2008) called for the identification of additional moderators of the relationship between descriptive norms and behavior. In addition to injunctive norms and outcome expectations, parents’ perceptions of their college student’s susceptibility to negative consequences associated with alcohol use also acted as a moderator for this relationship. Communication efficacy and severity of alcohol-related consequences were not significantly related to parents’ communication, and therefore, no interaction was tested. In both instances, this may be due to that fact that there was very little variance in parents’ reported communication efficacy or perceptions of severity.

Public Health Implications

This study has important implication for interventions aimed at reducing HED among first-year college students, particularly parent-based interventions. Involving parents in substance use and abuse prevention programs has been challenging in the past (Lochman & van den Steenhoven, 2002). Research related to college students’ drinking suggests that parents maintain a level of influence even over their college student’s behavior. Understanding the motivations behind parenting behaviors that enhance their college student’s health, in this case parents’ communication about alcohol is essential to successful prevention efforts. In this case, TNSB was used to understand parents’ motivation for communicating with their first-year college student about alcohol-related topics.

Current parent-based approaches focus on parent communication that arises from parents’ attitudes and beliefs associated with college student drinking (Ichiyama et al., 2009; Turrisi et al., 2001; Turrisi et al., 2009; Wood et al., 2010). However, the current study and previous research (LaBrie et al., 2008, 2010) suggest that normative
reeducation with existing parent-based intervention materials may further enhance the ability of these interventions to reduce HED among first-year college students. Additionally, in the context of parents’ communication about alcohol, these interventions should focus on injunctive norms and parents’ communication outcome expectations. Current research conducted by Mollen and colleagues (2013) suggests that injunctive norms can directly influence a person to participate in “intervening behaviors,” which could be extended to parents’ communication about alcohol with their college student, and may be more easily communicated to parents through avenues such as parent associations, a university web section dedicated to parents or other methods. Finally, parents must be informed about their student’s true susceptibility to the negative consequences associated with alcohol use.

Limitations

This study is not without limitations. First, a primary limitation of this study is its cross-sectional design. Due to the nature of this study, it cannot be determined that normative perceptions preceded parents’ communication about alcohol-related topics. This communication may impact their normative perceptions. Another limitation relates to its generalizability. In this study, our participants had students enrolled at the University of Iowa, a large Midwestern University with limited racial and ethnic diversity, and were mostly white, married, females with at least some college education and household incomes over $75,000. However, this sample may be at higher risk and an appropriate target for interventions because white students and students from the Midwest consume more alcohol and experience more negative consequences as a result compared to other college students (Wechsler et al., 2002). Future research with more
racial and ethnic diversity and varied education levels, particularly parents of first-generation, first-year college students, should explore if the relationship between descriptive norms and parents communication is impacted by injunctive norms, outcome expectations, and perceptions of susceptibility in the same way. It is also likely that parents who are more involved and feel invested in their college students' lives participated in this study. However, since the participants in this study were underestimating college student drinking and the likelihood of the consequences associated with college students' alcohol use, it is likely similar relationships between variables would extend to parents who are less involved.

The response rate for this study was also low. However, this is consistent with other web surveys and surveys that do not utilize incentives (Manzo & Burke, 2012; Cook, Heath, & Thompson, 2000; Kittleson, 1997; Shih & Fan, 2008). Additionally, response rates for all surveys have dramatically decreased over the past 20 years (Curtin, Presser, & Singer, 2005).

Finally, the overall variance accounted for by the models analyzed in this study was low, suggesting there were variables that we could not account for that also contribute to the topics parents have discussed with their first-year college student. This reflects the fact that there are other potential predictors that were not and could not be included in the models, such as parents expectancies about the benefits and costs associated with alcohol use and their own and family history related to alcohol.

**Conclusion**

An adaptation of the theory of normative social behavior was tested in this study to explore how the relationship between parents’ normative perceptions related to college
students’ alcohol use and their communication about alcohol-related topics was impacted by additional variables. Injunctive norms, outcome expectations, and parents’ perceptions of their student’s susceptibility to the negative consequences associated with alcohol use were all predictors of communication about alcohol-related topics, but also moderators of the relationship between descriptive norms and communication. Findings indicate that perceptions of susceptibility could be added as a moderator to this theory. Additionally, these findings suggest that parent-based interventions to reduce HED among college students could use constructs from TNSB to inform norms-based approaches.
Table 7. Correlation table for all variables included in the regression analyses (N = 890)

<table>
<thead>
<tr>
<th></th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
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</thead>
<tbody>
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<td>1.</td>
<td>.182***</td>
<td>.156***</td>
<td>.152***</td>
<td>.148***</td>
<td>-.127***</td>
<td>.109**</td>
<td>-.020</td>
<td>.031</td>
<td>.137***</td>
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<td>.540***</td>
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<td>.244***</td>
<td>-.161***</td>
<td>-.054</td>
<td>-.060</td>
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<td>-.047</td>
<td>-.066</td>
<td>.469***</td>
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</tr>
<tr>
<td>4.</td>
<td>Typical male University of Iowa undergraduate students</td>
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<td>-.014</td>
<td>.036</td>
<td>.027</td>
<td>.181***</td>
<td></td>
<td></td>
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<tr>
<td>5.</td>
<td>Typical female University of Iowa undergraduate students</td>
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<td>-.032</td>
<td>.026</td>
<td>.015</td>
<td>.130***</td>
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<td>6.</td>
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<td>-.058</td>
<td>-.085*</td>
<td>.214***</td>
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<td>7.</td>
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<td>-.237***</td>
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<tr>
<td>8.</td>
<td>Communication efficacy</td>
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<td>-.128***</td>
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<td>9.</td>
<td>Severity</td>
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<td></td>
</tr>
<tr>
<td>10.</td>
<td>Susceptibility</td>
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<td></td>
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*p < .05, **p < .01, ***p < .001
Table 8. Results of regression analyses examining injunctive norms moderation

<table>
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<tr>
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<th>M2</th>
<th>M3</th>
<th>M4</th>
</tr>
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<tbody>
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<td>Male (vs. female)</td>
<td>-.001</td>
<td>-.012</td>
<td>-.008</td>
<td>-.008</td>
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<tr>
<td>Age</td>
<td>-.062</td>
<td>-.051</td>
<td>-.051</td>
<td>-.052</td>
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<tr>
<td>Number of children living in household</td>
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<td>.019</td>
<td>.009</td>
<td>.009</td>
</tr>
<tr>
<td>Male first-year student (vs. female)</td>
<td>-.069</td>
<td>-.038</td>
<td>-.037</td>
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<tr>
<td>Authoritative parenting</td>
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<td>.189***</td>
<td>.189***</td>
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<tr>
<td>Parents’ perceptions of student’s drinking</td>
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<td>.044</td>
<td>.095*</td>
<td>.101*</td>
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<tr>
<td>Parents’ perceptions of student’s male friends’ alcohol use</td>
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<td>.161*</td>
<td>.148*</td>
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<tr>
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<td>-.021</td>
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<tr>
<td>Parents’ perceptions of typical male U of I undergraduate students’ alcohol use</td>
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<td>-.012</td>
<td>-.010</td>
<td></td>
</tr>
<tr>
<td>Parents’ perceptions of typical female U of I undergraduate students’ alcohol use</td>
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<td>.090</td>
<td>.091</td>
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</tr>
<tr>
<td>Injunctive norms</td>
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<td>-.160***</td>
<td>-.157***</td>
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<tr>
<td>Male friends x injunctive norms</td>
<td></td>
<td></td>
<td>-.101*</td>
<td></td>
</tr>
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</table>

F       df = 6, 783   df = 10, 779   df = 11, 778   df = 12, 777
R²      .068          .090          .113          .124
ΔR²     .011***       .023***       .011***

* p < .05, **p < .01, ***p < .001
Table 9. Results of regression analyses examining outcome expectations moderation

<table>
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<tr>
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<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
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</thead>
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<td>Male (vs. female)</td>
<td>-.001</td>
<td>-.012</td>
<td>-.015</td>
<td>-.013</td>
</tr>
<tr>
<td>Age</td>
<td>-.062</td>
<td>-.051</td>
<td>-.045</td>
<td>-.046</td>
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<tr>
<td>Number of children living in household</td>
<td>.022</td>
<td>.019</td>
<td>.015</td>
<td>.015</td>
</tr>
<tr>
<td>Male first-year student (vs. female)</td>
<td>-.069</td>
<td>-.038</td>
<td>-.041</td>
<td>-.038</td>
</tr>
<tr>
<td>Authoritative parenting</td>
<td>.206***</td>
<td>.202***</td>
<td>.186***</td>
<td>.186***</td>
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<tr>
<td>Parents’ perceptions of student’s drinking</td>
<td>.149***</td>
<td>.044</td>
<td>.066</td>
<td>.051</td>
</tr>
<tr>
<td>Parents’ perceptions of student’s male friends’ alcohol use</td>
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<td>.168*</td>
<td>.183**</td>
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<tr>
<td>Parents’ perceptions of student’s female friends’ alcohol use</td>
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<td>-.031</td>
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<td>Parents’ perceptions of typical male U of I undergraduate students’ alcohol use</td>
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<td>Parents’ perceptions of typical female U of I undergraduate students’ alcohol use</td>
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<td>Outcome expectations</td>
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<td>.104**</td>
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<tr>
<td>Male friends x outcome expectations</td>
<td></td>
<td></td>
<td>.061*</td>
<td></td>
</tr>
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</table>

F      | 9.534*** | 7.746*** | 7.917*** | 7.535*** |
| df = 6, 783 | df = 10, 779 | df = 11, 778 | df = 12, 777 |
R²     | .068     | .090     | .101     | .110     |
ΔR²    | .022***  | .011**   | .009*    |          |

* p < .05, ** p < .01, *** p < .001
Table 10. Results of regression analyses examining communication efficacy moderation

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
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</thead>
<tbody>
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<td>Male (vs. female)</td>
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<td>-.012</td>
</tr>
<tr>
<td>Age</td>
<td>-.062</td>
<td>-.052</td>
<td>-.052</td>
</tr>
<tr>
<td>Number of children living in household</td>
<td>.022</td>
<td>.019</td>
<td>.018</td>
</tr>
<tr>
<td>Male first-year student (vs. female)</td>
<td>-.069</td>
<td>-.038</td>
<td>-.037</td>
</tr>
<tr>
<td>Authoritative parenting</td>
<td>.206***</td>
<td>.201***</td>
<td>.206***</td>
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<tr>
<td>Parents’ perceptions of student’s drinking</td>
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<td>.044</td>
<td>.039</td>
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<td>Parents’ perceptions of student’s <strong>male friends</strong>’ alcohol use</td>
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<td>Parents’ perceptions of student’s <strong>female friends</strong>’ alcohol use</td>
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<td>-.030</td>
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<td>Parents’ perceptions of <strong>typical female U of I undergraduate students</strong>’ alcohol use</td>
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<tr>
<td>Communication efficacy</td>
<td></td>
<td>-.040</td>
<td></td>
</tr>
</tbody>
</table>

F    | 9.491***    | 7.174***    | 6.632***  |
R²   | .068        | .090        | .092      |
ΔR²  | .022**      | .002        |

* p < .05, **p < .01, ***p < .001
Table 11. Results of regression analyses examining perceptions of severity moderation

<table>
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</thead>
<tbody>
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<td>-.014</td>
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<td>Age</td>
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<td>Number of children living in household</td>
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<td>.017</td>
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<td>.197***</td>
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<td>Parents’ perceptions of student’s drinking</td>
<td>.152***</td>
<td>.045</td>
<td>.044</td>
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<td>Parents’ perceptions of student’s <strong>male friends</strong>’ alcohol use</td>
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<tr>
<td>Parents’ perceptions of student’s <strong>female friends</strong>’ alcohol use</td>
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<td>-.005</td>
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<tr>
<td>Parents’ perceptions of <strong>typical male U of I undergraduate students</strong>’ alcohol use</td>
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<td>-.004</td>
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<td>Parents’ perceptions of <strong>typical female U of I undergraduate students</strong>’ alcohol use</td>
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<td>.074</td>
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<tr>
<td>Severity</td>
<td></td>
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</table>

| F          | 8.882*** | 7.032*** | 6.423*** |
| df = 6, 734| df = 10, 730| df = 11, 729|
| R²         | .068     | .090     | .090     |
| ΔR²        | .022**   | .000     |

* p < .05, **p < .01, ***p < .001
Table 12. Results of regression analyses examining perceptions of susceptibility moderation

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<th>M3</th>
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<td>.046</td>
<td>.050</td>
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<td>-.024</td>
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<td>female)</td>
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<td>male friends’ alcohol use</td>
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<td>.185**</td>
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<td>.009**</td>
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* p < .05, **p < .01, ***p < .001
CHAPTER 4

A QUALITATIVE EXAMINATION OF PARENTS’ COMMUNICATION WITH THEIR FIRST-YEAR COLLEGE STUDENT ABOUT ALCOHOL: AN APPLICATION OF THE MODEL OF FAMILY DECISION MAKING

Introduction

Parental involvement in college students’ decision-making has been a recent focus of health research (e.g., Abar, 2012; Wheeler & Kennedy, 2009). Savage (2006) and Coburn (2006) have suggested that parents play a large role in the current generation of students’ college experience. Parents provide support and impact their student’s life across academic, social, emotional, financial, and health domains (American College Health Assessment, 2005; Lehr, Diiorio, Dudly, & Lipana, 2000; Wintre & Yaffe, 2000). From the students’ perspective, research also suggests that this generation of college students continue to rely heavily on their parents for support, even as they enter the college environment (Howe & Strauss, 2000). Additionally, the vast majority of college students have reported talking with their parents at least two to three times a week, while approximately one-third have indicated they talk to their parents daily (National Survey on Student Engagement; Rainey, 2006). Furthermore, when college students are talking about health in interpersonal contexts, the majority of time parents and other family members are one of the most frequent interaction partners (Baxter, Egbert, & Ho, 2008). One health behavior that parents’ communication has been shown to be a protective factor for is heavy episodic drinking. The purpose of this current study is to provide a
contextual understanding of parent-student communication about alcohol from the parents’ perspective.

In the United States, almost two-thirds of college students consume alcohol over a 30-day period, and more than one-third engage in heavy episodic drinking (HED), defined as consuming five or more consecutive drinks for men, four or more for women, at one occasion in the last two week period (Johnston, O’Malley, Bachman, & Schulenberg, 2010). This significant public health concern has changed little over the past decade (Hingson, Zha, & Weitzman, 2009; Johnston et al., 2010: Task Force on College Student Drinking, The National Advisory Council on Alcohol Abuse & Alcoholism, 2002). HED is particularly problematic for first-year students; up to 20% of students in this cohort consume alcohol at levels two or more times the HED threshold (White, Kraus, & Swartzwelder, 2006), and, as a result, are at higher risk for the negative consequences of alcohol use. Due the variety of negative consequences students can experience as a result of HED, including risky sexual activity, blackouts, and physical injury to oneself or another person (American College Health Association, 2011), it is imperative interventions to minimize HED and protect against the affiliated negative consequences are put in place. One approach that has been used on college campuses is to involve parents.

Research has shown parents can influence their college student’s drinking behaviors through communication of both societal and individual expectations for behavior (Latendresse, Rose, Viken, Pulkkinen, Kaprio, & Dick, 2008). In fact, research (Macaulay, Griffin, Gronewold, Williams, Botvin, 2005; Padilla-Walker, Nelson, Madsen, & Barry, 2008) indicates that positive parenting behaviors, such as
communication of expectations and support, warmth, and supportiveness, all have a protective effect on adolescents’ substance abuse. In particular, parents can have a strong influence on the drinking behaviors of their first-year student (Abar & Turrisi, 2008; Patock-Peckham & Morgan-Lopez, 2006; Patock-Peckham & Morgan-Lopez, 2010) and parents’ communication about alcohol during their student’s transition to college can be key in the prevention of unsafe drinking behaviors due to the fact that young adults are often seeking information and support about alcohol use from them (Miller-Day, 2008). There have been a limited number of parent-based alcohol prevention strategies (Fernandez, Wood, Laforge, & Black, 2011; Ichiyama et al., 2009; Turrisi, Abar, Mallett, & Jaccard, 2010; Turrisi, Jaccard, Taki, Dunnam, & Grimes, 2001) to curb college student drinking behaviors even though parents have been found to have an influence on their college students’ behaviors. These interventions use a parent handbook to educate parents about high-risk drinking and how to communicate with their college-bound child (Ichiyama et al., 2009; Turrisi et al., 2001). Evaluation of these interventions has found decreased likelihood of the first-year students transitioning from non-drinkers to drinkers (Ichiyama et al., 2009) and a decline in overall drinking and experiencing fewer negative consequences (Turrisi et al., 2001). Therefore, it is important to continue to discern what factors motivate parents to continue to communicate with their first-year college students about alcohol.

While research has focused on parents’ communication about alcohol with their college student, much of this research has classified these interactions in terms of their frequency (Miller-Day & Kam, 2010). Research (Boone & Lefkowitz, 2007; Miller-Day & Dodd, 2004) has proposed that the content of messages about alcohol and how these
messages are conveyed might be one of the most critical aspects of parents’ communication about alcohol. Additionally, much of the research on parent-college student communication about alcohol has been from college students’ perspectives (Kenyon & Koerner, 2009; Merriman & Rissmeyer, 2009). Due to the lack of research on parent-child communication about alcohol use among college students, there has been a call for qualitative research to better understand parents’ views of and content of communication about alcohol with their college students (Chassin & Handley, 2006; Wheeler & Kennedy, 2009). Therefore, the aim of this study is to fill a void in the research and examine not only parents’ frequency of communication about alcohol with their first-year college students, but also the content of parent-child communication regarding alcohol by analyzing qualitative interviews with parents.

Model of Family Decision Making

Parents’ communication about alcohol with their first-year college student is an important protective factor for HED. However, it is unlikely that this communication that may be thought to be bidirectional (reciprocal communication between parent and child), or even unidirectional (communication of from the parent directly impacts the child), occurs outside the influence of additional social and environmental factors (Segrin & Flora, 2005). Therefore, this study uses Settles’ (1999) Model of Family Decision Making (MFDM) as a guiding framework. This model suggests that family communication and decision-making are impacted by social, familial, environmental, and individual factors (See Figure 8), including awareness of the problem or the set of options available, the role or expected behavior of family members, the social structure, available resources, communication skills, available resources, personality of the individuals’
involved in communication, and normative perceptions of what is expected and appropriate behavior.

Figure 8. Settles' Model of Family Decision Making

This study aims to provide a contextual understanding of parents’ frequency and content of communication with their first-year college student about alcohol using Settles’ (1999) MFDM. In this qualitative study, the factors that impact parents’ decisions to talk were explored. The following research questions were examined:

RQ1: What factors from Settles’ MFDM impact parents’ decision to talk to their first-year college student about alcohol?
RQ2: How do these factors relate to communication: (a) what is being said, (b) who is participating in these conversations, (c) why parents initiate these conversations (d) what do parents identify as turning points, and (e) how frequently these conversations are occurring?

Settles’ MFDM does not clearly address how or what strategies are used in communication. Research (Sherriff, Cox, Coleman, & Roker, 2008) has examined the strategies parents use to communicate about alcohol with adolescents. They found that parents often initiate conversations by talking about specific incidences experienced by family, friends, or peers where excessive alcohol use was problematic. Additionally, parents often utilized safety, legal, and health messages related to the misuse of alcohol. Parents in this study also indicated they sought or often wanted balance, or more reciprocal roles, in their communication about alcohol with their children. There is limited research on the strategies or techniques parents use to communicate with their college student about alcohol (Miller-Day, 2002). It is possible that parents are using motivational interviewing strategies or techniques when they communicate with their first-year college student (Tevyaw & Monti, 2004) to avoid confrontation or lecturing. Motivational interviewing (MI) is often described as a collaborative, client-centered counseling style used to elicit behavior change by helping individuals explore and resolve ambivalence and strengthen motivation for behavior change (Rollnick & Miller, 1995; Miller & Rollnick, 2009). Key characteristics of MI strategies and techniques are: collaborative, evocative, and honoring individual autonomy. Examples of strategies and techniques include asking permission (“Do you mind if we talk about alcohol?”), using opened-ended questions (“Tell me what you think about drinking?”), and normalizing
(“A lot of people in college think about drinking.”) (Sobell & Sobell, 2008). Therefore, the final research question explored was:

RQ3: What (motivational interviewing) strategies or techniques do parents use, if any, when they communicate with their first-year college student about alcohol?

Methods

The design of this study employed standards from the qualitative tradition. Qualitative data collection allows for participants to define their own experiences in research (Free, Lee, & Ogden, 2002). Additionally, it allows for understanding of social factors and for determining relationships among factors in social settings (Janesick, 1998). Since very few research studies have explored the parent-college child relationship from the parent perspective (Kenyon & Koerner, 2009; Merriman & Rissmeyer, 2009), qualitative research is needed to gain a more nuanced understanding of parents’ communication about alcohol with their college students (Sax & Wartman, 2010).

Parents of first-year college students participated in in-depth, retrospective interviews. The interviews were conducted in November and December of 2012 to examine parents’ communication about alcohol with their first-year college student. This allowed parents potential time to have talked with their college student about alcohol. To be eligible for the study, participants were required to have a son/daughter who enrolled as a first-year student in the Fall 2012 semester and have talked about alcohol at least once with their son/daughter in his/her lifetime. The interview protocol was submitted to and approved by the University of Iowa’s Institutional Review Board.
Participant Recruitment

Participants in the interviews were comprised of a convenience sample. Parents were recruited through an email blast sent out via a campus-wide list serve at a large, Midwestern University. As parents responded to the email, an interview was scheduled at a time and location that was convenient for them.

All parents were recruited from the same rural, Midwestern state. Adults in this state have the 3rd highest heavy episodic drinking rates in the country (America’s Health Rankings, www.americashealthranks.org, 2012). Additionally, the community from which the parents were recruited is home to a large, Midwestern University that was ranked as the #2 Party School by the Princeton Review in 2012 (Princeton Review, www.princetonreview.com, 2013). Some parents had students who went to the local university, while others had students who attended other institutions, in or out of state. However, all were influenced by the local “drinking culture.”

Procedures

Individuals who agreed to participate completed the signed informed consent process prior to beginning the interview. Data was collected using the retrospective interview technique (RIT) (Fitzgerald & Surra, 1981; Huston, Surra, Fitzgerald, & Cate, 1981; Miell, 1984) and procedures from the timeline follow-back technique (Sobell & Sobell, 1992, 1995). RIT is an in-depth interview technique for investigating some aspects of interpersonal communication (Bullis & Bach, 1989). The RIT allows individuals to reflect on the past. It is especially useful for identifying the events, or “turning points,” that cause change in relationships and situations (Sias & Cahill, 1998). This technique was used with parents of first-year college students to gain an
understanding of the “turning points” of their communication about alcohol and as a tool to assist parents in remembering specific alcohol-related conversations they had with their current first-year college student. RIT, as a method, allows participants to share their relationship history that is time-oriented and based on significant turning points in a relationship (Fitzgerald & Surra, 1981; Lloyd & Cate, 1985) (See Figures 9 and 10 for examples). Use of the timeline follow-back technique allowed for probing about communication around holidays, weekends home, and other significant events to assist in identifying parents’ opportunities for communication about alcohol.

Figure 9. Timeline for 48-year-old father
During the interviews, participants were asked to identify the turning points throughout their child’s life they experienced related to their communication about alcohol with their son/daughter who recently started their first year of college. Participants were asked to use a timeline to chart communication events that occurred with their son/daughter about alcohol and talk about those specific moments in time. The timeline served as a visual guide in reference to past events in which they talked about alcohol. For each turning point that was identified and described, participants were asked about their normative perceptions related to alcohol use (i.e., how many alcoholic drinks, if any, they think their son/daughter’s male and female friends and typical males and typical females the same age consume when they socialize in a setting with alcohol) on a two-dimensional graph. If they did not believe their son/daughter’s friends are drinking, they recorded a “0.” On this graph, the X-axis represented time and the y-axis represented number of drinks consumed. To ensure consistency across interviews, individuals were
shown the “standard ethanol units” illustration to define what was meant by a “drink” (See Figure 11) (CDC, Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion, 2012). Using the visual graph can help aid participants in their reflection for each turning point and can benefit researchers when trying to understand why particular events are significant (Baxter & Erbert, 1999; Erbert, Mearns, & Dena, 2005).

### Alcohol Equivalencies and Drinking

<table>
<thead>
<tr>
<th>1 glass of wine</th>
<th>1 can or bottle of beer</th>
<th>1 shot glass with distilled spirits</th>
<th>1 bottle of wine cooler</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 oz. of table wine</td>
<td>12 oz. of beer</td>
<td>1.25 oz. of whiskey or other hard liquor</td>
<td>12 oz. of wine cooler</td>
</tr>
<tr>
<td>12% alcohol by volume</td>
<td>4% alcohol by volume</td>
<td>40% alcohol by volume or 80 proof</td>
<td>4% alcohol by volume</td>
</tr>
<tr>
<td>4 x 0.12 = 0.48 oz. of ethyl alcohol per serving</td>
<td>12 x 0.04 = 0.48 oz. of ethyl alcohol per serving</td>
<td>1.25 x 0.40 = 0.50 oz. of ethyl alcohol per serving</td>
<td>4 x 0.12 = 0.48 oz. of ethyl alcohol per serving</td>
</tr>
</tbody>
</table>

Figure 11. Standard ethanol units

During the interview, participants were asked to talk more in-depth about the events (i.e., turning points) related to their communication with their child about alcohol. They were also asked what made the event significant, what was happening prior to this
event, and how it affected their relationship with their son/daughter. Additional guiding questions and probes were developed from consulting relevant research (Coleman & Carter, 2005; Settles, 1999; Stace & Roker, 2005). Several additional probing questions related to MFDM, including questions about descriptive norms, injunctive norms, communication efficacy, and availability of resources, were asked in order to gain a thorough contextual understanding of parents’ communication with their child/college student about alcohol. Guiding questions are included in Appendix A. While all questions were asked throughout the interview, a semi-structured approach was used to allow the parents to talk about what is most meaningful about their communication experiences (Fontana & Frey, 1998).

Retrospective interviews were completed until saturation was met and no new data was presented by parents (Glaser & Strauss, 1967). Saturation was assessed by looking at themes related to the factors that influence parents communication, the frequency and content of communication, and the motivational interview strategies used. In the end, 28 interviews were conducted. Interviews were audio recorded with the permission of the participants and transcribed for data analysis purposes.

A short questionnaire with socio-demographic, parenting style, and communication about alcohol (Boyle & Boekeloo, 2009; Turrisi, Wiersma, & Hughes, 2000) items was administered at the end of the interview (See Appendix B). The socio-demographic items assessed participants’ age, sex, race, employment status, education, and the sex of their college student.
Analysis

Descriptive information of the sample was provided in the questionnaire and frequencies, means, and standard deviations were analyzed using SPSS, version 20. The interviews were examined using qualitative procedures similar to other researchers who have used retrospective interview techniques (Baxter, Braithwaite, & Nicholson, 1999; Baxter & Bullis, 1986). Turning point categories were identified from the interviews and entered into a spreadsheet for easy comparison. Frequency of the turning points identified was tabulated.

A theoretical or deductive thematic analysis was conducted (Braun & Clarke, 2006). Closed coding strategies were employed (Crabtree & Miller, 1999; Strauss & Corbin, 1998). Codes were generated using constructs from MFDM (Settles, 1999) and strategies of MI (Sobell & Sobell, 2008). A list of codes used in the codebook for this analysis is provided in Table 13. Themes were generated and organized to provide a broad description of the parents’ experiences, behaviors, and perceptions related to their communication about alcohol with their college student in order to answer this study’s research questions (Morgan & Krueger, 1993). Two independent coders were used to check for consistency and ensure reliability. Although, presented as linear, the analysis was an iterative and reflexive process (Crabtree & Miller, 1999; Strauss & Corbin, 1990). This iterative process consisted included becoming familiar with the data, identifying coding categories, generating themes, reviewing themes, defining and naming themes, and locating exemplars (Braun & Clarke, 2006). The first author read and re-read and coded all the transcripts. A second coder independently coded a random selection of seven transcripts (25%) and results were compared (Onwuegbuzie & Leech, 2007). The
coders met at the beginning of the analysis to discuss the code book (See Appendix C).

After coding two of the same transcripts, codes were compared and discrepancies were resolved through discussion. Once consensus was reached, Coder 2 completed an additional five transcripts. Again, codes were compared and any discrepancy was resolved through discussion. At the end of the coding process, the list of codes and themes were compared and ended once no modifications were necessary. Categorizing strategies were used to reorganize the data into categories to identify common themes across interviews and identify relationships across major themes (Maxwell, 2005). Data analysis was conducted using NVivo version 10 (QSR International, 2013), a computer software for qualitative data management and analysis.

**Results**

Below, the first section provides a description of the participants. The remaining results are organized and presented in the order of the research questions: (1) the factors that impact parents’ decision to communicate about alcohol; (2) how these factors relate to content of communication, participants in the conversations, the initiation of these conversations, and the frequency of these conversations; and (3) what MI strategies parents used when they were communicating about alcohol. To answer RQ1, a description of the factors that impact parents’ decision to communicate about alcohol with their first-year student is provided. Seven factors from MFDM were salient themes throughout the interviews. Three factors from MFDM facilitated communication about alcohol: role, skills, and social structure or the college setting and environment. Then, parents’ awareness of their own student’s drinking and normative perceptions related to other college students’ drinking are described, followed by (lack) utilization of resources
related to communicating about alcohol. The final MFDM factor identified was constraints or barriers to communicating about alcohol. The section addressing RQ2 provides a discussion of how these factors are related to what was being said in these conversations, who was participating in these conversations, why parents initiate these conversations, what are turning points related to communication about alcohol, and how frequently these conversations occur. Finally, the section responding to RQ3 describes parents’ approach to their communication about alcohol and identifies the MI strategies employed.

Summary of Participant Characteristics

A brief summary of participants is provided in Table 14. The sample consisted of 20 mothers (71.42%) and eight fathers (28.58%). The age of participants ranged from 43 to 59, with the average age being 49.89 (SD = 4.27). The majority of participants were married 78.57% (N = 22) and identified as white, non-Hispanic (N = 26, 92.85%). All participants had attended at least some college and the majority (N = 23, 82.14; Range $30,000 to over $100,000) of participants reported household incomes over $75,000.

On average, parents indicated they talked with their student about 14.96 (SD = 5.95) of the alcohol-related topics provided to them in the questionnaire during the past summer, and 11.11 (SD = 7.18) topics during the current semester. While participants had students attending various universities, 11 parents had a son or daughter enrolled as a first-year student in the community from where participants were recruited, seven had a son or daughter enrolled in another public state institution, two enrolled in-state private institutions, and the rest had a student enrolled in an out-of-state college or university.

RQ 1: Factors Associated with Parents’ Decision to Communicate About Alcohol
Throughout the interviews, it became apparent that three factors were facilitating parents’ communication about alcohol with their student. These included parents’ perceived role in talking about alcohol, parents perceived skills in communicating about alcohol, and the environment and social structure of their student’s college or university. Parents also described their awareness of their own student’s drinking and normative perceptions related to other college students’ drinking, discussed utilization of resources related to communicating about alcohol, and identified constraints and barriers to communicating about alcohol.

Role

All (N = 28) parents indicated they were ultimately responsible for communicating with their child, now college student, about alcohol. This was exemplified by one 43-year-old mother’s (Interview 7) description of her communication about alcohol; she said, “It’s not cool, it’s necessary.” Overall, this was one of the main motivators for parents to communicate about alcohol. Parents described this role as the “responsible thing to do” and saw it as an opportunity to provide a high level of influence over their child/student’s behavior. For example, one 50-year-old mother (Interview 11) said:

hmm… well… I guess I, I view the parent is the most responsible to, to do that [communicate about alcohol]. Um… and… I, I guess, yeah, I don’t mind if the, like University makes them take some courses online concerning that or I mean it, it’s good to, for them to go through some of those things but I guess the main responsibility I think should be on the parents as far as you know helping their kids and influencing them and such. So, I mean, I, I wouldn’t want to give that responsibly to somebody else and then I, I not do it. I want to be the main influence on her. I guess it’s what I’m saying.

Interestingly, parents also reported a shift in their role in the communication about alcohol as their student enrolled in college. As referred to above, parents were more
active and preventive in their role to communicate about alcohol before their student went to college. Once their student enrolled in college, the major trend for parents was to become more passive and reactive. This may be related to the fact that more than half of the parents interviewed indicated they believed they had less influence on their child as a college student and was likely associated with the decline in turning points identified once their student enrolled in college.

Skills

All (N = 28) parents reported they had the knowledge and were able to communicate with their student about alcohol. Furthermore, even the parents identified alcohol as a sensitive topic that has the potential to be difficult to talk about, all the parents in these interviews had high levels of self-efficacy related to their ability to communicate about alcohol and had never experienced a point in time when they wanted to talk about alcohol with their student, but could not. Parents described talking about alcohol as “easy” and in some cases, even “routine.”

Social Structure: College Setting and Environment

Having a student in a college or university setting also facilitated communication for most of parents. While only one-quarter (N = 7) of parents identified college orientation as a “turning point” in their communication about alcohol, once probed, all parents (N = 28) reported attending orientation with their student and most parents indicated that the college or university their student is attending provided separate alcohol-related sessions for parents and students. Parents used this session as a springboard for conversation. For example, one 46-year-old mother (Interview 16) said:

Yeah, there are alcohol policies, um, I think it got discussed most in the parent session that we went to, where I think the dean of students started out with, you
know, now I will answer all of the questions that you parents really have, while your kids aren’t here to be embarrassed about it…and then we talked about it. And I asked my son if he was aware of the rules.

Another 45-year-old mother (Interview 3) described how her son’s university’s policies influenced her communication:

It seemed that, that was a huge focus. But then…THEN… he gets here, cause they make it really, they made it really clear ‘cause you know they separate the students and the parents. But they make it really clear that if you violate their alcohol policies you’re gone so we talked about that. ‘Cause they brought up something really interesting in orientation which was…. If you have a roommate and you’re away for the weekend and your roommate is caught with the alcohol but tries to blame it on you know they don’t just kick everybody out, it’s, there’s an investigation and stuff. So we, we TALKED about that.

Perceptions of College Students’ Alcohol Use: Awareness

And Norms

All (N = 28) the parents identified drinking as a normal college student behavior, and the majority of parents viewed college student drinking, regardless of age, to be an acceptable behavior, particularly when done in “moderation.” Interestingly, over half of the parents did not believe or “didn’t really know” if their student drank. For those parents who were aware of their student’s drinking, the amount of drinking ranged from one to two drinks on one night a week to one to two drinks a month, with only one parent indicating that he knew his son had participated in HED. None of the parents thought their student was “overdoing it” since he/she had been enrolled in college. Similar to other parents’ descriptions of their student’s drinking, one 50-year-old father (Interview 20) described his student’s drinking behaviors since being in college this way:

I would say at least once a week if not twice, Friday, Saturday, not during the week. She doesn’t go to the bars on weeknights, studying, but Friday and Saturday depending on whether there’s a home football game, it’s probably both nights…I really have no idea how much she drinks, maybe one drink, at the most two.
When asked about their perceptions of other college students’ drinking behaviors, all parents had a common response. They often said, “I really would not know, anything I said would be a guess.” On average, parents thought typical male and female undergraduate students were consuming three drinks when they socialized in settings with alcohol. When parents were asked about their student’s male and female friends, parents thought their student’s friends were probably drinking about two drinks when they socialized in settings with alcohol.

**Utilization of Resources**

While almost three-quarters (N = 20) of parents remember receiving information in the mail or at orientation about alcohol use and the college experience, few (N = 2) reported reading the materials and handouts or talking with their student about the information provided to them. However, most acknowledge (N = 26) that their student received materials directed specifically at them and many of the parents reported their student had to participate in some form of alcohol education prior to the start of his/her first semester. During the interviews, all parents were asked if they had ever used or sought out additional resources. None of the parents had ever sought out or used any type of resource to help them communicate with their student; most of them indicated they had never felt the need to do so.

**Other Constraints: Barriers to Communication About Alcohol**

While parents reported they had an easy time talking about alcohol and had confidence in their ability to do so, three common barriers were mentioned across the interviews. The first was lack of proximity. A small group of parents (N = 8) indicated that since their student was no longer living at home and they did not see them on a daily
basis, it was slightly more challenging to have open communication with their student. This could also be associated with the change in who initiated conversations once the student started college.

Two additional related barriers to communication mentioned by a small group of parents (N = 7) were not wanting to upset the student and focusing more on the adjustment to student life. First, this set of parents was very focused on allowing their student to become an “adult” and wanted to scale back their level of influence. For example, one 50-year-old mother (Interview 11) described why her communication about alcohol had changed once her daughter went to college this way:

You know, I think ah, I think by the time they’re in college, um… parents have influenced their child or set their example, I mean I can’t see that, in other words she’s gotten it [laughs]. I think there’s nothing I can do after this point really. You know it’s all about that before and the growing before and the maturity and you know it’s all about that. Once they get to a certain age I mean, you lose your ability to influence them.

Second, to do this, these parents also felt that communication about alcohol was not as important as talking with their student about the new adjustments required for college life, such as handling a new routine with work and school and managing their own independence.

RQ 2: Examination of Communication

What is Being Said

Across all interviews, four main content areas of communication arose: appropriate drinking behavior, consequences of alcohol use, family experiences related to alcohol, and family values related to alcohol use. While the content of these conversations remained fairly consistent over time, conversations tended to become more
focused on consequences of drinking as the student approached high school graduation and enrolled in college.

Appropriate Drinking Behavior

Starting during initial conversations about alcohol and continuing to present day, *all* (N = 28) parents discussed with their student what s/he considered acceptable drinking behavior. For almost three-quarters of the parents interviewed, this included modeling and allowing students to drink at home under their influence. One 43-year-old mother (Interview 7) described her approach this way:

Um…starting way back then [in high school], um, my emphasis with her is that, you know they’re grown, if they wanna drink, they’re home, they’re safe they’re not driving anywhere, they’re with people who love them who’ll look out for them if they have troubles. They are safe. Um…so and you know that’s their choice they can do that if they want.

The general reasoning behind this choice of letting their children drink at home was that it would lead to more responsible drinking behavior for the student. Interestingly, this group of participants included the parents who had experienced a child’s arrest due to alcohol or other negative consequences.

The main message parents had for their student about appropriate alcohol use related to moderation. Parents reported talking with their students about what moderation looked like, such as “have a drink with dinner” or “having a drink to relax is fine.” Many of the parents also indicated it was more appropriate to drink in social settings than alone. For example, one 56-year-old mother (Interview 23) recalled this conversation with her daughter:

Yeah. And may-, and what’s so funny about this whole thing is our attitudes about it are relaxed in the sense of if you’re with family or at a party with friends or something. One…one or two drinks as long as you’re not driving or working or leaving or whatever, is not an issue.
Another 50-year-old father (Interview 20) recalled a conversation with his son about drinking in moderation:

I just wanted him to understand that drinking is okay in moderation and where you do it. I sure didn’t want him to get drunk, but sure [@#$] he went out and got drunk, that’s fine, that’s fantastic. You want to do that? Great. Do it. But be enough responsible not to be able to hurt somebody else. Um, and when he drove home without anybody else driving him home the next morning and he was still, obviously still hung-over and still drunk, that’s where he crossed the line. If he had stayed where he was at everything would have been fine. But uh, I, I, I know that kids are going to drink…then just like everybody I know has drank something at some time. Um, everything is good in moderation and where you’re at. Just got to be smart enough to not uh, hurt anybody else. So we had to talk about it. That his behavior was unacceptable.

As illustrated in the examples above, all the parents reported talking with their student about not drinking and driving. The common message in this instance often identified drinking and driving as unacceptable under any circumstances. Most parents also identified had a standing rule with their student that they would come pick them up at any time, any place, no questions asked.

Very few parents (N = 2) indicated telling their student that abstinence from drinking was the only appropriate drinking behavior. For example, one 46-year-old mother (Interview 16) told recalled this conversation with her son:

But, yeah, we’ve communicated pretty clearly that our expectation is that they’re (our children) not going to do it (drink alcohol), and also, that it, and we have this policy about everything I think we’ve made it very clear about transgression, you know, that if they do it, we want them to tell us the truth, but if they did it (drink) they know that we are going to be very upset about that.

Most parents (N = 24), however, acknowledge that telling their student not to drink alcohol was not going to be an effective way to prevent their student’s drinking behavior. While parents were talking about appropriate drinking behaviors with their student, it was
also not uncommon for them to address the possible consequences associated with alcohol use.

Consequences of Alcohol Use

Parents focused heavily on the consequences associated with alcohol use, in addition to the consequences of getting caught consuming alcohol. Most of the messages conveyed information about the negative effects of alcohol on health. Across the interviews, parents reported telling their student that drinking alcohol is not safe, it can lead to weight gain, or it can make you sick or feel “hung over.” Additionally, parents also focused on college-related consequences, such as not doing as well in school, not having enough money to purchase necessities, and losing parental financial support. Small differences emerged based on the sex of the college student. A very small number of mothers talked to their daughters about the negative consequences associated with mixing alcohol and sexual behavior, while none of the parents of sons talked about these consequences with their student.

Additionally, some parents (N = 16) also talked with their student about the consequences of getting caught. Most of these parents told their student that getting caught meant getting kicked out of their dorm room. Parents of athletes or students on scholarship communicated additional consequences if their student was to get caught with alcohol. In these instances, parents’ focused on what their student would lose: the ability to play collegiate athletics or the loss of scholarship funding to pay for tuition.

Family Experiences Related to Alcohol

All participants (N = 28) in this study shared stories with their student about their family history. Parents told stories about having family members who were alcoholics,
heavy drinkers, or “drunks” (See Figure 6). Often, these stories were told in conjunction with information provided on the negative consequences of drinking, such as poor health, experiencing physical violence or assault, loss of relationships, and financial loss. For example, one 48-year-old father (Interview 12) said:

We’ve talked about how it has affected our family quite a lot, and my dad, his grandfather came to him one time about his beer gut and uh, they joked around pretty soon the guy says “well, don’t joke about that” he says “there’s over a quarter section of land in there,” my dad said “what?” he said “yeah for me to pay off my tabs, I had to sell over a quarter section of land.” We talked about it; he knows how it has impacted our family.

Parents also talked about history of alcoholism in their family. All participants in this study had at least one member of their family who suffered from alcoholism, and all the parents talked with their students about it. Parents’ intention of these conversations was to communicate their perceptions of students’ elevated risk of problem drinking behaviors. For example, one 56-year-old mother (Interview 6) said:

Both sides of his (my husband’s) family have histories of addiction and alcoholism and we have talked about that a lot. Not just, um, drugs and alcohol, any kind of behavior that they… uh… they be careful that they don’t be addicted to anything that they do. That they are at increased risk because of their family history. Uh so, we have talked quite a lot about that.

Interestingly, while a very small minority (N = 2) of these parents indicated they believed their son or daughter would abstain from alcohol use because of their family history, the majority of parents did not think their child needed to abstain from drinking and many allowed drinking in their own home.

Family Values and Rules Related to Alcohol Use

In addition to sharing family stories, participants also talked with their student about family values related to alcohol use. For the majority (N = 25) of participants, these values related to the idea that drinking responsibly or drinking in moderation are
acceptable behaviors, but drinking in excess is unacceptable. A common phrase several of the participants reported using with their student was, “I would prefer you don’t drink, but realize you are going to college, so drink responsibly.” Most parents were also conscious of how their drinking behaviors reflected their values related to alcohol use. For example, one 52-year-old father (Interview 8) said:

My wife and I, we’ve talked about it because one of the things we have always realized is that when everybody socializes and are a group, we’ll often have a drink, not very many drinks but a drink. And we get together and we bring a bottle of wine and bring our kids over so our kids see what do you. You bring liquor, and then you have your dinner party or you’d do something like that. I’ve talked to my son about it. I’ve told him this is what drinking should look like, this is what our family does and it’s ok.

For a small number of participants (N = 2), family values were also communicated in the context of religion, and due to religious affiliation, the family did not drink. In these instances, alcohol use in the home and underage was prohibited. One 43-year-old mother (Interview 10) described her family values this way:

But we don’t condone it in our house. We’re never the kind of house where, okay, let’s keep you’ll safe, give us your keys; you know that kind of thing. You know we never been in for that because of my husband’s job [he’s a parole officer] so it’s been an easy way to avoid that. You know, I would never want my kids to be totally against something or totally for something. I like them to be more balanced. So I don’t allow them drink alcohol, I won’t encourage it, but I don’t want them to be like terrified of it or just over the top about abstaining, you know. But if they never drink their whole lives, that’s fine.

Other Content Areas

A small minority of parents (N = 6) also discussed their own personal experiences with alcohol, laws concerning alcohol use and peer pressure and alcohol use. A minority of parents shared their personal experiences with alcohol use with their student, while the majority were not comfortable doing so. For the small number of parents who reported talking about the laws associated with alcohol use, their focus was on drinking age and
the legal repercussions for drinking and driving. Often these conversations were similar to one 47-year-old mother’s (Interview 25) discussion with his/her student that, “It’s illegal, we’re stern about that, we don’t want them to get caught.”

Finally, a small minority of parents (N = 5) also talked with their students about what they called the “Triple Threat:” “no sex, no drugs, no alcohol.” These parents assumed these three behaviors were likely to happen together, and therefore need to be addressed simultaneously. For example, one 59-year-old father (Interview 18) recalled what this type of conversation with his daughter was like:

Oh yeah, they, they go together no sex, no drugs, no alcohol. It’s one conversation we have at our house, you know, any time you have sex you can get pregnant, and while it won’t kill you it will change your life. Any time you use alcohol or try drugs, things can happen, you could get pregnant, it may not kill you but it could [laughing] you know, so yeah, it’s like a conversation that it’s just been saying that I’ve used for a really long time with them, and I think it’s kept the doors open of, you know, “oh mom come on,” but then sometimes I think it makes them think as they’re walking out the door.

Participants

Participants also noted differences in how communication about alcohol happened and who was involved in these discussions prior to and after their student going to college. Prior to college enrollment, all parents (N = 28) depicted their communication about alcohol in face-to-face conversations. Often, these conversations occurred in the presence and with the participation of other family members, and occasionally friends.

Since their child enrolled as a college student, face-to-face communication about alcohol is much less likely to occur. Instead, parents indicated responding to their student about alcohol-related topics on the phone, and with some, even over text messaging. None of the participants indicated they had used email or a social networking site, such as Facebook, to communicate with their student about alcohol. Due to the change in how
parents communicate about alcohol since their student enrolled in college, these conversations were much more likely to be one-on-one.

Initiation

Throughout all the interviews, a clear pattern of the initiation of these conversations between parents and their students about alcohol emerged. Prior to their students enrolling in college, all of the parents (N = 28) indicated they initiated conversations about alcohol with their child. These conversations were often described as more proactive in nature; they occurred prior to an event or developmental milestone, such as entering middle school or getting a driver’s license.

Once their child had enrolled in college, all the parents (N = 28) indicated that conversations about alcohol with their first-year student were more likely to happen as a result of their student’s initiation. Often, this happens in the context of a “checking-in” phone conversation. One 52-year-old father (Interview 8) explained what his conversations with his son about alcohol look like since he’s been in college this way:

He calls, we catch up….Um…and well in the conversation he tells me about his friends who got in trouble, and um, one of his friends uh, got in trouble for uh, his sister had a fake ID and bought ‘em bought beer for her birthday and he was carrying it and, he got nailed for it by the police… and um, I- I you know I just, I just keep saying to him you know how careful he has to be [to not get caught].

Another 52-year-old mother (Interview 27) recalled a similar conversation:

Uh I took her to a college on like a Wednesday or Thursday, um and on uh Saturday morning first, uh first weekend, Saturday morning she calls me and says, um, “mom I want to tell you about something. I was at a party last night, a house party and it got busted by the cops.” And my heart sank and I thought “Oh my god, did you get arrested?” “No, nobody got arrested, they told everybody they had to leave and they shut down the party, nobody got arrested, but I was drinking” And she goes “and it scared me a lot,” um, and I said “well if you consider that, um, a mercy call, because I think first weekend they couldn’t, they were hitting every party in town and they were letting them know this is what’s
going to happen to you, and it was your warning to behave yourself, and you saw how easy it is for this to happen.” And it really scared her…

While the conversations about alcohol prior to their student’s enrollment were proactive in nature, the conversations about alcohol with their now first-year college student were more reactive in nature.

All participants were able to identify at least one significant event or “turning point” that facilitated the initiation of communication with their first-year college student about alcohol. Table 15 presents a summary of the turning points identified by the sample as a whole. Overall, participants identified or recalled between three and four significant events (M = 3.64, SD = 6.64) in which they talked to their college student about alcohol. Throughout the interviews, participants routinely identified more turning points prior to their student’s college enrollment. The most common turning point identified is when their student entered middle school, followed by communication about the appropriate use of alcohol at family or social gatherings.

Parents identified “turning points” that were specifically related to the college environment and setting, including: orientation (N = 7), the drinking behavior of friends or roommates (N = 7), tailgating at football games (N = 4), school breaks (N = 3), student attendance at college parties (N = 3) and pledging a sorority (N = 1). These turning points usually occurred within the first few weeks of the student’s first semester.

Frequency

When asked to describe their communication about alcohol with their student, the vast majority of participants (N = 27) responded that it was something they had “talked about all the time,” especially prior to their first-year student enrolling in college. They indicated that even though there were some significant conversations that were more
salient to them than others, overall they viewed conversations about alcohol as an “ongoing conversation.” Similar to other participants, a 48-year-old father (Interview 1) described his communication about alcohol with his student this way, “I mean, I would say it’s been a pretty regular conversation.” Many of them recalled conversations about alcohol were event-focused, particularly when their current first-year student was in high school. It was not uncommon for parents to recall talking about alcohol prior to event such as prom, large parties, school trips, and high school graduation.

Since their student has enrolled in college, the majority of the parents (N = 25) indicated a decrease in their amount of communication about alcohol. While all parents indicated they still talked to their students on a regular basis, for most weekly, if not daily, conversations about alcohol appeared to become less of a priority. Additionally, since their child is now a first-year college student and an “adult,” none of the parents indicated they were actively planning or intended to communicate with their first-years student about alcohol in the future; however, they would talk about alcohol with their student if it came up in conversation. For example, one 48-year-old mother (Interview 7) said:

I’m not planning anything, no. She may tell me stories or we’ll discuss it from that point if she brings it up. But, um, I think she’s pretty much, she knows what’s acceptable, what’s not, what’s smart, what’s not.

RQ 3: Use of MI Strategies

Parents described their approach to conversations about alcohol in a relaxed manner and as “open communication.” All parents (N = 28) said they did not want to lecture or judge their child/student. This was exemplified by one 50-year-old mother’s (Interview 28) approach to communication about alcohol with her daughter; she said,
“First and foremost, I use open communication with my daughter, I want her to be comfortable enough to come to me, no matter what. I’m here anytime.” Another 47-year-old mother (Interview 19) said:

I think just to, I want her to feel comfortable in sharing things with me, anything that’s stressing her in life, anything she’s doing without feeling I’m judging her. It’s part of growing up, umm, it’s no longer a “I know I’m doing something technically illegal, because I’m not 21,” um, but it’s part of life I mean, I was a teenager, I know, and I just want--I don’t want her to feel I’m judging her, or, you know, I’m here to help her in any way I can.

Across the interviews, it was also evident that about half (N = 13) of the parents, although not necessarily aware, were using motivational interview techniques/strategies when talking with their student about alcohol. The most common strategies were using open-ended questions, providing advice or feedback, and providing affirmations. These strategies were more evident in conversations parents had once their student had enrolled in college. Open-ended questions were often used in response to their student’s explanation of an alcohol-related event that occurred. Parents would ask things like “What would you do differently?” or “How do you think you would feel if you drank that much?”

Affirmations and feedback were provided in similar contexts. Parents who were using affirmations often provided them when their student reported his/her drinking behavior or their friends’ drinking behavior that they perceived as negative or unsafe. For example, one 48-year-old mother (Interview 15) said:

She actually got a job at a new place just before graduation, which was very helpful because her boyfriend broke up with her shortly after, and the friends…the new friends at this new job were all older. And they tended to have parties, and so the difficulty after graduation was letting her go to give a little bit of freedom while she was home, and she would frequently go to these parties knowing they were going to be parties with alcohol, a lot of alcohol because these were older people. And knowing that she, in most cases, would not come home,
and if she was going to drink, I didn’t want her to come home. And part of the issue is we live 12 miles south of town, and so there’s a long distance between, and so there’s a lot of times I didn’t like her to be even just driving at night because you’re tired, you’ve been out all day, you’ve been working and stuff, so we had...there were lots of conversations. She’d tell me she didn’t drive home because she was drinking and I would say “you made the right decision.”

As highlighted in this exemplar, and not uncommon to other parents, this mother affirmed the “safer drinking behavior,” even though her daughter was underage.

Similarly, when students reported these types of scenarios with friends or roommates, some parents also provided feedback. For example, one 46-year-old mother (Interview 16) recalled a conversation with her son:

I said to him, “You know you may find yourself in a situation with alcohol where you will make impulsive decisions, or, you know, you might get...you might get caught up in how exciting and fun something seems if you haven’t thought about it and made a decision beforehand and if you find yourself here, it’s ok, but you need to call me.”

Similar to the affirmations provided, parents’ feedback encouraged risk-reduction strategies for their underage students who were drinking.

**Discussion**

This study investigated what factors are associated with parents’ frequency and content of communication with their first-year college student about alcohol using Settles’ (1999) Model of Family Decision Making (MFDM) and motivational interviewing (MI) strategies. Results from the interviews are summarized in Figure 12. Parents identified several social, familial, environmental, and individual factors that influence their communication about alcohol with their first-year student including role, skills, social structure, awareness, norms, utilization of resources, and other constraints/barriers. Personality, which is part of Settle’s Model, was not a factor that was identified by parents as influential on their communication about alcohol. While parents
were able to identify significant “turning points” in their communication about alcohol with their first-year college student, they also classified their communication about alcohol as an “ongoing conversation.” Turning points centered on developmental milestones for their child before college enrollment and were described as communication events where parents proactively addressed alcohol. Examples of these turning points include their student entering middle school and high school or obtaining his/her driver’s license. Subsequently, once their student entered college, these turning points became described as more reactive to their student’s experiences of being in a college environment. Finally, Settles’ (1999) MFDM does not attempt to explain how parents communicate; results from this study indicate that some parents are using motivational interviewing (MI) strategies or techniques to talk to their student about alcohol.
Factors that facilitated communication were parents’ perceived role, skills, and the social structure or college environment. Overall, parents viewed it was their responsibility to communicate about alcohol with their student. However, the nature of this role changed over time. As their student entered college, parents began to take more of a back seat, and initiated fewer conversations about alcohol and based their conversations about alcohol on their student’s reported experiences. This was partly due to the idea that parents believe they begin to have less influence once their student entered college. While not an uncommon misperception, this is contradictory to research that indicates parents continue to have an influence on their college student’s life (Coburn, 2006; Savage, 2006), including their drinking behaviors (e.g., Turrisi et al.,
Future parent-based interventions aimed at reducing heavy episodic drinking (HED) among first-year college students need to use messages that let parents know that they continue to influence their college student and what they say to them will make a difference.

While a few parents began talking to their student around the age of 5 about alcohol-related topics, parents on average reported they started talking to their student about alcohol in ways that were meaningful to them around the age of 15. While the onset of alcohol use typically occurs during adolescence (Clark, Doyle, & Clincy, 2013), alcohol expectancies, or views on the appropriateness of alcohol use and an understanding of the consequences of alcohol use, have been shown to form as early as the age of 8 years old (Casswell, Gilmore, Sliva, & Brasch, 1988; Dunn & Goldman, 1998; Miller, Smith, Goldman, 1990). Furthermore, parents play a major role in teaching and modeling alcohol-related values, skills, and habits to their children, that are likely influencing their child’s/student’s alcohol expectancies, or the beliefs regarding cognitive and behaviors outcomes associated with alcohol use (Goldman, Darkes, & Del Boca, 1999; Jones, Corbin, & Fromme, 2001) and subsequently influencing their now college student’s drinking behaviors (Jones et al., 2001). Given these factors, it is imperative future public health interventions aimed at reducing heavy episodic drinking target parents and families with young children and encourage communication about alcohol at an early age.

Parents in this study also reported high levels of confidence or self-efficacy in their communication about alcohol, and rarely sought out addition information or resources to assist them in their communication. This may be because parents of college
students have come to refer to themselves as “prevention specialists” (Howe & Strauss, 2000). Contrary to previous generations, parents of the current generation’s college students are more likely to continue to provide an authoritative presence in their student’s life and continue to provide information on their expectations of behavior (Bylund, Imes, & Baxter, 2005; Deakin & Cohen, 1986; Shutt, Oswalt, & Cooper, 2006). Therefore, parent-based interventions on college campuses should continue to utilize parents in their HED-prevention efforts and encourage parents’ communication about alcohol with students.

Past research (Bylund et al., 2005; Deakin & Cohen, 1986; Shutt et al., 2006) have found a discrepancy between parents’ perceptions of their college student’s drinking and their student’s actual drinking behaviors. From their discussion of their own student’s drinking behavior and their perceptions of other undergraduates’ drinking behaviors, parents in this study may also be underestimating the amount of alcohol consumed on college campuses. On the university campus where this study took place, data suggests that the average student under the age of 21 consumed 5.92 drinks the last time s/he socialized in a setting with alcohol (American College Health Association, 2012). These inaccurate perceptions of college students’ drinking patterns could be associated with a decrease in the amount of communication about alcohol once a student enrolls in college (Wheeler & Kennedy, 2009). Therefore, future parent-based interventions should help parents dispel their misperceptions of students’ drinking behaviors.

The main content areas parents identified covering with their students were: appropriate drinking behavior, consequences of alcohol use, family history, and family values related to alcohol use. This is consistent with research (Morgan & Casper, 2011)
on undergraduate college students’ description of their communication about alcohol with their parents. In this study, Morgan and Casper (2011) identified family history, appropriate alcohol use, and family values and rules as common “story themes” students reported. While fairly consistent over time, parents indicated an increase in the amount of communication they dedicated to the consequences of alcohol use as their student approached their first-year of college.

Most parents in this study viewed underage drinking in the home as safe and acceptable. However, research suggests that parents who disapprove of adolescent and underage drinking are more likely to delay their child/student’s alcohol initiation (Andrews, Hops, Ary, Tildesley, & Harris, 1993; Spijkerman, Van den Eijnden, Overbeek, & Engels, 2007) and reduce the amount of alcohol they consume once they start drinking (Ary, Tildesley, Hops, & Andrews, 1993; Spijkerman et al., 2007). Similarly, provision of alcohol in the home has been associated with earlier initiation of alcohol use (Jackson, Henriksen, & Dickinson, 1999; Shortt, Hutchinson, Chapman, & Toumbourou, 2007) and increased levels of later alcohol use (Van Der Zwaluw, Scholte, Vermulst, Buitelaar, Verkes, & Engels, 2008). Future parent-based interventions need to inform parents that the provision of alcohol is not acceptable and can lead to earlier initiation and higher rates of drinking for their student.

Additionally, parents in this study presented mixed messages in their conversations about alcohol with their college student. This discrepancy and subsequent ambiguity was expressed when they were talking about appropriate drinking behavior and family history of alcoholism. The findings of this study that parents often recognized underage drinking as illegal and wrong, but at the same time, were accepting of behavior
as “typical” for all college students and at times classified drinking as “fun” or “part of growing up.” Similarly, related to family history of alcohol use, parents were communicating increased risk of alcoholism to their student, but did not believe their student needed to abstain from drinking, often allowing their college student to drink in their own home. These “mixed messages” produced by parents can create ambiguity for the college student recipient, lead to confusion over appropriate behavior, and have the potential to increase alcohol use (Ahn, Wu, Kelly, & Haley, 2011). Future parent-based interventions should focus on increasing their awareness about discrepant messages. One way to address these discrepancies is through the use of the theory of cognitive dissonance (Festinger, 1957). Dissonance is created when an individual feels psychological discomfort due to competing positions or ideas (Festinger, 1957). Festinger (1957) proposes that there are three assumptions in the theory of cognitive dissonance: (1) humans are sensitive to inconsistencies, (2) recognition of this inconsistency will cause dissonance and will motivate an individual to resolve the dissonance, and (3) dissonance can be resolved by changing beliefs, changing actions, or changing perceptions of actions. In the context of this study, when parents experience discomfort because of their discrepancy in cognitions about college students’ drinking behaviors, they can be motivated to change their messages about alcohol use. Approaches that use motivational interviewing or cognitive behavioral therapy techniques can be used to initially increase parents’ awareness of their discrepant messages, increasing their level of discomfort (Hettema, Steele, & Miller, 2005; McNally, Palfai, & Kahler, 2005). Once this discomfort is acknowledged, parents can be provided with information and resources to decrease the use of mixed messages with their college students, alleviating dissonance.
Finally, throughout the interviews, it became clear that some parents used strategies similar to those used in motivational interviewing when communicating with their student about alcohol. The most common strategies employed were open-ended questions, providing advice or feedback, and providing affirmations; however in some instances these affirmations supported risky choices. While past interventions targeted directly at undergraduate students have used motivational interviewing techniques (Miller & Rollnick, 2002; Larimer et al. 2004, 2005), it may be beneficial for future parent-based interventions to train parents in these techniques to use with their first-year college student.

Limitations

While this study makes a contribution to the literature on parent-child communication about alcohol, it is not without limitations. A convenience sample of parents from a limited geographic area of a rural, Midwestern state was used. While the participants’ reported a wide range of experiences related to alcohol use, this study did not include any participants who had only talked about alcohol at one point in time. Therefore, the perspectives in this study cannot speak to the factors related to one-time communication. Additionally, this may be related to selection effects; individuals who decided to participate in this study may be more willing or comfortable talking to their student about alcohol. As a result, this study may not capture all their barriers or difficulties parents face when communicating with their first-year student about alcohol. The generalizability of these findings may be hampered by selection bias, often a limiting factor for qualitative studies (Patton, 2002). While students were enrolled in campuses across the United States, parents in this study were mostly white, college educated, and
raised children in a geographic area surrounding a “college town,” which may limit the
generalizability of this study’s findings. Future research should determine if similar
content of communication and factors associated with communication exist across
different education levels, parents of different racial and ethnic identities, and geographic
locations. Additionally, this study was only from the parents’ perspective. Future research
should investigate the parent-student dyad in order to gain a better understanding of this
communication and how it relates to the student’s alcohol use.

Conclusion

Using Settles’ Model of Family Decision Making, this study was able to identify
factors that were associated with parents’ communication about alcohol with their first-
year college student from a parents’ perspective. In addition, four main content areas of
communication were identified: appropriate drinking behavior, consequences of alcohol
use, and family values related to alcohol use.
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<td>Family experiences</td>
<td>Role</td>
<td>Eliciting/evoking change talk</td>
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<td>Family values</td>
<td>Social structure</td>
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<td>Appropriate drinking behavior</td>
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<td>Skills</td>
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<td>Reactive</td>
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<td>-something that happened to student</td>
<td></td>
<td>Affirmations</td>
</tr>
<tr>
<td>-something that happened to someone else</td>
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<td>Feedback</td>
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Table 14: Participant descriptions

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<th>Number of topics talked about summer</th>
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Table 15: Summary of turning points

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<th>Event</th>
<th>Overall Frequency</th>
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<td>Entering middle school</td>
<td>13</td>
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<tr>
<td>Family/social gatherings</td>
<td>11</td>
<td>7</td>
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<tr>
<td>Prior to sending student to college</td>
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<tr>
<td>Drinking behavior of friends/roommates</td>
<td>7</td>
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<tr>
<td>College orientation</td>
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<tr>
<td>High school graduation</td>
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<tr>
<td>Driver's license/permit</td>
<td>6</td>
<td>5</td>
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<tr>
<td>High school trips with other students (Europe, scouts, band)</td>
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</tr>
<tr>
<td>High school party attendance</td>
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<tr>
<td>Parents' awareness of student's drinking/getting caught</td>
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<tr>
<td>Negative health consequences for a family member with alcoholism</td>
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<td>Prom</td>
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<tr>
<td>Tailgating/football games</td>
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<tr>
<td>School break in college</td>
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<tr>
<td>College party attendance</td>
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<tr>
<td>Entering high school</td>
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<tr>
<td>Student's alcohol-related arrest/citation</td>
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<tr>
<td>Family member's alcohol-related arrest/citation</td>
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<tr>
<td>Student's experience of negative consequences of alcohol use</td>
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<td>Pledging for a sorority</td>
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<tr>
<td>Student’s other substance arrest/citation</td>
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CHAPTER 5
DISCUSSION AND CONCLUSIONS

Introduction

The three previous discussed studies in this dissertation (see chapters 2-5) examined both the frequency and content of parent-child communication about alcohol among first-year college students. The first two studies were based on the Theory of Normative Social Behavior (TNSB) (Rimal & Real, 2005) and used data from a web survey that had been administered each fall semester the last three years to parents of first-year students at the University of Iowa. The third study applied Settles’ (1999) Model of Family Decision Making as a framework and used data collected from interviews with parents of first-year students. For the first study, quantitative data analysis were employed to categorize parents based on constructs from TNSB and examine differences in their perceptions of their first-year student’s drinking and the topics covered when they talked with their first-year college student about alcohol. In the second study, quantitative analyses were also used to examine what factors moderate the relationship between descriptive norms related to college students’ alcohol use and the alcohol-related topics parents communicated about with their first-year college student. Finally, in the third study, qualitative analyses were conducted to examine what factors based on MFDM are related to the frequency and content of parents’ communication about alcohol. Taken together, these studies offer insights into parent communication with their first-year college students about alcohol. This final chapter summarizes and synthesizes the studies’ results, discusses implications for public health practice,
reexamines the limitations of the aforementioned studies, and makes suggestions for future research.

**Synthesis of Findings**

The purpose of this dissertation was to explore how TNSB and MFDM could be used to explore the factors associated with parents’ communication about alcohol. Findings indicate that parents are talking to their student about alcohol prior to college enrollment, which is consistent with research done by Cremeens and colleagues (2008). However, all three studies in this dissertation suggest that the frequency of communication decreases during their student’s first semester at college. While this is not surprising since contact is more limited, there is evidence to suggest that parents may believe that their need for involvement has decreased or that their potential impact on their son’s or daughter’s lives is minimal, despite evidence to the contrary (Fairlie, Wood, & Laird, 2012; Jessor, Costa, Krueger, & Turbin, 2006; Wood, Read, Mitchell, & Brand, 2004).

While not evident in Study 3, Studies 1 and 2 found differences in the amount of topics covered for parents of male and female first-year college students. Parents of male students talk about significantly fewer alcohol-related topics during the current semester. Parents of sons and daughters also talked about different alcohol-related topics with their first-year college student. Table 16 shows the statistically significant differences between the topics ever talked about for parents of sons and daughters in the survey data used in chapters 2 and 3. While they were covering similar topics (ρ = .927), some topics were talked about more depending on the sex of the student. Parents of daughters were more likely to cover “relational topics,” such as how to have fun without drinking and how
alcohol gets in the way of making friends, and the negative consequences of mixing sex and alcohol. Parents of sons were more likely to discuss how drinking can get their student in trouble with the police or at the university. Additionally, Study 2 found differences in parents’ perceptions of their student’s drinking and susceptibility based on the sex of their student. Parents of male students indicated their sons drank more when he socialized in settings with alcohol and were more susceptible to the negative consequences associated with alcohol use than were parents of female students. Research suggests that men are more likely than women to participate in HED men and are more likely than women to take risks, such as drinking and driving or having sex without a condom, when combined with HED compared to women (Naimi, Brewer, Mokdad, Clark, Serdula, & Marks, 2003). Additionally, research has shown that males rate the effects of alcohol as more desirable than women (Gustafson, 1993), and male undergraduate students have been found to have more favorable attitudes toward alcohol than their female counterparts (Kirmani & Suman, 2010). This is not to imply that we should not be concerned about young women. A recent report put out by the CDC (2013) indicates that HED among women is an under-recognized problem. HED among women increases their risk of heart disease, sexually transmitted disease, and unintended pregnancy.

Taken together, parents of both male and female first-year students need to be encouraged to communicate with their student. However, interventions may need to target parents of male and female students differently. For parents of male students, it is important interventions inform parents that males are at higher risk for participating in HED and encourage continued and frequent conversations about alcohol that focus on
attitudes and the consequences of the short-term effects of alcohol. In addition to the legal consequences of alcohol use, parents of male students may need more encouragement to talk about the physical risks and alternative activities to drinking on campus. For parents of female students, these messages may need to include the definition of HED and its associated health risks, in addition to those associated with mixing alcohol and sex.

Additionally, in Studies 1 and 2, authoritative parenting was significantly, and positively, associated with the number of alcohol-related topics parents discussed with their first-year college student, while all parents in Study 3 reported high levels of authoritative parenting. This is consistent with past research (Beck, Scaffa, Swift, & Ko, 1995; Ennett, Bauman, Foshee, Pemberton, & Hicks, 2001; Patock-Peckham & Morgan-Lopez, 2006; Stephenson, Quick, Atkinson, & Tschida, 2005) on how parenting style impacts adolescents’ drinking and parents’ conversations about alcohol. Since parenting styles have been found to influence alcohol use patterns, specifically students with more authoritarian or permissive parents are more likely to drink more impulsively and more frequently (Abar, 2012; Ennett et al., 2001; Fairlie et al., 2012; Patock-Peckham & Morgan-Lopez, 2006), it is imperative that parent-based interventions on drinking behavior take these styles into account in order to adequately address the problem of HED on college campuses. Messages will need to take into account not only parenting practices, or levels of demandingness and responsiveness, but how parenting style impacts parents’ perceptions of their level of involvement in their college student’s life (McGuire, 2001). Future research is needed to determine what types of intervention approaches are most appropriate for each parenting style.
Across all three studies, it was evident that parents held misperceptions of other college students’ drinking behaviors at the University of Iowa and likely were underestimating their own students’ alcohol use. This is consistent with other research that has found that parents have limited awareness of their own student’s drinking (Deakin & Cohen, 1986; Shutt, Oswalt, & Cooper, 2006; Wheeler & Kennedy, 2009). Finally, in addition to misperceptions about college students’ drinking behaviors, parents across all three studies had low perceptions of susceptibility for their college student experiencing any of the negative consequences that can be associated with alcohol use. This likely reflects an optimism bias (Helweg-Larsen & Shepperd, 2001; Weinstein, 1987), or the tendency for parents to believe their student is less susceptible to the negative consequences of alcohol use compared to others regardless of the realities. As exemplified in Studies 1 and 2, and similarly supported in Study 3, parents who do not perceive their own or other students are drinking (or drinking a lot) and perceived their student to be at low risk for the negative consequences associated with alcohol use talk about fewer alcohol-related topics. Therefore it is important for future interventions to recognize parents’ optimism bias and misperceptions about alcohol use in their own child and in other college students and address them accordingly.

Finally, when examining how the quantitative studies of Studies 1 and 2 fit with the qualitative Study 3, it is useful to think about what “cluster” or parent profile parents in Study 3 fall into. Based on the interviews and their responses, the majority of parents in Study 3 would most likely be assigned to Cluster 2 in Study 1. Similar to this cluster (see Chapter 2), parents in Study 3 were significantly underestimating the number of drinks male and female college students consume in social settings with alcohol.
Additionally, these parents had low perceptions of their student’s susceptibility to the negative consequences associated with alcohol use.

**Theoretical and Conceptual Contributions**

**Theory of Normative Social Behavior (TNSB)**

While past research using TNSB has focused specifically on alcohol-use behaviors and intentions of adolescents and college students (Jang, Rimal, & Cho, 2011; Rimal, 2008; Rimal & Real, 2005), two studies in this dissertation successfully applied TNSB to understand parents’ communication with their first-year college student about alcohol. Studies 1 and 2 focused on parents’ normative perceptions related to college student drinking. The use of TNSB allowed for the completion of Specific Aims 1 and 2:

**Specific Aim 1**: Categorize parents based on the Theory of Normative Social Behavior constructs and examine differences in their perceptions of their first-year college student’s drinking and topics covered when communicating with their first-year college student about alcohol (see chapter 2).

**Specific Aim 2**: Examine how the relationship between descriptive norms related to college students’ alcohol use and the topics parents cover when they communicate about alcohol with their first-year student is affected by various moderators (see chapter 3).

In Study 1, constructs from TNSB (descriptive norms, injunctive norms, and outcome expectations) were used to categorize parents and predict their perceptions of their own students’ drinking and the number of alcohol-related topics they talked about with their first-year college student. Using the constructs from TNSB, three parent profiles were identified and implications for audience segmentation and message tailoring
were created. This was the first study to suggest audience segment based on the TNSB although previous studies suggest segmenting by theoretical constructions can be very helpful (Campo, Askelson, Carter, & Losch, 2012; Clatworthy, Buick, Hankins, Weinman, & Horne, 2005).

In Study 2, a modification and extension of TNSB was explored. Study 2 extended the TNSB in multiple ways. First, the outcome variable under investigation in this study was not an individual health behavior like actual alcohol use, but was communication behavior parents’ communication about alcohol). This suggests that TNSB may be useful in not only predicting health behaviors, but is also a useful theoretical framework for understanding communication behaviors.

Second, in response to Rimal’s (2008) call for the identification of additional moderators of the relationship between descriptive norms and behavior, parents’ perceptions of their college student’s susceptibility and severity and communication efficacy were tested as moderators. While perceptions of susceptibility to negative consequences associated with alcohol use acted as a moderator for this relationship between proximal norms and communication, communication efficacy and severity of alcohol-related consequences were not significantly related to parents’ communication, and therefore, no interaction was tested.

Third, this study differentiated between proximal and distal descriptive norms. In this study, proximal norms, or parents’ perceptions related to their student’s male friends’ drinking behaviors were positively and significantly associated with communication about alcohol while distal norms were not. This finding is similar to a research conducted by Campo and colleagues (2003) which found that both male and female college
students’ drinking behaviors were more strongly associated with their perceptions of male friends’ alcohol use. Future research testing TNSB may also want to consider differentiating between proximal and distal norms and between norms by gender.

Model of Family Decision Making (MFDM)

In Study 3 (chapter 4), MFDM was used as a guiding framework to determine additional factors impact parents’ decisions to talk and the frequency and content of their communication about alcohol with their first-year college student. Similar to the ecological perspective presented by McLeroy and colleagues (1988), Settles (1999) vies interpersonal and family communication from a multi-level perspective. Family interaction and decision-making is influenced by environmental, social, familial, and individual factors. These factors include: awareness, role, social structure, resources, skills, personality, norms, and other constraints. This allowed for the completion of Specific Aim 3:

**Specific Aim 3:** Using the Model of Family Decision Making as a guide, determine what additional factors impact parents’ decisions to talk and the frequency and content of their communication about alcohol with their first-year college student (see chapter 4).

In Study 3, parents did identify environmental, social, familial, and individual factors associated with their communication about alcohol with their first-year college student including the social structure of the college environment, normative perceptions of college students’ alcohol use, utilization of resources, parents’ role in communication about alcohol, and their perceived skills associated with communication about alcohol. Facilitators of communication about alcohol were identified as parents’ perceived role
and skills in communication about alcohol and the social structure and college environment their student was in. Additionally, normative perceptions, in this case underestimation of college students’ drinking and (non-)use of alcohol-related resources did not facilitate communication about alcohol. Some parents also identified other constraints, or barriers, to communication about alcohol, such as lack of geographic proximity, not wanting to upset the student, and focusing more on their student’s general transition and adjustment to life as a college student. The development of future interventions that focus on parents in order to reduce HED on college campuses should take these multiple levels of influence on communication into account.

**Public Health Implications: Parent-Based Interventions**

Past parent-based interventions (PBIs) aimed at reducing HED have relied heavily on parents’ communication about their attitudes and beliefs related to alcohol (Ichiyama et al., 2009; Turrisi, Jaccard, Taki, Dunnam, & Grimes, 2001; Turrisi et al., 2009; Wood, Fairlie, Fernandez, Borsari, Capone, Laforge, & Carmona-Barros, 2010). Since parental attitudes and communication have been found to strongly influence their child’s attitudes (e.g., negative attitudes toward drinking), and decreasing heavy drinking behavior among first-year college students (Ichiyama et al., 2009; Turrisi et al., 2010). Future PBIs should continue to build off of this model. Public health practitioners and college administrators should continue to work to incorporate parents in new and innovative ways in their efforts to reduce HED on college campuses. Additionally, the findings in this dissertation also identified five additional areas in which PBIs can expand: parenting style, social norms approaches, parents’ expectations of drinking, motivational interviewing
strategies, and a need for continuity of intervention. Implications for each of these areas are discussed below.

Parenting Style

The studies in this dissertation and past research (e.g., Abar & Turrisi, 2008) have shown that parenting style is associated with college students’ alcohol use. In this dissertation, particularly in Studies 1 and 2, parents who indicated they were more “authoritative” talked about more alcohol-related topics. Past research suggests that parenting style can be used as a valuable targeting variable for public health interventions (Stephenson et al., 2005). The goal would be to make parenting practices that are positively associated with decreased HED more accessible to all parents, not just the authoritative ones.

Authoritative parents have been found to be more likely to engaging in prevention parenting practices, and therefore, may only require messages that remind and reinforce parenting behaviors, such as open communication with their college-aged student about HED (Stephenson et al., 2005). For authoritarian and permissive (low authoritative) parents, this would mean introducing and informing parents about practices and payoffs of parenting behaviors in line with the authoritative style. This would include providing parents with the information and tools to increase their responsiveness while balancing it with high demandingness or control. In particular, parents who are not authoritative could benefit from understanding that college students still need supervision and monitoring, particularly related to alcohol use (Ennett et al., 2001). For low authoritative parents, this would also mean maintaining their interest in communication with their college-age
children about HED and ensuring they can comprehend the content required for more
effective communication (McGuire, 2001).

Normative Feedback

Findings from the three studies in this dissertation suggest normative re-education
may be necessary for parents since parents are underestimating their own student’s and
other college students drinking behaviors, especially since parental descriptive normative
perceptions have been found to be associated with college students’ descriptive
normative perceptions (O’Callaghan, Chant, Callan, & Baglioni, 1997). Linkenbach and
colleagues (2003) suggest that parents who are given accurate and credible information
about drinking behaviors, and at the same time are informed about what “typical parents”
are communicating about related to alcohol, may be more likely to maintain or raise their
standards for their own student and be more likely to enforce these standards consistent.

La Brie and colleagues (2008, 2009, 2010) also supports the use of normative
feedback in group settings to reduce the descriptive and injunctive normative
misperceptions regarding alcohol use among college students. In this type of intervention,
parents would be able to see how their own attitudes and perceptions about their student’s
drinking align with those of other parents, while allowing for a public health practitioner
and/or college or university staff member to provide national and campus-specific
information on college students’ drinking behaviors and the associated negative
consequences. It would also allow parents the opportunity to engage in conversations
with other parents to identify new and/or creative ways to talk with their student about
alcohol.
Additionally, in providing normative feedback to parents, it may also be important to address their perceptions of what other parents are talking to their students about. In addition to misperceptions of college students’ alcohol use, research has also found that parents have misperceptions of what other parents’ views on their student’s alcohol use (LaBrie, Hummer, Lac, Ehret, & Kenney, 2011); they tend to view other parents as more permissive and less communicative than themselves. Therefore, future interventions should provide opportunities for parents to share their experiences in communicating about alcohol with their first-year college student.

Finally, while providing normative re-education may be an important component of future PBIs, it cannot be done independent from potential moderators, as suggested by TNSB. Study 2 suggests that in the context of parents’ communication about alcohol, intervention activities that focus on descriptive norms should also focus on injunctive norms and parents’ communication outcome expectations. Current research conducted by Mollen and colleagues (2013) suggests that injunctive norms can directly influence a person to participate in “intervening behaviors,” which could be extended to parents’ communication about alcohol with their college student, and may be more easily communicated to parents through avenues such as parent associations or a university web section dedicated to parents. Further, parents may be functioning as an important normative influence on their student’s alcohol use. Through their communication about alcohol with their college student, they are influencing their student’s perception of their approval (injunctive norm) which can then influence their student’s behavior (LaBrie, Hummer, & Neighbors, 2008).
Overall, normative feedback interventions may be best provided in parent workshops to allow parents the opportunity to interaction with each other. Potential topics could include:

1) Current trends on college campuses regarding alcohol use
2) Prevalence of HED and other drinking behaviors on campus
3) Communication tips on addressing alcohol-related tips with first-year students
4) Provision of other parent examples on how to initiate and continue conversations about alcohol-related topics
5) Significance of parent communication during the transition into college

An alternative to in-person parent workshops may be a self-guided online intervention similar to that of eCHECKUP TO GO (http://www.e-chug.com; San Diego State University Research Foundation, 2009). eCHECKUP TO GO provides a personalized, evidence passed intervention on alcohol grounded in Motivational Interviewing and Social Norms Theory for college students in more than 600 university and college campuses, including the University of Iowa. Based on parents’ responses to questions on their normative perceptions related to alcohol use, current communication about alcohol, and perceptions of the importance of communication about alcohol, feedback on the topics mentioned above could be provided.

Parents’ Expectations of College Students’ Drinking

In Study 3, it became apparent that the majority of parents expected their first-year, underage college student to drink alcohol. This is not surprising considering all parents were recruited from the state of Iowa, which has traditionally been one of the states with high rates of alcohol use in the past month, the highest rates of HED in the
country, and low perceptions of risk associated with HED (Hughes, 2009). However, this expectation of underage drinking on campus may contradict a college’s or university’s expectation of underage drinking. For first-year students, this likely creates confusing and contradictory messages on what behaviors are and are not acceptable. Therefore, it is essential that colleges and universities work to provide information on a continuous and repetitive basis on what institutional expectations are for underage, first-year college students. Similar to the strategies that could be used for addressing normative misperceptions, parent-to-parent workshops could be offered to revisit prevention messages regarding alcohol use during the first-year of college. During these workshops, it would also be useful to educate parents on identifying competing messages they may be providing their student and ways to reframe their messages. These workshops could provide parents with opportunities to share their experiences in communicating with their student about alcohol, as well as present suggestion on how parents can create clear messages regarding expectations of drinking at college. Additionally, it would be helpful to provide parents with summaries of college policies and local and state laws regarding alcohol use of underage college students. These workshops would allow parents to communicate with other parents and assist in reducing any potential anxiety they might have in communicating about alcohol with their first-year college student (Taylor et al., 2000).

**Motivational Interviewing Strategies**

A final strategy that may be useful for future PBIs is to enhance parents’ motivational interviewing skills. Study 3 found evidence that parents, although not aware, are employing some motivational interviewing strategies when they communicate with
their student about alcohol. As a result, it may be beneficial to teach parents’ additional motivational interviewing strategies to improve their communication about alcohol with their first-year college student.

Motivational interviewing (MI) is an approach in counseling that originated in the area of addictive behaviors (Miller & Rollnick, 1991) and had become increasing used in clinical settings (Miller & Rollnick, 2002) and in social work practice (Corden & Somerton, 2004) and public health interventions (Resnicow, DiIorio, Soet, Borrelli, Hecht, & Ernst, 2002). The overall tone of MI is nonjudgmental, empathetic, and encouraging (Miller & Rollnick 1991; Resnicow, Jackson, Wang, Dudley, & Baranowski, 2001). The counselor or other practitioners is to establish a non-confrontational and supportive environment in which an individual feels comfortable expression their feelings about their current behavior. The overall goal is to help an individual think and talk about their reasons for their behavior and for reasons for changing their behavior, ultimately leading to positive behavior change. To do this, the implementers of MI use strategies such as reflective listening and positive affirmations and avoid defensiveness or attempting refutation.

Past interventions aimed at reducing college students’ risky drinking behaviors have also used MI with success, for example, The Brief Alcohol Screening and Intervention for College Students (BASICS) (Dimeff, Baer, Kivlahan, & Marlatt, 1999) and electronic-CHECKUP TO GO (http://www.e-chug.com; San Diego State University Research Foundation, 2009), mentioned above. Electronic-CHECKUP TO GO is now mandated for all University of Iowa students and uses both motivational interviewing techniques and normative feedback to motivate college students to reduce their alcohol
consumption. Through the implementation of motivational interviewing techniques, these interventions have been shown to reduce risky drinking behaviors (Neal & Carey, 2004; Walters & Neighbors, 2005).

To improve their communication about alcohol with their first-year college student, parents may benefit from training or workshops on motivational interviewing, particularly in learning the strategies used to facilitate movement toward behavior change. While it has been suggested that it can be difficult to train those outside the counseling profession in MI (Velasquez, Maurer, Crouch, & DiClemente, 2000) and it may not be appropriate or effective to fully train parents in MI, it may be possible to train parents on MI strategies, such as asking open ended-questions and basic reflective listening with a few hours of training (Resnicow et al., 2002).

A Need for Continuity

Current evidence-based practices for parent-based interventions include programming at first-year student orientation and the provision of a parent handbook prior to the start of the first-year student’s fall semester (Ichiyama et al., 2009; Turrisi et al., 2001; Turrisi, Abar, Mallett, & Jaccard, 2010). All current evidence-based practices timed to occur before the student enters college. However, since all three studies in this dissertation indicated that parents’ communication about alcohol significantly declines once their student enrolls in college and Study 1 shows that parents’ take a more passive role in communication about alcohol once the semester starts, continuation of interventions is warranted. Future PBIs should consider sending out “refresher” newsletters that includes reminders of the importance and influence of parent communication about alcohol on student’s drinking behaviors. Study 3 also suggested
that the majority of participants are using text messages to communicate with their first-year student. Therefore, future interventions could also consider the use of text messages to send parents reminders about the importance of communication about alcohol and to provide ideas for topics of conversations. Furthermore, since findings in Study 3 indicate that parents talk to their student about alcohol after an alcohol-related incident that occurred over the weekend or at an event, like a football game or party, it may be best practice for text messages on communication about alcohol to be timed to be sent prior to the weekend or large events on campus.

Limitations and Future Research

Limitations

The cross-sectional nature of the first and second study leads to temporal ambiguity, which weakens the ability to draw causal inferences about how TNSB constructs impact parents’ communication about alcohol. Additionally, due to the retrospective nature of this survey, a recall bias may be present (Coughlin, 1990), particularly when parents were asked to remember what alcohol-related topics they had discussed with their first-year college student during the summer and current semester. Additionally, since the study 1 and 2 participants are being drawn from a single university, it is difficult to generalize the findings to universities that are not of similar size, student make-up, and drinking environment. Additionally, a response bias of the survey may be present. First, since studies 1 and 2 utilize a web survey, parents who have limited web literacy or low frequency computer use may not be represented in this survey (Dillman, 2000). Additionally, parents who participate in this survey may be different
than those who did not; however, any bias in this is likely to be an over-reporting of communication from involved parents rather than an under-reporting of behaviors.

The generalizability of the findings in the third study may be hampered by selection bias, often a limiting factor for qualitative studies (Patton, 2002). This study did use a random sample. Self-selection bias may also occur as parents enroll in the study, with parents who are more likely to communicate about alcohol with their college student being more likely to participate. Parents in this study were recruited from one geographic location. However, regardless of where their parents sent their student, the University of Iowa, another state school, or an out-of-state school, they responded similarly, suggesting normative perceptions and associated communication may be derived from the parents’ and students’ culture and geographic location than that of the university or college. Additionally, the interviews conducted for Study 3 are only from the parent perspective. Future research would benefit from dyadic interviews when both the parent and student participate. Despite the limitations, this dissertation was able to explore and identify factors that influence some parents’ communication about alcohol with their college student from the parent perspective in an environment that in which alcohol use, and even HED, is widely accepted.

Future Research

Parent-child Communication

Future research is needed to continue to explore parent-child communication about alcohol among first-year college students. This dissertation examined parents’ recollections of their conversations of with their first-year college student retrospectively. Additionally, other work should examine the content of communication from the college
student’s point of view, beginning with college enrollment and continuing to graduation. This research should look at the frequency and timing of these conversations, and prospectively examine how they might be associated with college students’ alcohol use.

Additionally, future research on the process and context of parents’ communication about alcohol with their first-year student needs to be further examined. While the studies in this dissertation provide insight into frequency and content, knowing what is being said and how frequently it is being said is not enough to facilitate understanding. While the parents in Study 3 provided insight into the how and why of their communication about alcohol, further qualitative interviews with both parents and students similar to those conducted by Bylund and colleagues (2005) can shed light on what triggers these conversations on alcohol, who initiates them and who participates, and how the style and flow of communication can be described.

**Communication on Family History of Alcohol Use**

One alcohol-related topic of communication identified by parents in Study 3 that needs further research is family experiences related to alcohol use. Family history of alcoholism is the strongest predictor for the development of alcoholism (Gianoulakis & de Waele, 1994; Bergleiter, Porjesz, Bihari, & Kissin, 1984; Hill, Stenhauer, Zubin, & Baughman, 1988). College students, particularly males, with family history of alcohol abuse are vulnerable to high levels of alcohol consumption (LaBrie, Migliuri, Kenney, & Lac, 2010).

Interestingly, parents in this study expressed discrepant attitudes and behaviors when considering family history of alcohol use and alcoholism, their student’s risk for alcoholism, and their student’s drinking behavior. While they were motivated to
communicate increased risk of alcoholism to their student, they did not believe their student needed to abstain from drinking, and many allowed drinking in their own home. The potential inconsistencies in these messages and lack of understanding of the biology of alcoholism are potentially very problematic and likely confusing for college students. The mixed messages have the potential to lead to the endorsement of positive alcohol-related expectancies and heavier alcohol use for these students (LaBrie et al., 2010).

It is likely that a wide range of variables can be explored in relation to the content and process of communicating about family substance abuse. The ultimate goal of future research in this area should aim toward information prevention programs. Solid evidence of the content and process of substance abuse communication could help us better inform prevention strategies aimed at reducing substance use and abuse among college students and adolescents. A better understanding of the influence of family history and the communication of family history of substance abuse could serve to inform prevention programs for those at highest risk for substance abuse. The discrepant beliefs and behaviors of parents of children with family histories of alcoholism may be an important entre to interventions using motivational interviewing or cognitive behavioral therapy techniques to initially increase cognitive dissonance to point out discrepancies in messages (Hettema, Steele, & Miller, 2005; McNally, Palfai, & Kahler, 2005).

Additionally, the messages related to family history about alcohol use, in addition to parents communication about appropriate drinking behavior and family rules regarding alcohol use, are likely associated with their college student’s expectancies (i.e., the anticipated effects of alcohol consumption) (Brown, Tate, Vik, Haas, & Aarons, 1999). As noted in Chapter 1, research has found a link between alcohol expectancies and
alcohol consumption in college students and young adults (Brown, Goldman, Inn, & Anderson, 1980; Christiansen, Goldman, & Inn, 1982; Christiansen, Smith, Roehling, & Goldman, 1989; Henderson, Goldman, Coover, & Carnevalla, 1994). The conversations parents are having with their student are likely influencing the student’s alcohol expectancies from the time of initiation of these conversations. While parents in this study indicated that they do talk about the risks and consequences of drinking, particularly associated with family history of substance abuse, they also had conversations about how drinking was acceptable, fun, and typical adolescent and college student behavior. These conversations likely influenced their student’s positive alcohol expectancies which are associated with alcohol consumption in college students and drinking-related problems and alcohol dependence (Armeli, Carney, Tennen, Affleck, & O’Neil, 2000).

The acquisition of alcohol expectancies is of theoretical and clinical importance to those who study alcohol use among adolescents and young adults (Dunn & Goldman, 1996, 1998). Since parental behavior related to and communication about alcohol influences the decisions of college students when it comes to drinking, it is essential research continues to explore how and when these factors influence their child’s decision-making related to alcohol, including their alcohol expectancies. Additionally, on average, parents in Study 3 (Chapter 4) reported they started talking to their student about alcohol around the start of high school. Previous research (Casswell, Gilmore, Sliva, & Brasch, 1988; Dunn & Goldman, 1998; Miller, Smith, Goldman, 1990), has shown that alcohol expectancies form as early as the age of 8. Therefore, future public health interventions should target parents and families with young children and encourage communication
about alcohol at an early age. Future research could explore how specific conversations about family history, family rules, or appropriate drinking behaviors influence expectancy acquisition and when (i.e., the age of child) these conversations.

**Additional Research**

To eliminate some of the limitations of the studies in this dissertation, longitudinal studies are needed to examine and describe the development and effects of parent-child communication about alcohol over time from both the parent’s and student’s perspective. Longitudinal studies with dyads would also allow for the opportunity to examine the cause-effect relationship between parents’ communication about alcohol and students’ drinking behaviors.

Finally, university and college administrators should remain attentive to new alcohol education strategies based in research. There is a new for new, innovative, and evidence-based programs for HED prevention. Since the issue of alcohol use and abuse on campuses is not only a student problem, but impacts parents and institutions of higher education as well, campus administrators should continue to work to address HED through strategies that include prevention education, policy development and enforcement, and parent and community involvement. Research on how to effectively address multiple levels of influence, including an underutilized college resource, the college student’s parent, should continue.

**Conclusion**

When this generation of college students has been asked “Who do you look up to the most?”, the majority of college students have been found to respond, “my parents.” (College Parents of America, 2007; Hofer & Moore, 2010). Additionally, past research
(American College Health Assessment, 2005; Lehr, DiIorio, Dudly, & Lipana, 2000; Wintre & Yaffe, 2000) has shown that parents remain influential on their college student’s health behaviors, including those related to alcohol use (Macaulay, Griffen, Gronewold, Williams, Botvin, 2005; Padilla-Walker, Nelson, Madsen, & Barry, 2008). The studies in this dissertation fill the void in the literature by examining parent-student communication about alcohol from the parents’ perspective. Further, taken together these studies provide further understanding of the frequency and content of this communication. Public health efforts on college campuses should continue to include parents in interventions aimed at reducing HED. Promising interventions that target parents as a way to reduce HED may include normative approaches and motivational interviewing strategies. Future research should continue to build on the contributions of this dissertation, including research examining communication within the parent-student dyad.
Table 16: Differences in the alcohol-related topics covered by parents of male and female students

<table>
<thead>
<tr>
<th>Topic</th>
<th>% of parents with daughters</th>
<th>% of parents with sons</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relational/Social</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to find fun things to do instead of drinking</td>
<td>81.8%</td>
<td>76.2%</td>
<td>$\chi^2(1) = 4.147$, $p = .048$</td>
</tr>
<tr>
<td>Ways to meet people without drinking</td>
<td>70.7%</td>
<td>62.4%</td>
<td>$\chi^2(1) = 10.015$, $p = .002$</td>
</tr>
<tr>
<td>Alternatives to drinking to celebrate special occasions</td>
<td>66.9%</td>
<td>61.2%</td>
<td>$\chi^2(1) = 4.637$, $p = .035$</td>
</tr>
<tr>
<td>How to meet potential boyfriends/</td>
<td>57.2%</td>
<td>43.4%</td>
<td>$\chi^2(1) = 24.613$, $p = .000$</td>
</tr>
<tr>
<td>girlfriends without drinking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How alcohol gets in the way of making true friends</td>
<td>50.0%</td>
<td>41.6%</td>
<td>$\chi^2(1) = 9.109$, $p = .003$</td>
</tr>
<tr>
<td><strong>Physical Consequences</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The negative consequences of mixing alcohol and sex</td>
<td>80.2%</td>
<td>67.0%</td>
<td>$\chi^2(1) = 29.057$, $p = .000$</td>
</tr>
<tr>
<td><strong>Consequences with Institutions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How drinking might have negative consequences for your</td>
<td>86.4%</td>
<td>93.0%</td>
<td>$\chi^2(1) = 14.703$, $p = .000$</td>
</tr>
<tr>
<td>student at the U of I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How drinking could get you in trouble with the police</td>
<td>85.2%</td>
<td>92.1%</td>
<td>$\chi^2(1) = 14.993$, $p = .000$</td>
</tr>
<tr>
<td>The negative things that would happen if your student</td>
<td>84.9%</td>
<td>90.6%</td>
<td>$\chi^2(1) = 9.543$, $p = .002$</td>
</tr>
<tr>
<td>was caught drinking by the police</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How it could be embarrassing for the family if your</td>
<td>58.4%</td>
<td>69.1%</td>
<td>$\chi^2(1) = 15.606$, $p = .000$</td>
</tr>
<tr>
<td>student got in trouble with the police because of drinking</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX A: INTERVIEW PROTOCOL

Introduction

Thank you for taking your time to be interviewed today. The purpose of this interview is to try and find out more about how parents may talk to their first-year college student about alcohol. I am really interested in hearing your experiences on this topic, there are not right or wrong answers. Your answers will be kept confidential and will only be used for research purposes. You do not have to answer any questions you do not want to. If you have any questions about what I’m asking at any time, please let me know. I would like to tape record our conversation. No one outside of the research team will hear the recording; it is just in case I do not have time to write everything down. Is it okay to record our conversation?

I am going to ask you a series of questions about your communication about alcohol with your first-year college student. I am interested in gaining an understanding of the events related to this communication.

SECTION 1: Turning points
Using this line as a timeline- I’d like you to plot any experiences, events, or turning points that you recall as significant or important related the times you talked with you son/daughter about alcohol.

You will notice that along the bottom of the graph are years marked that represent your child’s age. The starting point is for your son/daughter was born. On the far right side of the paper the graph will end at the present time/current day. The tick marks along the bottom are set up in yearly increments.
First, please indicate on the timeline when your student enrolled in college. The left side of the timeline is when your child was born/came into your care and the right side of the timeline represents present day.

Think about memorable moments or significant events that are related to you communication about alcohol with your college student. Please places the times you can remember talking with your son/daughter about alcohol on the timeline provided. I will then ask you some questions about these events.

(After they have charted their turning points)

- Do you remember the first time you talked with your son/daughter about alcohol?  
  When was this?

- Could you tell me the most recent time you talked with your son/daughter about alcohol?

(After all turning points are discussed)

- Have you talked to your son/daughter about alcohol since he/she started college?

SECTION 2: Follow-up questions for each turning point

- For every turning point: When was this?
  - Why do you think you talked about alcohol at this time?
    - What is the significance of this moment? What happened?
    - What was happening directly prior to this point?
    - What made this a significant event?
• How did this affect your relationship with your college student? Other family members?

• Did you talk to others during this time? Who? What did you talk about?

• Probes: Your child had reached a certain age? Saw a story on TV? Etc.?
  o What was said?
  o Where did this conversation occur?
  o Was this conversation in-person? On the phone? Via email? Etc.?
  o How did the topic first come up? Why did it occur?
    ▪ Did you raise the issue?
    ▪ Did your college student raise the issue?

  o Were there any specific messages you were trying to get across? Can you give an example? What did you talk about?

  o At this point in time, on average, how many alcoholic drinks, if any, do you think the following groups of people (male friends, female friends, typical male of the same age, typical females of the same age) consumed when they socialized in a setting with alcohol? If they did not drink at all, please write 0. Just give your best estimate.

• Have you talked with your student about alcohol since he/she has been at college?
  o IF YES - What have your conversations about alcohol with your student looked like since he/she has been in college?
- How often do these conversations happen?
- How do these conversations occur/why do they happen when they do?
- Who starts

  - IF NO – Why not?
    - What has been keeping you from talking about alcohol with your student?
    - Lack of information?
    - Student characteristics?
    - Geography?

  - You feel it won’t make a difference?

SECTION 3: Factors that influence communication

- Have your personal experiences with alcohol shaped the way you talk to your college student about alcohol?

  - IF YES - How have your experiences with alcohol shaped the way you talk to your college student about alcohol?
    - Personal history
    - Experiences with alcohol
    - Attitudes toward use
    - Family history

  - IF NO – why not?
    - What would say has shaped the way you talked about alcohol with your college student?
• What factors (probe as necessary) affect your conversations about alcohol with your college student? Does anything make them easier? Harder?

• Have you ever done/do you do any of the following with your college student? (ask parents to chart this on the timeline)
  o Inquired about campus/University alcohol policies?
  o Received materials about alcohol from the University and discussed the information with your college student?
  o Asked your student about their roommates and living arrangement?
  o Discussed the consequences of heavy episodic drinking?
  o Discussed the penalties for underage drinking?
  o Discussed family rules about alcohol use

• How have the factors mentioned above impacted your communication about alcohol with your college student?

• In general, how important do you think it is to talk to your child about alcohol? Do you see it as your responsibility? The responsibility of others?

SECTION 4: Alcohol Behaviors

• Have there been any incidents or things that have happened related to alcohol that have changed your relationship with your student? If yes, what happened? (ask them to chart this on the timeline)
  o How did this impact your communication about alcohol with your student?

• How would you describe alcohol use at your student’s college/university?
  o How would you describe your student’s alcohol use?
• As far as you know, has he or she ever consumed alcohol?

• Do you know…
  • How much they drink?
  • What they drink?
  • How often they drink?
  • Who they drink with?
  • Where they drink?

• Have you talked to them about these behaviors?
  • When?
  • What did you say?
  • How did they react?

  o How would you describe your student’s college friends’ use?

  • Do you know…
    • How much they drink?
    • What they drink?
    • How often they drink?
    • Who they drink with?
    • Where they drink

  • Have you talked to them about their friends’ behaviors?
    • When
    • What did you say?
    • How did they react?
SECTION 5: Future communication

- Do you see talking about alcohol with your student as important? Why or why not?
- Have you ever wanted to talk with your student about alcohol, but could not? Can you explain?
- Are you planning on talking about alcohol with your college student sometime in the future? When do you think you will? Why?

SECTION 6: Conclusion

- In general, how important do you think it is to talk to your son/daughter about alcohol? Do you see it as your responsibility? The responsibility of others?
- Have you ever used any resources to help you talk to your student about alcohol?
  - Probes: Websites? Brochures? Information from the University? Etc.?
- How do you think we can help parents talk more to their children about alcohol?
- Do you have anything else you would like to add?

That ends the interview. Thank you for taking the time to share your experiences with us.
Interview Timeline

# of alcoholic drinks consumed when socializing in a setting with alcohol (male friends, female friends, typical male of the same age, typical females of the same age)

Child’s birth

Present day
APPENDIX B: INTERVIEW QUESTIONNAIRE

Are you...

- Male
- Female

How old are you? _______

How many children are in your household who live with you at least half of the time? _____

Is the student that you sent to college this year...

- Male
- Female

Where did your son/daughter begin school this fall?

_____________________________

Are you...

- Married
- Divorced
- Widowed
- Separated
- Never married
- Living with partner

What is the highest grade or year of school you completed?

- Never attended school or only attended kindergarten
- Elementary or middle school
- Some high school
- High school graduate
- Some college or technical school or associate's degree
- Bachelor's degree
- Graduate or professional degree (i.e., MS, MA, MFA, MSW, PhD, JD, MD)
What was your household income in 2009?

- Less than $10,000
- $10,000 - under $20,000
- $20,000 - under $30,000
- $30,000 - under $50,000
- $50,000 - under $75,000
- $75,000 - under $100,000
- $100,000 or more

Are you Hispanic or Latino?

- Yes
- No

What is your race? (Please check all that apply)

- White/Caucasian
- Black/African American
- Asian
- Native Hawaiian or Other Pacific Islander
- American Indian/Alaska Native
- Other, please specify: ____________________
The questions below ask you about a variety of topics you might have discussed with your student. Please indicate whether you talked about the subject with your student this past summer, during the current semester, or not at all. If you talked about the topic during the summer AND during the semester, please mark both columns. Since high school graduation my student and I have talked about...

<table>
<thead>
<tr>
<th>Topic</th>
<th>Yes, during the past summer</th>
<th>Yes, during this current semester</th>
<th>No, not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>How alcohol works in the body (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The ways alcohol can impair judgment (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternatives to drinking to celebrate special occasions (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The importance of being able to improve mood without the use of alcohol (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to find fun things to do instead of drinking (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The importance of not being pressured by others into drinking (6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ways to meet people without drinking (7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ways to spend time with friends without drinking (8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to meet potential boyfriends/girlfriends without drinking (9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How difficult it is to make accurate judgments of how drunk you are (10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How alcohol can create a false sense of power (11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How alcohol gets in the way of making true friends (12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How drinking only makes problems worse, not better (13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How drinking does not really make you more grown up (14)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>How alcohol can change your student's personality (15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How it could be embarrassing for the family if your student got in trouble with the police because of drinking (16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The negative consequences of mixing alcohol and sex (17)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How drinking could lead to serious drinking and health problems (18)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How mixing alcohol with medications and other drugs can be dangerous (19)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How social drinking may lead to alcoholism (20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How drinking could get you in trouble with the police (21)</td>
<td></td>
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<tr>
<td>The negative things that would happen if your student was caught drinking by the police (22)</td>
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<tr>
<td>Drunk driving and its consequences (23)</td>
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<tr>
<td>What your student's punishment would be if he or she was caught drinking (24)</td>
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<tr>
<td>The risk of riding in a car with someone who has been drinking (25)</td>
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<tr>
<td>How being caught drinking might have negative consequences for your student at school (26)</td>
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<tr>
<td>How being caught drinking will result in publication of student's citation in the newspaper (27)</td>
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</tbody>
</table>
The questions below ask you about your interaction with your student. Please indicate how often you do the following with your student:

<table>
<thead>
<tr>
<th></th>
<th>Never (1)</th>
<th>Very seldom (2)</th>
<th>Once in a while (3)</th>
<th>About half the time (4)</th>
<th>Often (5)</th>
<th>Very often (6)</th>
<th>Always (7)</th>
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</thead>
<tbody>
<tr>
<td>I am responsive to my student’s feelings and needs. (1)</td>
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<td>I encourage my student to talk about his or her troubles. (2)</td>
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<td>I take my student’s desires into account before asking my student to do something. (3)</td>
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<td>I give comfort and understanding when my student is upset. (4)</td>
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<tr>
<td>I show respect for my student’s opinions by encouraging her or him to express them. (5)</td>
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<td>I allow my student to give input into family rules. (6)</td>
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<tr>
<td>I give my student reasons why rules should be obeyed. (7)</td>
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<td>I help my student to understand the impact of his or her behavior. (8)</td>
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<tr>
<td>I explain the consequences of his or her behaviors. (9)</td>
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</table>
APPENDIX C: CODEBOOK

Interviews with Parents about Communication with their First-Year College Student about Alcohol

CODEBOOK

| Preliminary codes for parent interviews about their communication about alcohol |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| **Communication about alcohol**  |                                                                                                                                 |
| Content                         |                                                                                                                                 |
| Personal experiences            | What they did when they were in college; negative consequences they experienced                                               |
| Family experiences              | Family history of alcoholism, negative consequences that happen to a family member                                                |
| Family values                   | What family expectations/values/rules are related to drinking                                                                      |
| Appropriate drinking behavior   | Discussions of when and what is appropriate to drink,                                                                            |
| Consequences of drinking        | Discussion of what can happen as a result of drinking                                                                            |
| **Conversation/discussion type**|                                                                                                                                 |
| Proactive                       | Preventive; prior to an incident occurring                                                                                        |
| Reactive                        | Due to an event happening                                                                                                         |
| -something that happened to student |                                                                                                                                 |
| -something that happened to someone else |                                                                                                                                 |
| **Technique (re: motivational interviewing)** |                                                                                                                                 |
| Asking permission               | “do you mind if we talk about alcohol/drinking” or “can we talk about alcohol/drinking”                                          |
| Eliciting/evoking change talk   | Providing reasons to change behavior/reasons to (not) participate in a behavior                                                 |
| Exploring importance and confidence | “What would you do different about the situation”                                                                                 |
|                                | “What makes you think you need to change?”                                                                                       |
|                                | “What would happen if you didn’t change”                                                                                          |
| Open ended questions           | “what do you think you might do to increase the confidence to change your drinking behavior”                                     |
|                                | “Tell me what you think about….”                                                                                                 |
|                                | “What happened to make you (your friends) to behavior that way?”                                                                  |
| Reflecting listening | Listening carefully and responding back with a reasonable guess about what they are saying; forming hypothesis  
| What sounds like…
| What I hear you saying…
| It seems as if… |
| Normalizing | Communicating the drinking/experimenting/partying is a not uncommon, and they are not alone in their experience NOT intended to make person feel comfortable with not changing; rather that it is difficult to change  
| A lot of people are concerned about their drinking behavior |
| Decisional balancing | Assist in the realization that there are benefits and costs from drinking behaviors  
| what are some of the good things about your drinking behavior, what are some of the less positive things? |
| Statements supporting efficacy | Statements that support self-efficacy in the (small) changes they have made  
| It seems you’ve been working to avoid situations where alcohol is available |
| Affirmations | Recognize student’s strengths, successes, and efforts to change; recognize changes and attempts to change  
| It’s clear you are really trying to change your behavior |
| Advice/feedback | Use simple advice  
| If you have continue to drink the way you are now, I will no longer provide you with any financial support |
| What do you know about how your drinking affects your health? |
| Okay, you said that the legal limit for drunk driving is .08%. What do you know about how many drinks it takes to get to this level? |
| Therapeutic paradox | Statements about unexpected contradictions  
<p>| You have still been drinking and partying, but you say you want to do better in school. Maybe this is not the best time to try and make those changes |
| Participants | Members/individuals present in the conversations about alcohol |</p>
<table>
<thead>
<tr>
<th>Motivation</th>
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</thead>
<tbody>
<tr>
<td>Parent initiated</td>
<td>Parent brought up the topic of alcohol</td>
</tr>
<tr>
<td>Student initiated</td>
<td>Student brought up the topic of alcohol</td>
</tr>
<tr>
<td>Frequency</td>
<td>“We talk about it all the time”</td>
</tr>
<tr>
<td>Outcome expectations</td>
<td>Parents’ perceptions of what will happen as a result of their conversations about alcohol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Awareness</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Awareness of student’s drinking</td>
<td>Description of student’s drinking</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Role</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Parent’s role in talking about alcohol</td>
<td>How they describe their responsibility as a parent to talk about alcohol</td>
</tr>
<tr>
<td>Child’s role in talking about alcohol</td>
<td>How they describe their child’s responsibility to talk about alcohol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social structure</th>
<th></th>
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<tbody>
<tr>
<td>College setting</td>
<td>What about their child/student being in college impacts communication</td>
</tr>
<tr>
<td>Environmental factors</td>
<td>What factors associated with their college/university impacts communication</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Resources</th>
<th></th>
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<tbody>
<tr>
<td>Information received</td>
<td>Materials they received focused on college students’ alcohol use</td>
</tr>
<tr>
<td>Information sought out</td>
<td>Materials they have found that focus on college students’ alcohol use</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills</th>
<th></th>
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<tbody>
<tr>
<td>Efficacy in talking about alcohol</td>
<td>Confidence in communicating about alcohol</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Student’s personality</td>
<td>Description of how their student’s personality impacts their conversations about alcohol</td>
</tr>
<tr>
<td>Parent’s personality</td>
<td>Description of how their personality impacts conversations about alcohol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norms</th>
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<tbody>
<tr>
<td>Perceptions of college student’s alcohol use</td>
<td>Proximal Parents’ description of their student’s friends alcohol use</td>
</tr>
<tr>
<td></td>
<td>Distal Parents’ description of typical undergraduate student’s alcohol use</td>
</tr>
<tr>
<td>Injunctive norms</td>
<td>Opinion/approval of college student drinking behavior</td>
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<thead>
<tr>
<th>Barriers to communication</th>
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<tbody>
<tr>
<td>Barriers</td>
<td>Factors that get in the way of their communication about alcohol with their college student</td>
</tr>
</tbody>
</table>

| Facilitators of communication |                                                        |
| Facilitators | Factors that allow/enhance/encourage their communication about alcohol with their college student |
REFERENCES


Gustafson, R. (1993). Alcohol-related expected effects and the desirability of these effects for Swedish college students measured with the alcohol expectancy questionnaire. Alcohol and Alcoholism, 28, 469-475.


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