Published in final edited form as:

Alcohol Clin Exp Res. 2016 December ; 40(12): 2631–2638. doi:10.1111/acer.13242.

An Examination of the Relationship between Consequence-Specific Normative Belief Patterns and Alcohol-Related Consequences among College Students

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Abstract

Background—Research has previously identified a high-risk subgroup of college students who experience high levels of multiple and repeated alcohol-related consequences (MRC group). The purpose of this study was to examine the association between consequence-specific normative influences and experiencing multiple and repeated drinking-related consequences using a person-centered approach. Normative subgroups were identified using latent profile analysis (LPA), which were then used to predict MRC group status at 6-month follow-up.

Methods—First-year college student drinkers (N=2024) at a large northeastern university completed online surveys during the fall and spring semesters of their freshman year. Retention was high with 92% of invited participants completing T2, of which the MRC group accounted for 27%.

Results—Three student profiles were identified from LPA on T1 data: *Non Permissive Parents* (77%), *Positive Peer and Parent Norms* (20%), and *Permissive Parents* (3%). Logistic regression revealed that both the *Positive Peer and Parent Norms* and *Permissive Parents* profiles had significantly higher odds of MRC group membership at follow-up (1.81 and 2.78 times greater, respectively).

Conclusions—The results suggest value in prevention efforts that include normative beliefs about alcohol-related consequences. Further, parental norms in particular have the potential to enhance interventions, especially through direct communication of disapproval for experiencing consequences.

Keywords

alcohol-related consequences; consequence-specific norms; college student drinking-related consequences

Introduction

College students' use of alcohol represents an ongoing public health problem. The first year of college is a particularly vulnerable period that is often characterized by risky drinking behaviors (White et al., 2006) resulting in negative effects of such use (Schulenberg & Maggs, 2002; White et al., 2006). This results in elevated risk for experiencing a myriad of alcohol-related consequences including academic failure, sexual risk, and legal issues (e.g., Perkins, 2002).

Although the majority of college students consume alcohol and experience consequences during their freshman year (Hingson et al., 2009; Wechsler et al., 2002), some students are at higher levels of risk. Specifically, Mallett et al. (2011) identified a group of students who made up approximately 20% of drinkers in their first year of college and accounted for nearly half of the consequences reported (MRC: *Multiple and Repeated Consequences*). The MRC group is unique relative to other high-risk drinkers in that they account for both “*the number of unique consequences experienced*” and “*consequences experienced repeatedly on different occasions*”.

A great deal of past research has used a summation of the total number of consequences as an outcome measure rather than MRC group membership. While both have merits, the MRC conceptualization can help guide prevention efforts in unique ways. For example, as highlighted by Mallett and colleagues (2011) students could experience: 1) a variety of consequences only once, 2) the same consequences repeatedly, or 3) a combination of the two (a variety of consequences repeated on different occasions: MRC). From a prevention standpoint, targeted change strategies can be matched to these consequence patterns to improve efficacy and strengthen program effects (e.g., experiencing different consequences on each occasion can be addressed by targeted drinking reduction since the consequences are less predictable; whereas experiencing a variety of consequences repeatedly across different occasions can be addressed by targeted efforts to reduce those specific consequences in addition to reducing consumption).

More recent studies have examined the criterion related validity of the MRC conceptualization by identifying predictors of the MRC group. For example, Scaglione et al. (2015) used latent profile analysis of early onset of drinking behaviors to predict MRC group membership among students entering college. Varvil-Weld and colleagues (2012) identified pre-college parenting profiles to predict membership at the end of the first year of college. Additionally, Varvil-Weld et al. (2013) used drinking, risk and protective behaviors, and normative beliefs about alcohol during the first semester on campus to predict MRC group membership at the end of the first year of college. Understanding the risk factors associated with MRC group membership is warranted to enhance targeted intervention efforts toward these students.

Normative Beliefs, Drinking Behaviors, and Alcohol-Related Consequences

Drinking-specific normative beliefs are among the strongest correlates of college students' alcohol use (Borsari et al., 2007; Borsari & Carey, 2001; 2003). While numerous studies have documented the importance of drinking-specific norms, far less is known about

consequence-specific norms and the way in which they influence alcohol-related consequences.

Consequence-specific normative beliefs, like their counterpart drinking normative beliefs, consist of both descriptive and injunctive norms. Consequence-specific *descriptive* norms are perceptions of how often others experience consequences; whereas consequence-specific *injunctive* norms are the extent to which one perceives others' approval of experiencing consequences. For example, while students may hold the normative perceptions that their friends both drink and approve of drinking on a weekend evening, they may simultaneously hold the belief that their friends do not experience blackouts (i.e., descriptive norms), nor approve of blacking out (i.e., injunctive norms). These consequence-specific normative beliefs are likely based, in part, on deflated views of the frequency with which peers experience consequences, and on beliefs that the consequences are perceived less negatively by peers. Lee and colleagues (2010) found a potentially reciprocal relationship between descriptive norms and consequences, whereby students overestimated the occurrence of other college students' negative alcohol-related consequences *and* believed others viewed these consequences as less negative than was actually reported. It is possible that experiencing consequences may be minimized to simply being a normal result of drinking, rather than something of more significance that should be avoided (McMahon et al., 1994). Further, not all the outcomes that are measured as consequences by researchers are perceived negatively by students. For example, Mallett and colleagues (2008) observed that students rated some consequences (e.g., hangovers, being late to work or class, etc.) as neutral or positive experiences, suggesting that consequences are considered part of the normal college experience.

While studies often examine peer influences exclusively, a rich literature indicates that parents remain influential throughout the college years (Abar & Turrisi, 2008; Turrisi et al., 2001; Wood et al., 2004). For example, past studies consistently demonstrate strong associations between perceived injunctive parent drinking-specific norms (i.e., parental approval of alcohol use) and students' self-reported drinking (Neighbors et al., 2008) and alcohol-related consequences (LaBrie et al., 2010). However, the combined effects of both peer and parental consequence-specific normative influences on alcohol-related consequences has received little attention in the literature. The current study seeks to fill this gap by using a person-centered approach to examine the association between the collective effects of consequence-specific normative influences from closest peers, mothers, and fathers and college students' experiences with alcohol-related consequences.

The Current Study

The current study employed LPA to identify distinct “profiles” of students distinguished by unique combinations of peer and parental descriptive and injunctive consequence-specific normative beliefs. Latent profile analysis (LPA) is an empirically based approach used to identify profiles of individuals based on a range of indicators, which has the benefit of examining multiple influences interacting with each other within the individual. Toward this end, we employed LPA to identify distinct subgroups or “profiles” of students who were distinguished by unique combinations of peer and parental descriptive and injunctive

normative beliefs focused on alcohol-related consequences. Similar person-centered approaches have been applied to identify subgroups of college drinkers (Cleveland et al., 2012; Turrisi et al., 2013); however, to our knowledge such techniques have not been applied to normative perceptions of alcohol-related consequences.

Once profiles were identified, the second goal of the current study was to use the LPA “profiles” to predict MRC group status at 6-month follow-up. We hypothesized that profiles characterized by higher levels of perceived alcohol-related consequences among peers and approval of alcohol-related consequences by peers and parents would be positively associated with membership in the MRC group a semester later. Thus, the current study expands upon previous work that has found MRC membership to be associated with more permissive parenting (Varvil-Weld et al., 2012) and risky behaviors (e.g., pregameing; Varvil-Weld et al., 2013) at the end of the first year in college.

Materials and Methods

Recruitment Procedures

In the fall semester of their freshman year, 4000 students were randomly chosen from the university registrar's database of first-year students. Participants were sent a pre-notification letter describing the study and email invitation for participation. All recruitment materials (pre-notification letter, invitation email, and up to seven reminder emails) included a URL and personal identification number (PIN) for accessing the survey. Informed consent was presented upon students' login to the initial survey. Approximately 67% (n=2690) of invited students consented to participate in the study, which is comparable to rates reported in other studies using similar web-based recruitment and data collection methods (e.g., Turrisi et al., 2013). Due to the study's focus on alcohol-related consequences, nondrinkers were not included for analysis. All study procedures were reviewed and approved by the university's Institutional Review Board.

Participants

As part of a larger study (Mallett et al., 2015), a random sample of 2024 college student drinkers attending a large public university in the northeastern US completed web-based measures assessing behaviors and beliefs associated with drinking and related consequences during each of their first two semesters on campus. Participants were eligible to be a part of the study if they reported current alcohol use (based on typical and peak drinking reported within the month prior to recruitment). Retention was high, with 92.1% (n=1864) completing at T2. Students were compensated for their time with \$25 for each survey, plus a \$5 bonus if they completed the online surveys within 5 days of receiving the email invitations (potentially \$60 total). At baseline participants were 18.18 (SD = .39) years old, with the majority identifying as female (55.9%) and Caucasian (87.2%). Other ethnicities included Hispanic (5.1%), Asian (4.7%), African American (3.3%), and multi-racial (2.9%). Three participants were missing data on all indicator items and were therefore excluded from analyses.

Measures

Participants were asked to report on their alcohol-related consequences, as well as their perceptions of their closest peers' and parents' behaviors (i.e., descriptive norms) and beliefs (i.e., injunctive norms) surrounding consequences during their first year of college. We chose to use the participants' close friends as the referent for peer norms due to previous studies that indicate stronger relations among normative beliefs of proximal and familiar groups and alcohol behaviors, relative to more distal sources of norms, such as a “typical student” (LaBrie et al., 2010; Larimer et al., 2011; Neighbors et al., 2008). The behaviors and beliefs were assessed in the fall semester and used as indicators in a LPA, whereas the alcohol-related consequences were assessed in the spring semester. Participants were then identified as belonging to the MRC group or not based on their experiences with consequences reported at the spring semester follow-up.

Consequence Norms-Based Indicators (assessed at T1)

Descriptive Norms—The vast majority of participants did not report living with parents (98.9%). Therefore, participants were not asked to estimate drinking-related consequences of their parents. However, perceived descriptive norms were assessed for negative consequences experienced by closest peers. Participants were asked to report, on average, how many times during the current semester they “believed their closest friends [e.g., passed out, missed work or class] as a result of drinking” (see Table 1). Response options were measured on a 5-point Likert scale and ranged from *0 times* (0) to *More than 10 times* (4). Twelve items were summed to create a total descriptive norms variable ($M = 12.30$; $SD = 8.21$, $\alpha = 0.91$).

Injunctive Norms—Participants' peer and parent norms were assessed by asking how their closest friend/mother/father would respond, “if they knew you experienced [e.g., having a hangover, having a regretted sexual experience] as a result of drinking” (see Table 1). Response options were the same for all three referents (closest friend, mother, and father) and ranged from *Strongly Disapprove* (-2) to *Strongly Approve* (+2). Items for each referent were averaged to create indices for peer ($M = -0.68$, $SD = 0.61$, $\alpha = 0.91$), mother ($M = -1.69$, $SD = 0.40$, $\alpha = 0.90$), and father ($M = -1.67$, $SD = 0.44$, $\alpha = 0.92$) negative consequence-specific injunctive norms.

Negative Alcohol-Related Consequences—To identify MRC group members at T2, negative alcohol-related consequences were measured using 18 items from the Brief Young Adult Alcohol Consequences Questionnaire (Read et al., 2006), and 4 items from the Young Adult Alcohol Problems Screening Test (Hurlburt, & Sher, 1992; Larimer et al., 1999). Items included physical, academic, sexual, social, and legal consequences (see Table 1). Participants were asked to indicate how many times they had experienced each of the 22 consequences during the current semester. One item was removed due to endorsement by < 5% of the sample (“I have driven a car when I've had too much to drink to drive”). Response options were measured on a 9-point scale and ranged from *Never* (0) to *40 or More Times* (8) in order to measure repeated consequences. Items were summed to create a total consequences variable ($M = 12.56$; $SD = 13.60$, $\alpha = 0.92$).

MRC group—To examine whether the profiles identified from the fall semester predict membership in the MRC group during the spring semester, the consequence items were used to code for MRC membership during the spring semester. Using the same 21 items described above, participants who reported experiencing more than six unique consequences and more than five repeated consequences were coded with a “1” to indicate belonging to the MRC group. Otherwise participants were coded as “0”. This coding scheme is consistent with previous studies that identified the MRC group (Mallett et al, 2011; Scaglione et al., 2015; Varvil-Weld et al., 2012; 2013).

Analytic Strategy

Objective 1: Identifying unique norms profiles for alcohol-related

consequences—Latent Profile Analysis (LPA) was used to examine the first goal of identifying distinct normative influences based on a combination of perceived peer, mother and father injunctive norms for alcohol-related consequences, and consequence-related peer descriptive norms. Following established procedures, LPA models with different numbers of latent profiles were compared to determine the optimal statistical model based on both statistical and substantive criteria (Lubke & Muthén, 2005; Muthén & Muthén, 2000). A two-profile solution was first fitted to the data, with additional profiles added one at a time until the best-fitting solution was identified. A total of six profiles were considered. Goodness-of-fit determination was based on the Akaike Information Criterion (AIC; Akaike, 1974), the Bayesian Information Criterion (BIC; Schwarz, 1978), and log likelihood. For each of these indices, relatively lower values suggest better fit between solutions. In addition, entropy values range from 0 to 1, and values closer to 1 suggest better classification quality. The parametric bootstrapped likelihood ratio test (BLRT) was also considered when selecting the best-fitting solution; a significant bootstrap value indicates that the k -profile solution fits better than the previous ($k-1$) solution. A final deciding factor was the interpretability of the best-fitting model. Mplus uses full-information maximum-likelihood estimates to account for missing data (Schafer & Graham, 2002). Missing data was less than 1% for each indicator in the LPA.

Objective 2: Examining Profile Differences and Predicting MRC Group

Membership—After determining the best-fitting LPA solution, posterior probabilities were used to assign individuals to their most likely subgroup. Creating categorical hard codes for each subgroup allows for more traditional variable-centered analyses. Using this “classify and analyze” approach a negative binomial regression model was then used via SAS PROC GLIMMIX to examine differential effects of profile membership on the total number of consequences individuals experienced in their second semester of college. Finally, to examine which of the norms-based profiles predicted membership in the high-risk consequence group, MRC group membership at the end of the first year of college was regressed onto the profile membership variable using binary logistic regression.

Results

Objective 1: Identifying unique norms profiles for alcohol-related consequences

As shown in Table 2, model fit indices (AIC, BIC, and log likelihood values) decreased as additional profiles were added. However, the BLRT value (-10537.63 , $p < .05$) indicated that the three-profile solution was a better fit than the two-profile. Although this value continued to be significant with additional profile solutions (i.e., 4-6 profiles), each of these more complex solutions included a very small profile ($< 2\%$ of the sample) that was indistinguishable from other profiles. Further, the entropy value for the selected three-profile solution was 0.93, suggesting excellent classification quality. Based on this evidence, we chose the three-profile solution as the optimal fit for these data.

The selected solution produced profiles with fairly consistent ratings of peer norms; therefore, the profiles were labeled to reflect parent norms differences. Figure 1 shows the standardized means for each of the indicators by profile. The first norms profile, nearly four times larger than the second (77% of sample) and labeled *Non Permissive Parents*, scored lowest on mother and father injunctive norms for negative consequences, with relatively lower scores reported on other factors. Members of the second profile, *Positive Peer and Parent Norms* (20% of sample), reported consistent positive consequence-specific normative beliefs across all four constructs. Individuals in this profile reported higher perceived peer and parental approval of experiencing consequences and higher perceptions of peers experiencing consequences. Finally, the third profile accounted for 3% of the sample and was labeled *Permissive Parents*. Means were considerably higher on indicators measuring perceived parental approval for experiencing negative consequences than any other factor for any profile. Item response means and standard errors for each of the normative indicators are displayed in Table 3.

Objective 2: Examining Profile Differences and Predicting MRC Group Membership

A negative binomial regression model revealed significant differences in the mean number of consequences (see Table 4) reported by each profile at the follow-up assessment $R(2, 1856) = 15.06$, $p < .001$. Each profile was significantly different from the others. For example, both *Non Permissive Parents* ($t[1856] = 4.54$, $p < .001$) and *Positive Peer and Parent Norms* ($t[1856] = 3.41$, $p < .001$) profiles experienced significantly fewer consequences, relative to students in the *Permissive Parents* referent profile.

The final aim of the study was to examine whether first semester profile membership predicted MRC group membership across the first year of college. At the spring follow-up, the MRC group consisted of 27.4% ($n=511$) of those classified into profiles, and accounted for 66.6% of the total consequences. This proportion is larger than what Mallett et al. (2011) reported due to the exclusion of nondrinkers in the current study. Preliminary examination of group distributions revealed that, despite the *Non Permissive Parents* profile including over 75% of the overall sample at baseline ($n = 1442$), only 24.5% ($n=353$) of students in the *Non Permissive Parents* profile were in the MRC group at the end of their first year in college.

Next, binary logistic regression was used to examine the influence of profile membership (at T1) on membership in the MRC group (at T2). The *Non Permissive Parents* profile was used

as the reference group, as previous analyses indicated these individuals experienced the fewest consequences. Results revealed normative influence profile membership was significantly associated with MRC group membership across the first year of college ($\chi^2 [2] = 29.47, p < .0001$). Relative to the *Non Permissive Parents* profile, participants in the *Positive Peer and Parent Norms* profile were almost twice as likely to be in the MRC group at T2 ($B = .59, OR = 1.81, p < .001$) and those in the *Permissive Parents* profile were nearly three times as likely ($B = 1.02, OR = 2.78, p = .002$). To further support the *Non Permissive Parents* profile as having the lowest likelihood of MRC group membership at T2, the *Permissive Parents* profile was also used as the reference group. The full results of these models can be found in Table 5.

Discussion

The current study used LPA to identify latent profiles of first-year college students that were distinguished by unique combinations of perceived consequence-specific descriptive and injunctive norms among peers and parents. Three profiles were identified: 1) *Non Permissive Parents*; 2) *Positive Peer and Parent Norms*; and 3) *Permissive Parents*. Additional analyses revealed that one quarter of the sample met criteria for MRC group membership, reporting multiple and repeated alcohol-related consequences during the second semester of college. Members of this MRC group accounted for approximately 67% of the reported alcohol-related consequences experienced. As expected, membership in the normative profiles was significantly associated with MRC group membership. Specific comparisons indicated that students who belonged to the *Permissive Parents* profile were most likely to belong to the MRC group.

Comparison of the identified profiles underscores the value of using a person-centered approach to capture descriptive and injunctive norms from multiple referent sources (i.e., close peer, mother, father) of consequence-specific normative beliefs among first-year college students. Our results suggest that belonging to the MRC group at the end of the first year of college is associated with a combination of consequence-specific normative beliefs. Student reports of parental approval of consequences varied considerably, compared to reports of peer norms. However, the *Non Permissive Parents* profile was the only one to have consistent reports of negative norms on all indicators; subsequently, individuals in this profile reported the fewest consequences and were least likely to be members of the MRC group. By contrast, the *Positive Peer and Parent Norms* and *Permissive Parents* profiles had consistent reports of positive norms on all indicators. Both were significantly more likely to be in the MRC group, with differential levels of likelihood.

Prevention Implications

Correction of normative misperceptions via personalized normative feedback (PNF) interventions is the cornerstone of most campus efforts to reduce high-risk drinking and related consequences among college students. Currently, the focus of PNF interventions is correcting misperceptions of descriptive norms of drinking behavior from peer referents (i.e., how much or how often peers consume alcohol). The findings from this study suggest several opportunities for enhancing PNF interventions. First, these results highlight the value

of including normative beliefs regarding alcohol-related consequences as potential intervention targets. Because many consequences are not viewed negatively by college students (e.g., Mallett et al., 2008) PNF interventions that highlight how such consequences are perceived by other students (e.g., positive or negative) may be most promising (Lee et al., 2010; White & Ray, 2014).

Second, enhanced interventions should also target multiple referents of normative beliefs, including both peers and parents. Our results specifically demonstrate the importance of perceptions of parental approval regarding alcohol-related consequences, relative to perceptions of peer approval of alcohol-related consequences. Thus, individual-based PNF interventions that reinforce parental disapproval of experiencing alcohol-related consequences should be developed. To date, however, no interventions exist that incorporate such complete normative information. Given the widespread use of norms-based intervention on college campuses throughout the U.S., such enhancement could have immediate and far-reaching effects on reducing a major public health concern.

Reducing students' perceptions of parental approval (regarding both alcohol use and alcohol-related consequences) is also a key component of parent-based interventions (PBI), such as the one developed by Turrissi and colleagues (2001). Importantly, the PBI has been shown to be most effective among high-risk students, defined by strong social pressure among their peers (Cleveland et al., 2013) as well as those with parents who display higher-risk (e.g., authoritarian or permissive) parenting styles (Mallett et al., 2010; Varvil-Weld et al., 2013). Given the increased risk of MRC membership associated with the *Permissive Parents* profile, our findings suggest parental norms about consequences can, in essence, either buffer or exacerbate the effect of perceptions of peer norms about consequences. Future research that examines how these distinct combinations moderate intervention effects would help identify types of students who may benefit the most from the PBI.

The current results also support recent efforts to expand the delivery of PNF interventions to *parents* of college students. Several studies indicate parents of college students tend to overestimate other parents' approval of student drinking behavior (Cail & LaBrie, 2010; LaBrie et al., 2011) and that parents' normative beliefs about college student alcohol use can be corrected (LaBrie et al., 2014). However, to date, no studies have examined parental beliefs regarding students' experiences with alcohol-related consequences. Multicomponent PBIs that reinforce to parents the need to express disapproval of underage alcohol use *and* alcohol-related consequences and not conform to (misperceived) norms that "everyone else is doing it" (Gilligan et al., 2014), thus represent a cost-effective and practical approach to reduce high-risk drinking and related consequences during this vulnerable period.

Limitations and Future Directions

Several limitations should be kept in mind when drawing conclusions from the current study. Foremost, all of the data were obtained from students' reports, including the measures pertaining to their close friends and parents. Thus, shared method variance could account for some of the significant associations between normative beliefs and students' experiences with alcohol-related consequences. Studies that include independent reports from college students' peers are extremely rare and pose significant challenges; however, future studies

could more readily explore these same patterns using parent-student dyads. We also did not examine potential variables that might moderate the associations between normative beliefs and MRC membership. Although several authors have found that the strongest relations between descriptive norms about alcohol use and alcohol-related consequences were among college students who more closely identified with the normative reference group (Lewis et al., 2010; Neighbors et al., 2010), such moderation has not been examined in studies of consequence-specific norms and alcohol-related consequences. In addition, we chose to focus only on the participants' closest friends as the referent for peer norms. Future research, however, should also consider multiple sources of normative beliefs, including more distal peers, siblings, the media, and the larger community (Anderson et al., 2009; Gibbons et al., 2010; Strasburger et al., 2010). Finally, we note that the patterns described in the current study were heuristic and that variability existed within the latent profiles. Additional studies that replicate the current findings as well as those that incorporate additional predictors are needed to provide a more comprehensive picture of MRC risk.

Conclusion

The results demonstrate the value of using a person-centered approach to understand consequence-specific normative beliefs during a vulnerable developmental period, the first year of college. Using LPA, we identified three distinct profiles of consequence-specific normative beliefs that clearly distinguished first-year college students at low and high levels of risk and were differentially related to membership in a previously identified subgroup of college students who experience multiple and repeated consequences (MRC group). These results demonstrated the importance of peer and parent referents of both descriptive and injunctive consequence-specific norms using a person-centered approach. Future prevention and intervention efforts that build on these findings by incorporating the complete range of consequence-specific normative beliefs into personalized feedback messages may prove useful in preventing alcohol-related problems among high-risk first year college students at this critical juncture.

Acknowledgments

This research was supported by NIAAA R01 AA021117 awarded to Kimberly Mallett.

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Figure 1. Indicator means by profile

Standardized means for normative influences: peer/mother/father approval for negative consequences, and peer descriptive negative consequence for each of the three profiles.

Table 1
Consequence items

Consequence Item	Closest Peer	Mother/Father
While drinking, I have said or done embarrassing things.	X	
I have had a hangover (headache, sick stomach) the morning after drinking.	X	X
I have felt very sick to my stomach or thrown up after drinking.	X	X
I have passed out from drinking.	X	X
I have found that I needed larger amounts of alcohol to feel any effect, or that I could no longer get high/drunk on the amount that used to get me high or drunk.		
When drinking, I have done impulsive things that I later regretted.		
I have not been able to remember stretches of time while drinking.	X	X
I have not gone to work or have missed class because of drinking, a hangover, or other illness caused by drinking.	X	X
My drinking has gotten me into sexual situations I later regretted.	X	X
I have become very rude, obnoxious, or insulting after drinking.	X	X
The quality of my work or school work has suffered because of drinking.		X
My drinking has created problems between myself and my boyfriend/girlfriend/spouse/parents, or other near relatives.		
I have gained weight as a result of my drinking.		
I have been injured or my physical appearance has been harmed by my drinking.	X	
I have been pressured or forced to have sex with someone because I was too drunk to prevent it.		
I have received a citation because of drinking or other drunken behavior.	X	X
I have started a serious argument or fight with someone while drinking.		
I have made inappropriate sexual advances toward someone after drinking.	X	
My friends have had to take care of me because I drank too much.	X	X
I have found it difficult to limit how much I drink.		X
I have felt like I needed a drink after I'd gotten up (that is, before breakfast).		

Note. All items were used to assess MRC group membership at follow-up. An "X" indicates the item was asked for the referent shown to assess descriptive and injunctive norms.

Table 2

Model fit indices for the two- through six-profile solutions

Profiles	AIC	BIC	Log Likelihood	Entropy	BLRT
Two profiles	21101.26	21174.21	-10537.63	0.91	-11330.69 *
Three profiles	20301.87	20402.88	-10132.94	0.93	-10537.63 *
Four profiles	19937.51	20066.57	-9945.75	0.78	-10132.94 *
Five profiles	19628.94	19786.05	-9786.47	0.80	-9945.75 *
Six profiles	19425.20	19610.37	-9679.60	0.81	-9786.47 *

Note. AIC = Akaike's information criterion; BIC = Bayesian information criteria; BLRT = Bootstrapped LM Likelihood Ratio Test;
* $p < .05$

Table 3
Item response means and standard errors for normative indicators

Profiles	Mean	Standard Error	t-value
Non Permissive Parents			
Mother Injunctive	-0.32	0.02	-17.85***
Father Injunctive	-0.45	0.02	-20.63***
Peer Injunctive	-0.18	0.03	-6.68***
Peer Descriptive	-0.10	0.03	-3.67***
Positive Peer and Parent Norms			
Mother Injunctive	0.75	0.09	7.98***
Father Injunctive	1.24	0.10	12.32***
Peer Injunctive	0.57	0.04	15.02***
Peer Descriptive	0.34	0.05	6.37***
Permissive Parents			
Mother Injunctive	3.39	0.72	4.68***
Father Injunctive	3.33	0.27	12.28***
Peer Injunctive	0.89	0.14	6.18***
Peer Descriptive	0.97	0.17	0.84

Note.

 $p < .001$

Table 4
Mean consequences experienced by profile

Profiles	N (%)	Mean (SD)
Non Permissive Parents	1442 (76.6%)	11.64 ^{b, c} (13.17)
Positive Peer and Parent Norms	379 (20.8%)	15.80 ^{a, c} (14.57)
Permissive Parents	39 (2.6%)	22.26 ^{a, b} (21.00)

Note.

^aSignificant difference compared to Non Permissive Parents profile;

^bSignificant difference compared to Positive Peer and Parent Norms;

^cSignificant difference compared to Permissive Parents profile

Table 5
Logistic regression results examining the effect of normative influence profiles on MRC group membership

	B (SE)	OR	B (SE)	OR
Normative Influence Profile				
Non Permissive Parents	REF GROUP	---	-1.02 (.33) [*]	.36
Positive Peer and Parent Norms	.59 (.12) [*]	1.81	-.43 (.34)	.65
Permissive Parents	1.02 (.33) [*]	2.78	REF GROUP	---

Note.

^{*} $p < .05$; OR = Odds Ratio/Exp(B), or the odds of being in the MRC group relative to the reference profile