

Parents Know Best, But Are They Accurate? Parental Normative Misperceptions and Their Relationship to Students' Alcohol-Related Outcomes*

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ABSTRACT. Objective: Parents often look to other parents for guidance, but how accurate are their perceptions? Expanding on existing normative literature to include parents of college students, this study first sought to determine whether parents accurately estimated the attitudes of other parents concerning their college student's alcohol-related behaviors. The effect of these (mis)perceived injunctive norms on the alcohol-related attitudes and behaviors of the parents' own children was then examined. **Method:** Participants were 270 college student-parent dyadic pairs who completed independent online surveys. The student sample was 59% female; the parent sample was 78% female. **Results:** A structural equation model demonstrated that parents significantly overestimated other parents' approval of alcohol use by their respective child and, further, that these misperceptions strongly influenced parental attitudes toward their own child's drinking. Parental attitudes were sub-

sequently found to be significantly associated with their child's attitudes toward drinking but were only marginally associated with the child's actual drinking, thereby underscoring the mediational effect of the child's attitudes. **Conclusions:** This is the first study to document the influence of parental normative misperceptions regarding alcohol use by their college-age children, reinforcing the importance of parental attitudes on children's alcohol-related attitudes and behaviors in college. These findings support the need to complement student-based interventions with parent-based interventions aimed at increasing parental awareness and involvement. Further, the current findings indicate that normative interventions targeting parents offer a promising avenue by which to indirectly and positively influence college students' alcohol use. (*J. Stud. Alcohol Drugs*, 72, 521–529, 2011)

ALCOHOL MISUSE AND ALCOHOL-RELATED consequences are enduring problems on nearly every college campus. Previous research and intervention efforts have focused largely on individual factors associated with alcohol use among college students, such as student perceptions of peers (Borsari and Carey, 2003; Larimer and Cronce, 2007), positive expectancies around drinking (Baer, 2002), and drinking motives (Carey and Correia, 1997). However, a growing body of research indicates that parents may continue to be an influential factor on their college student's drinking behavior and therefore may be a worthwhile target for continued etiological research to better inform indirect intervention approaches (American College Health Association, 2003). In light of such emerging evidence, the Task Force of the National Advisory Council on Alcohol (2002) has called for the inclusion of parents in research to better understand and intervene in misuse of alcohol by college students.

In contrast to earlier research suggesting a waning and limited scope of parental influence (Kandel and Andrews,

1987; Wood et al., 2001), recent studies indicate that parents still have a significant impact on their late adolescent college students' alcohol use (Abar and Turrisi, 2008; LaBrie and Sessoms, in press; Turner et al., 2000; Turrisi and Ray, 2010). For instance, higher levels of alcohol-specific (Turrisi et al., 2001, 2007; Wood et al., 2004) and nonspecific (LaBrie and Cail, in press) communication negatively correlate with alcohol use. In addition, the quality of parental influence, such as permissiveness toward alcohol use or parental monitoring, has been shown to mediate the effect peers have on young people's alcohol use (Wood et al., 2004). Abar and Turrisi (2008) found that parental monitoring, parental knowledge of student alcohol use, and parental alcohol approval were associated with student friend choice, indirectly influencing drinking behavior. Notably, students who perceive parenting practices to be disapproving of high-risk drinking tendencies also experience fewer high-risk drinking tendencies themselves (Turrisi and Ray, 2010).

However, parental mechanisms of influence (e.g., communication, parental approval/permissiveness of alcohol use, and parental monitoring) may be susceptible to the influence of others. Parents often find that talking to their children about alcohol use and monitoring their child's drinking are difficult tasks, and they often turn to others for support and guidance (King et al., 2002). Further, studies demonstrate that parenting approaches and attitudes are affected by parents' social networks (Homel et al., 1987) and other external

Received: January 1, 2011. Revision: March 16, 2011.

*This research was supported by National Institute on Alcohol Abuse and Alcoholism Grant R01 AA 012547-06A2 and U.S. Department of Education Grant Q184H070017.

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social factors (e.g., their parents, community norms, and social experiences; Grimes et al., 2004; King et al., 2002). As the authors of one study note, "Parents judge the adequacy of their own parenting by looking at what other parents say and do" (Linkenbach et al., 2003, p. 248).

The construct of perceived approval or attitude of others was labeled and used in early theoretical research as a subjective norm. The theory of reasoned action (Ajzen and Fishbein, 1980), for example, and its extension, the theory of planned behavior (TPB; Ajzen, 1985, 1991), identify subjective norms, personal attitudes, and perceived behavioral control as key simultaneous determinants of personal intentions and behavior. The TPB labels subjective norms as the perceptions of whether important others, such as a peer referent group, approve or disapprove of a behavior. The TPB has been applied as a framework for understanding a wide range of behaviors (Ajzen, 1991) including substance use (Conner et al., 1999; Norman and Conner, 2006). Whereas the TPB typically considers perceived approval of others and one's own attitudes to be independent predictors of intentions and behavior, social norms theory posits that perceptions about what constitutes normal behavior or attitudes among one's reference group strongly influence an individual's own behavior and attitudes. Perceived social norms are generally classified as either descriptive (perceptions of the frequency or quantity of a given behavior within some population; see Borsari and Carey, 2001; 2003) or injunctive (perceptions of the extent to which some population approves or disapproves of a behavior; see Cialdini et al., 1990). Thus, injunctive norms are conceptually a proxy for subjective norms; however, whereas a subjective norm is an aggregate of perceptions of various peer referents, injunctive norms focus on a specific reference group. As noted, parents continue to influence their child's drinking in college through mechanisms such as parental monitoring and communication. Because these mechanisms of influence stem from a parent's own attitudes and level of approval, it is important to examine determinants of parental attitudes and level of approval regarding their child's alcohol use. One likely source of influence is the perception of the attitudes of other parents (i.e., injunctive norm).

Traditional and contemporary social psychological perspectives (e.g., social comparison theory, Festinger, 1954; social identity theory, Terry and Hogg, 1996; self-categorization theory, Turner et al., 1987) posit that the reference groups to which individuals are connected by proximity or identification are more relevant and therefore have greater influence on perceptions and behavior than less salient reference groups. This is particularly important because it is perceived norms, not actual norms, that influence attitudes and behaviors (Prentice, 2008). Moreover, discrepancies between perceived and actual norms (i.e., misperceptions) are consistently associated with alcohol-related outcomes, with larger discrepancies related to higher rates of alcohol

use (Larimer et al., 2004; Lewis and Neighbors, 2004; Reis and Riley, 2000). Parents of college-age children likely hold perceptions of other similarly positioned parents regarding what constitutes "normal" approval of certain norms. It is also likely, according to social norms theory, that these perceptions may then influence their own attitudes regarding their child's drinking (Linkenbach et al., 2003). Social norms theory predicts that if parents believe that other parents do not consistently communicate their values or hold permissive attitudes toward risky behaviors, then they are more vulnerable to social pressure to conform to that misperceived norm and become more lenient in their own parenting (Linkenbach et al., 2003). Are the perceptions accurate? In general adult populations, research has found discrepancies between perceived and actual health-risk behavioral norms and also for comfort with media portrayals of health-risk behaviors (Hines et al., 2002; Lambert et al., 2003). Thus, a focus of the current study was to determine if parents accurately perceive the attitudes of other parents concerning approval of their child engaging in risky alcohol behaviors.

Separate from how parental attitudes are formed and through what mechanism they are conveyed, the general level of a parent's approval would be expected to play a role in the child's own attitudes and subsequent alcohol use. Early research on younger noncollege populations has revealed links between the attitudes of parents and children regarding alcohol use. In these studies, parental attitudes were assessed using children's perceptions of their parents' attitudes rather than parents' reports of their own attitudes (Jessor et al., 1991; Oostveen et al., 1996; Wilks et al., 1989). Although perceived attitudes are likely not identical representations of actual parental attitudes, they are informative and meaningful reflections. A more recent study among adolescents (Brody et al., 2000) documented the influence of actual parental attitudes by administering dyadic parent- and child-specific surveys to assess their respective attitudes and alcohol-related outcomes longitudinally. Parents' alcohol use attitudes were linked indirectly, through child attitudes, with the children's own drinking behavior 2 years later. Another longitudinal study by van der Vorst and colleagues (2006) also found that stricter parental alcohol use attitudes were linked to lower levels of adolescent drinking.

Although there is consistent evidence linking parental attitudes as a mechanism of influence on adolescents' own attitudes and alcohol-related outcomes, decidedly less is known regarding similar relationships among college-age children, particularly in terms of effects arising from actual attitudes of the parents. Research using students' perceptions of parental acceptability of alcohol use suggests that parents' permissive attitudes toward alcohol use in late high school are a significant factor for teen alcohol misuse and associated consequences in college (Abar et al., 2009). Similarly, a study by Wood et al. (2004) showed that in the summer before attending college, late adolescents drank less alcohol

if their parents disapproved of drinking behavior. Moreover, research on college students found that perceived parental approval of their drinking (Boyle and Boekeloo, 2006) and the disparity between perceived parental and perceived peer approval (Cail and LaBrie, 2010) were significantly associated with problematic drinking. Importantly, a longitudinal study by Walls and colleagues (2009) found perceived parental disapproval of heavy drinking (e.g., How would your parents feel if you had five or more drinks once or twice each weekend?) and perceived parental permissive attitudes (i.e., how many drinks students felt their parents deemed acceptable to consume) to be influential in slowing the adoption and escalation of increased alcohol consumption and consequences. Clearly, the attitudes of both parents and their college-age children are important factors to consider when examining alcohol-related outcomes among college students. Although results are mixed as to the full nature of their relationship to drinking, some studies have shown that attitudes about drinking are better predictors of drinking behavior than descriptive norms (Trafimow, 1996; Trafimow and Finlay, 1996). Yet the extent to which parents actually approve of their children's drinking, and the subsequent relationship to children's drinking-related attitudes and behavior, remains considerably understudied.

The current research first seeks to understand the extent to which collegiate parents can accurately estimate alcohol-related approval levels of other parents (injunctive norms). We hypothesized that parents would tend to overestimate (misperceive) how approving other parents are of their children engaging in risky alcohol-related behaviors. We were also interested in determining the relationship between the magnitude of parents' misperceived injunctive norms of other parents, their own attitudes, their children's attitudes, and their children's alcohol use. Previous studies indicate a relationship between misperceived norms and an individual's own attitudes as well as a continued, if not indirect, parental influence on college student alcohol use decisions. Therefore, we hypothesized that parents' misperceived injunctive norms of other parents would be related to their own attitudes and that their own attitudes would be related to their child's attitudes, which in turn would be associated with their child's actual alcohol use.

Method

Participants

Over two sequential semesters (fall and spring), 289 students from a private, midsize, West Coast university seeking class credit in the psychology subject pool completed an online assessment. Using a modified respondent-driven sampling design (Heckathorn, 1997), students were asked to recruit one parent of their choice to complete a shorter assessment for additional psychology subject pool credit.

Of the 289 students who completed the student survey, 270 (94%) successfully recruited a parent, for a total of 270 unique student–parent dyads. Students reported a mean age of 19.01 years ($SD = 1.65$), and parents reported a mean age of 50.93 years ($SD = 5.51$). The student sample was 59% female ($n = 270$), and the ethnic composition was varied: 59.3% White, 13.7% Hispanic/Latino/a, 10.7% mixed, 7.4% Asian, 4.4% African American/Black, 4% Native American/Alaska Native, 2.2% other, and 1.9% Hawaiian/Pacific Islander. Of the parent sample, 78% were female, and ethnicity was as follows: 64.5% White, 13.3% Hispanic/Latino/a, 8.5% Asian, 5.6% African American/Black, 4.4% other, 2.6% mixed, and 1.1% Hawaiian/Pacific Islander.

Design and procedure

All measures, forms, and procedures were approved by a local institutional review board. Inclusion criteria for the current study were that the student had access to a computer and that he or she would recruit one parent for participation, who was also asked to have access to a computer and a personal email address. There were no options for paper-and-pencil surveys. If the student decided to participate in the current study, the instructions indicated to email the research team with contact information for both the student and the participating parent. In response to this email, research staff sent separate emails to the student and parent that contained a study description and a link to an informed consent form documenting the confidentiality of responses. After submitting their consent, both students and parents were taken to their respective online surveys. The student survey took about 30 minutes to complete, and the parent survey took about 10 minutes to complete.

Measures

Perceived injunctive norms of parents and parents' actual attitudes. Questions sourced from two previously established measures were used to assess attitudes toward drinking behaviors. Three items from the House Acceptability Questionnaire (Larimer, 1992) assessed the acceptability of “becoming intoxicated at a party,” “missing class due to a hangover,” and “drinking during weekdays.” Three items from a recent comprehensive injunctive norms review (Lewis et al., 2010) assessed the acceptability of “drinking every day,” “drinking on the weekends,” and “drinking underage.” Each parent was first asked to estimate the approval level of a typical parent of a student at the university. For example, “How acceptable does a typical [university name] parent think it is for their child to miss class due to a hangover?” After reporting their perceptions across all six items, the parents' own personal attitudes toward their child's hypothetical behavior were measured. For example, they were asked, “How acceptable do you think it is for your child to

miss class due to a hangover?" All response options were measured on a 7-point Likert scale ranging from 1 (*not acceptable*) to 7 (*very acceptable*). Individual responses from the six perceived injunctive norms questions (asking about "a typical parent") were averaged together to form an injunctive norms composite representing "parental perceptions concerning other parents' approval of child's drinking" ($\alpha = .84$). Similarly, the six questions concerning individual attitudes were averaged to form an attitudes composite representing "parental attitudes toward child's drinking" ($\alpha = .76$).

Child's attitude toward drinking was assessed with the same six items asked of parents, except it was modified to capture the student's actual attitudes. Each student was asked to record his or her own approval levels of the six different behaviors. For example, "How acceptable do you think it is to miss a class due to a hangover?" All response options were measured on a 7-point Likert scale ranging from 1 (*not acceptable*) to 7 (*very acceptable*). These six items were averaged to form the composite of "child's attitude toward drinking" ($\alpha = .83$).

Child's drinking was assessed using the Daily Drinking Questionnaire (DDQ; Collins et al., 1985; Dimeff et al., 1999). Students were asked, "First, think of a typical week in the last 30 days. Try to remember as accurately as you can how often and how much you typically drank in a week during that 1-month period?" Participants responded by reporting the typical number of drinks consumed on each day of the week. Weekly drinking was calculated by summing participants' responses for each day of the week. Drinking days per week was calculated by summing the total number of days where at least one alcoholic drink was consumed. The DDQ has been used in numerous studies of college student drinking and has demonstrated good convergent validity and test-retest reliability (Marlatt et al., 1998; Neighbors et al., 2006).

Results

Analytic plan

A one-sample *t* test was used to determine whether a significant difference existed between parental perceptions concerning other parents' approval of child's drinking (perceived approval) and the mean score of parents' approval of child's drinking (actual approval). If this difference was found to be significant, we created a new variable termed *misperception of parental norms*, derived by taking each perceived approval score and subtracting the constant of 1.90, representing the mean actual approval score. Thus, positive scores represented parental overestimation, and negative scores represented parental underestimation of the actual approval of child's drinking. For the purpose of ruling out gender effects, a two-way analysis of variance (ANOVA) was undertaken to

examine the possibility that misperception of parental norms might vary as a function of parental and child gender.

A structural equation model was subsequently estimated to provide a multivariate understanding of the relationships among misperception of parental norms, parental attitudes toward child's drinking, child's attitudes toward drinking, and child's drinking. The hypothesized model was specified with the EQS 6.1 program (Bentler, 2005), and the method of estimation was maximum likelihood. Error terms resulting from prediction were allowed to be freely estimated. The goodness of fit of the hypothesized model to the underlying empirical data was evaluated with several fit indices. We desired a nonsignificant chi-square test, signifying that the model should not be rejected. Additional fit indices were evaluated to judge model fit, including the comparative fit index (CFI) and nonnormed fit index (NNFI), both of which typically range from 0 to 1.00, with higher values, preferably greater than .90, reflecting a better approximation of the data (Ullman and Bentler, 2003). The standardized root mean square residual (SRMR) is a residual-based index, with lower values, preferably below .08, diagnostic of good fit (Hu and Bentler, 1998).

Misperceptions: Perceived vs. actual

Parental perceptions concerning other parents' approval of child's drinking produced a mean of 2.23 ($SD = 1.06$) compared with actual parental attitudes toward child's drinking of 1.90 ($SD = 0.90$). Thus, parents significantly overestimated how approving other parents were of their own child engaging in alcohol-related behaviors; one-sample $t(270) = 5.19$, $p < .001$. To examine whether the computed misperception of parental norms (perceived approval minus actual approval mean of 1.90) statistically differed as a function of parental and child gender, a two-way ANOVA was conducted. No significant main effect on misperception of parental norms was found as a function of parental gender, $F(1, 263) = 0.35$, *n.s.*, or child gender, $F(1, 263) = 0.37$, *n.s.* Furthermore, no significant interaction between parental and child gender on misperception of parental norms emerged, $F(1, 263) = 0.19$, *n.s.*

Hypothesized model of misperception of parental norms to child's drinking

The correlation matrix of variables is presented in Table 1. A structural equation model offered an overarching framework to illuminate linkages among these theoretically implicated factors. In this hypothesized model, misperception of parental norms was specified to be an antecedent of parental attitudes toward their child's drinking. Also consistent with predictions, parental attitudes toward the child's drinking were set to explain the variance in both the child's attitudes toward drinking and the child's drinking. Lastly, the child's

TABLE 1. Correlation matrix of variables

Variable	1.	2.	3.	4.	5.
1. Misperception of parental norms	—				
2. Parental perceptions concerning other parents' approval	1.00 ^a	—			
3. Parental attitudes toward child's drinking	.52**	.52**	—		
4. Child's attitude toward drinking	.12*	.12*	.28**	—	
5. Child's drinking	-.01	-.01	.21**	.43**	—

^aA perfect correlation of 1.00 resulted because Variable 1 was derived from taking Variable 2 values and subtracting the mean of Variable 3 (a constant value of 1.90), considered to be a linear transformation of the data (Gravetter and Wallnau, 2009).

* $p < .05$; ** $p < .001$.

attitude toward drinking was proposed to anticipate the child's drinking.

Results show that the hypothesized model adequately represented the underlying data, $\chi^2(2, N = 261) = 5.12, p = .07$; CFI = .98, NNFI = .94, and SRMR = .04. The linkages in this mediational model are diagrammed in Figure 1. Misperception of parental norms was shown to anticipate parental attitudes toward child's drinking ($\beta = .52, p < .001$), which subsequently was related to the child's attitudes toward drinking ($\beta = .28, p < .001$). Child's positive attitudes toward drinking anticipated child's drinking ($\beta = .40, p < .001$). Furthermore, the path from parental attitudes toward child's drinking, to child's actual drinking, was discovered to be marginally significant ($\beta = .10, p < .07$), revealing that the child's own attitudes toward drinking partially mediated the bivariate correlation between parental attitudes toward child's drinking and child's drinking ($r = .21, p < .001$; Table 1). To provide further evidence for mediation, a test of indirect effect of the sequence of processes depicted in Figure 1 supported that the indirect effect—starting from misperception of parental norms and ultimately ending in child's drinking—was statistically explicated through the two

mediational variables ($p < .001$). The test of indirect effect, calculated using the EQS program, is based on the ideas and formulations proposed for structural equation models by Sobel (1987).

For the purpose of ruling out alternative models, specifically to determine whether the inclusion of unspecified linkages to the hypothesized model would be tenable, post hoc analyses using Lagrange multiplier tests (Bentler, 1990; Chou and Bentler, 1990) were performed. Two additional paths were separately tested: (a) misperception of parental norms directly to child's attitudes toward drinking and (b) misperception of parental norms directly to child's drinking. Results from these tests revealed that neither path would produce a statistically significant improvement in the model. Taken together, these results suggest that the hypothesized model was empirically supported.

Discussion

This study extends the current understanding of parental influence on college students' alcohol-related behaviors in a number of ways. It is the first study to document parental

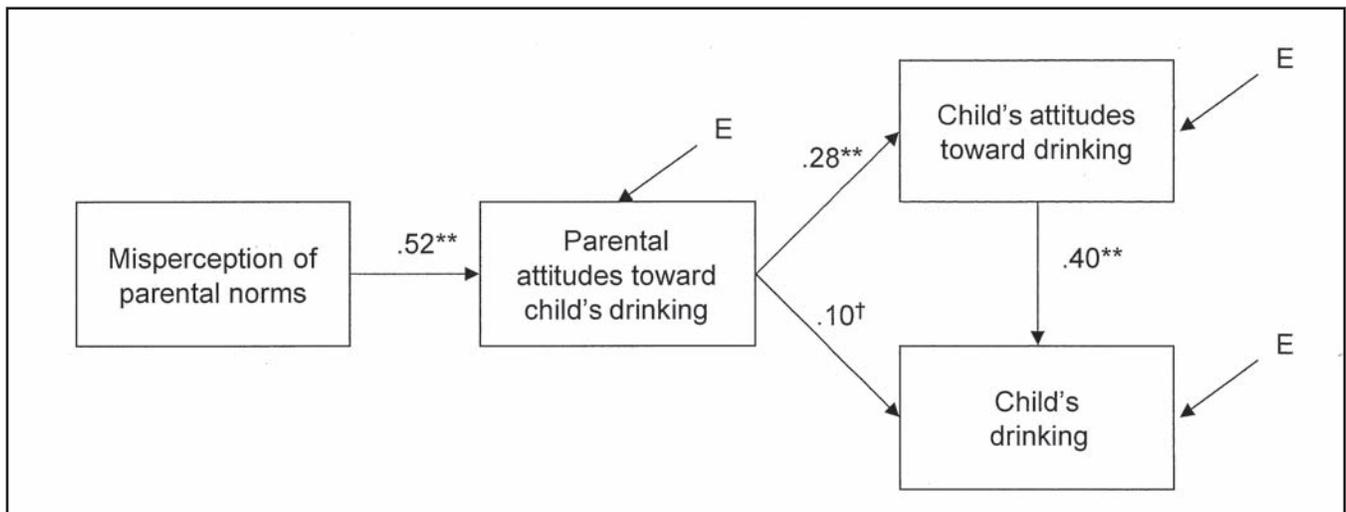


FIGURE 1. Path model of misperception of parental norms to child's drinking. The values represent standardized coefficients. E = error. † $p < .07$; ** $p < .001$.

normative misperceptions of other parents by demonstrating that parents significantly overestimated other same-college parents' approval of their respective child's engagement in drinking. Moreover, not only is this the first study documenting that parents overestimate the level of alcohol approval of similar parents, but the current findings document a pathway by which these overestimations (misperceptions) are related to college student attitudes toward drinking and actual drinking. Using structural equation modeling, parental misperceptions of other parents' attitudes about their own child were strongly associated with parents' own attitudes toward their child's drinking, which, in turn, was marginally associated directly ($p < .07$) with their child's drinking and indirectly through their child's own attitudes toward drinking ($p < .001$). Thus, all of our hypotheses were supported.

These results offer an important extension to the literature of social norms in alcohol misuse among college students by revealing a new mechanism of normative influence that is associated with college students' attitudes and therefore their drinking behaviors. Although students' perceived social norms have been identified as among the strongest predictors of college student drinking (Neighbors et al., 2007), this study focused on parental norms and documented how normative parental misperceptions of other parents significantly contribute to students' alcohol use. Because parents are often challenged by the task of talking to their children about alcohol use (King et al., 2002), it is likely that parents, in part, think about what the prevailing attitude is of other parents of college students to help determine their personal attitudes toward their own child's drinking. However, as our results indicate, parents do not have an accurate understanding of other college-student parents' beliefs and values regarding child alcohol use while in college, which could be problematic.

These results yield important implications for both informal parent-child communication and formal parent-based interventions. If parents hold more permissive and accepting beliefs toward their child's alcohol use as a result of parental normative misperceptions, these beliefs may play a role in the content, quality, and frequency of alcohol-specific communication and monitoring, both of which are known predictors of alcohol outcomes (e.g., Turrisi et al., 2007; Wood et al., 2004). Alternatively, correcting misperceptions via information designed to heighten awareness of other parents' real attitudes toward their child's drinking behaviors may reinforce parental disapproval of excessive drinking, which, based on the current findings, may positively affect children's own attitudes toward drinking and reduce risky drinking. This implication is bolstered by the use of dyadic reference group data.

By revealing a pathway by which parental misperceptions of other parents affect children's alcohol-related attitudes and consumption, the current findings also present a contextual framework to explicate why interventions combin-

ing parent-based interventions and student-based strategies have traditionally demonstrated greater efficacy in reducing heavy drinking and related consequences than independent parent- or student-based interventions (Turrisi et al., 2009; Wood et al., 2010). First, although parental attitudes toward child's drinking were modestly associated with their child's drinking, it is through its link to children's own attitudinal beliefs that parental attitudes appear to most clearly contribute to children's drinking. Although the direct link between parental attitudes and child's drinking may be best explained by the level of parent-child communication and/or parental monitoring, identified as a key component in nearly all parent-based interventions (Ichiyama et al., 2009; Turrisi et al., 2001, 2009; Wood et al., 2010), our results also indicate that parents' influence on their child's drinking is statistically mediated by the child's own attitudes. Therefore, it is likely that the combination of parent-based interventions, which inform parental attitudes and therefore affect child's attitudes, combined with student-based interventions, which focus on psychoeducational components for attitudinal change, have synergistic effects resulting in increasing intervention efficacy over stand-alone parent-based interventions and student interventions.

The current findings suggest that including normative reeducation with existing parent-based intervention materials (e.g., fliers for parents, structured conversations, or informational talks including actual parental attitudinal norms) may further enhance the efficacy of parent-based interventions. Parent-based interventions rely heavily on communication arising from parental attitudes and beliefs (Ichiyama et al., 2009; Turrisi et al., 2001, 2009; Wood et al., 2010). Given the strong link between parental attitudes and their child's attitudes, efforts to ensure that parental attitudes are reliably informed can only benefit this intervention strategy. Student affairs professionals may seek to include a normative feedback intervention during summer orientation sessions where a large number of parents are present at one time. One promising intervention strategy to use with this group would be interactive normative feedback discussions. According to social norms theory, if parents are given accurate and credible information about what typical parents are doing and how they feel about their children engaging in risky drinking activities, then they are more likely to maintain or even raise their standards and to enforce them consistently (Linkenbach et al., 2003). Recent evidence supports the use of normative feedback in group settings, derived and challenged in vivo, to reduce descriptive and injunctive normative misperceptions regarding alcohol use in college student populations (LaBrie et al., 2008, 2009, 2010). In such an environment, parents would be afforded the opportunity to see firsthand how united they are in their attitudes against their child's drinking and to engage in discussions about creative ways to initiate or maintain dialogue with their child about these issues, thereby providing a foundation for these mechanisms

of parental influence to persist through their child's college years. Although such interventions have shown promise with students, they have yet to be tested with parents. It may be that the environment and group dynamic of students on a college campus are major process variables contributing to the efficacy of the approach. Therefore, the benefits of a parent-targeted group-based social norms intervention are speculative at this point, although they might be a potentially fruitful direction to explore in future research.

This study should be viewed in light of several limitations. As noted earlier, this study was a cross-sectional examination of parent-child dyads. Although cross-sectional designs have been used to evaluate mediational relationships (Baron and Kenny, 1986), it would be advantageous in future research if the directionality of linkages posited in our model were tested using longitudinal data. By extending the research longitudinally, we might be able to more conclusively propose that the hypothesized processes emanate from parent to child. Nonetheless, given the greater status and power of influence afforded by parents relative to their children, the direction put forth in the research (from parent to child) seems highly plausible. We did not examine the number of years the student spent in college, nor the parental experience with parenting a college student (e.g., first child in college as opposed to second, third, etc.). These are both promising factors to include in future research.

Additionally, we only evaluated parental misperceptions of other parents at their child's university. This is just one potential reference group, and intervention implications can be better understood by further research examining if there are more specific and influential reference groups. For example, parents may better identify with other parents from within their geographical residence, of a particular socioeconomic status, or whose children belong to a shared social group (e.g., fraternity/sorority-affiliated organizations). These added levels of salience would be expected to moderate the influence of perceived parental norms. Nonetheless, this preliminary study illustrates that despite a potentially less salient reference group, what parents think of other parents matters in the context of their college-aged children's alcohol-related outcomes. On a similar note, future research should also seek to explore how parents' own alcohol use and perceptions of others' alcohol use (descriptive norms) may interact to influence their child's alcohol use decisions. Next, inclusion criteria for participation in the study included access to an email address to complete the online survey, which may have created some selection bias with regard to parents. Future studies may wish to offer the option for mailed paper surveys. Moreover, the nonrandom sample of students is of importance. Although the study's description stated simply that it was a survey about alcohol use behavior and attitudes and that nondrinkers and drinkers were welcome to participate, selection bias may have played a role in that students with prior alcohol use experience

may have been more likely to sign up. The findings should be interpreted accordingly. Finally, we did not include any parental communication or parental monitoring measures in our study. To enhance our understanding of the relationship between parental attitudes and both child attitudes and child drinking, future research should include parental communication and monitoring as potentially powerful mediators and moderators.

Despite noted limitations, this study offers unique insights into how parental attitudes relate to child attitudes and therefore child drinking while in college. It is the first study to document parental normative overestimations of other parents' attitudes (at the same university) and examine how those injunctive misperceptions directly affect parents' own attitudes and indirectly influence a child's attitudes and his or her drinking. Identifying both the existence of this misperception and its relationship to student drinking has significant implications for the efficacy of parent-based interventions and the content of those interventions. Finally, the results document the continued importance of parental attitudes and the influence they appear to have on college students and, therefore, emphasize the need to understand the problem of college alcohol use beyond the college environment to also include parents.

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