Examining the relationship between parenting types and patterns of student alcohol-related behavior during the transition to college

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Abstract

Objective—The present study sought to examine parenting influences on student alcohol use through the use of a holistic, person-centered approach in order to accomplish three distinct research aims: (1) identify groups of college students with unique profiles of perceived parenting characteristics; (2) identify groups of college students with unique profiles of alcohol-related correlates; and (3) examine the extent to which profiles of perceived parenting characteristics are associated with profiles of college alcohol-related risk.

Method—A sample of 1,153 first-year university students (17 – 20 years-of-age) was assessed on a host of perceived parenting and self-reported alcohol-related items.

Results—Four profiles of perceived parenting (*High Quality, High Monitoring, Anti-Alcohol, Pro-Alcohol*) were found using latent profile analysis (LPA). Five profiles of student alcohol-related characteristics (*Abstainers, Past Drinkers, Light Drinkers, High Risk Drinkers, Extreme Risk Drinkers*) were also found using LPA. Latent transition analysis illustrated that students who perceived their parents as belonging to the *Pro-Alcohol* profile had much higher probabilities of belonging in the *High Risk Drinker* or *Extreme Risk Drinker* profiles than students in all other perceived parenting profiles.

Conclusions—In addition to alcohol-specific parenting characteristics, aspects of parent-teen relationship quality may also be integral in the prevention of college alcohol misuse. Finally, this study observed complex patterns of parenting and alcohol behaviors, such that the profiles could be interpreted as qualitatively distinct types of individuals. These unique profiles suggest that a targeted approach reflecting the profiles found in the current study might greatly enhance prevention program efficacy.

Keywords

Alcohol Use; Transition to College; Parental Influence

As students transition from high school to college, alcohol use and misuse escalate to lifetime peaks for most ethnicities (Dawson, Grant, Stinson, & Chou, 2004; Schulenberg et al., 1996). There are 9.2 million college students aged 18 to 24 in the U.S., and compared to

their non-college attending peers, this population displays significant increases in alcohol and drug use (Borsari & Carey, 2001; U.S. Census Bureau, 2001). Peers have been shown to play a considerable role in college alcohol use (Marshall & Chassin, 2000; Perkins, 2002), but parents also continue to maintain influence on student use (e.g., Patock-Peckham & Morgan Lopez, 2006, 2009; Walls, Fairlie, & Wood, 2009).

The present study sought to examine relations between parenting practices and college student alcohol-related risk during the transition to college. A model was proposed in which latent profiles of perceived parenting were associated with latent profiles of college student risk. Although a number of studies have examined parenting and college student alcohol-related risk (e.g., Ichiyama et al., 2009; Patock-Peckham & Morgan-Lopez, 2009), there is surprisingly little research investigating how these constructs vary across sub-groups of the student population. Further, there is no published research on the associations between profiles of perceived parenting practices and profiles of student alcohol-related risk. This study aimed to (1) identify latent combinations of perceived parenting practices, (2) identify latent combinations of student alcohol-related behaviors, and (3) examine relations between these two sets of combinations.

Correlates of College Student Alcohol Use

An understanding of the individual and contextual correlates of college drinking behavior is central to the eventual refinement of campus alcohol-related interventions (Carey, 1993; Dishion, Capaldi, & Yoerger, 1999; Hawkins, Catalano, & Miller, 1992; Schulenberg & Maggs, 2002). Substance use among adolescents has long been attributed to interactions between multiple influences (e.g., Jessor & Jessor, 1977; Newcomb, Chou, Bentler, & Huba, 1988). As such, a wealth of research has examined the correlates of and influences on individual alcohol-related behaviors among college populations (e.g., Nagoshi, 1999; Wechsler, Dowdall, Davenport, & Castillo, 1995). The empirically supported correlates of and influences on college student alcohol use utilized as latent profile indicators in this study include: Age of alcohol use initiation (Warner & White, 2003); past alcohol use and experienced consequences (Larimer, Anderson, Baer, & Marlatt, 2000); engagement in high-risk alcohol using behaviors (Borsari, Murphy, & Barnett, 2007); attitudes, beliefs, and cognitions about alcohol use (Turrisi et al., 2001); and normative perceptions of friend alcohol use (Kahler, Read, Wood, & Palfai, 2003).

Parental Influence on College Student Alcohol Use

The importance of the family in adolescent and college student substance use has been clearly demonstrated (e.g., Barnes, Reifman, Farrell, & Dintcheff, 2000; Patock-Peckham & Morgan-Lopez, 2009; Turner et al., 2000). Considerable research suggests parents are quite active in the plans students make as they prepare for school and that they maintain influence across a variety of domains after students have moved away to campus (Kashubeck & Christensen, 1995). For instance, the American College Health Association (2003) found parents are the primary source of health information for college students. Furthermore, a host of parenting practices, such as being responsive and setting limits for students(Galambos, Barker, & Almeida, 2003; Patock-Peckham & Morgan-Lopez, 2006), frequent communication (Turrisi et al., 2000), knowing about and monitoring student behavior (Wood, Read, Mitchell, & Brand, 2004), and not permitting underage alcohol use (Abar, Abar, & Turrisi, 2009), have been linked with lower levels of student drinking in college. These findings demonstrate that parental influence continues to be relevant to decision making regarding college student alcohol use. Parenting characteristics that will serve as latent profile indicators in this study include: Alcohol use modeling, approval of underage alcohol use, communication, monitoring and knowledge, parental trust, support, and access, and parent-teen conflict.

Person-Centered Approaches to Alcohol Use

Person-centered approaches, such as latent profile analysis (LPA), seek to illustrate unobserved heterogeneity in the response patterns of sub-groups of the target population on a set of associated variables. A person-centered approach differs from traditional variable-centered work (Muthén & Muthén, 2000) in that the focus is on illustrating latent sub-groups of individuals that differ on the indicator variables used rather than on describing relationships between variables. Indicators are selected based on theory and/or previous empirical work that suggests potential multivariate relationships and the presence of a categorical latent structure (e.g., latent profiles) that might provide insight into a phenomenon not be observed in variable-centered analyses (e.g., regression, MANOVA, SEM). In addition, person-centered research expands upon univariate approaches by allowing researchers to illustrate and easily interpret potential higher order (3+) interactions among indicators. For example, it is possible that parents who model responsible drinking and who strongly disapprove of underage drinking have children who engage in safe alcohol-related behaviors only when in the context of high parental monitoring. With these advanced analyses, we may observe a substantially different depiction of parenting and college student alcohol-related risk than previously explored.

The current study seeks to inform prevention scientists and university health professionals in targeting at-risk families whose parenting profiles are most risky for college student alcohol related problems. Specifically, it is important to explore how these profiles (college student and parent) are associated, as it is currently unknown the extent to which the type of parent one perceives having is predictive of the type of alcohol-related risk one exhibits. For example, it is currently unknown whether a uniformly protective profile of parenting practices is needed to promote safe student alcohol use, or whether specific protective parenting practices, when in the context of more risky behaviors, can be sufficient for student safety.

Method

Participants

Participants were 1153 students from the baseline assessment of an intervention aimed to reduce college alcohol use, with data collected during the summer immediately prior to college entrance. Participants for the intervention were randomly selected incoming freshmen (N =1750) between the ages of 17 and 20 at a large, public northeastern university. Invitations containing a URL and Personal ID for accessing the survey were sent to all 1750 potential participants (66% response rate). Participants provided either consent or assent followed by parental consent (if 17) before participation and received $25 for taking the survey. Sample demographics were: 52% female, and 88% White, Non-Hispanic, 5% Asian, 2% African American, 2% Hispanic, and 3% other. The mean age was 17.9 years (SD = .39), 84% were 18 years old, and 94% perceived their family to be of average or above average socio-economic status relative to their peers.

Measures

Perceived Parenting Profile Indicators—For items asking specifically about mothers and fathers, participants were instructed to answer about parents, whether biological, step-, adoptive, or other guardians with whom they live. If no maternal or paternal figure was present, these questions were not asked. Although the majority of indicators were aggregated across parents, alcohol modeling and parent-teen conflict were incorporated separately for mothers and fathers due to previous research indicating differential effects of these constructs on outcomes based on the sex of the parent (Edwards et al., 2001; White, Johnson, & Buyske, 2000). Student-reports of parenting characteristics were used in lieu of

parent reports due to work showing student reports to be more predictive of alcohol-related behaviors than parent reports (Latendresse et al., 2009).

Maternal/Paternal alcohol modeling: Items on parental alcohol use were: "In the past year, how often do you think your mother/father drank alcohol?" (9 point scale; 1 = not at all to 9 = everyday) and "In the past year, how many drinks do you think your mother/father had per drinking occasion?" (9 point scale; 0 = 0 to 8 = 9 or more). These items were multiplied for an estimate of the quantity of alcohol consumed by mothers/fathers (Abar, Abar, & Turrisi, 2009).

Perceived parent approval of alcohol use: Student perceptions of parental approval of student alcohol use were measured with four items (adapted from *Monitoring the Future* [monitoringthefuture.org] in Wood et al., 2004). Participants were asked to indicate on a 5-point scale from 1 = *Strongly disapprove* to 5 = *Strongly approve* on how their parents would respond if students drank one or two drinks, three or four drinks, and five or more drinks on one occasion, and five or more drinks once or twice each weekend (α = .86).

Alcohol communications: Parent-teen alcohol-related communication was assessed using a 13-item scale adapted from Turrisi et al., (2000). Students indicated on a 4-point scale from 1 = *Not at all* to 4 = *A great deal* the extent that they discussed alcohol related topics with their parents at some point during the past several months. For example, "How difficult it is to make accurate judgments of how drunk you are" (α =.94).

Parental monitoring and knowledge: To assess *monitoring*, students were asked: "How much do your parents try to know what you do during your free time?" For *knowledge*, they were asked "How much do your parents really know what you do with your free time?" (Wood et al., 2004). The response scale was don't try/know, try to/know a little, try/to know a lot.

Parental trust and support: Students reported on the extent to which they trusted and felt supported by their mothers/fathers using 8 items (4 maternal and 4 paternal) measured on a 4 point scale from 1 = *Disagree* to 4 = *Agree*. For example: "I can trust my mother/father when we talk". To limit the number of profile indicators, the scores for both mothers and fathers were averaged to create a single global index of parental trust and support (r = .47, p < .001) (α =.84).

Parental access: Students reported on the extent to which they felt both their parents were accessible to them using 4 items (2 maternal and 2 paternal) measured on a 4 point scale from 1 = *Disagree* to 4 = *Agree*. For example: "My mother/father is too busy when I want to talk to her about things" (reverse coded). The scores for both mothers and fathers were averaged to create a single global index of parental access (r = .39, p < .001) (α =.77).

Mother-/Father-teen conflict: Students reported on conflict with both mothers and fathers using 4 items (2 maternal and 2 paternal) on a 4 point scale from 1 = *Disagree* to 4 = *Agree*. For example: "My mother/father and I end up fighting when we talk" ($\alpha_{mothers}$=.85; $\alpha_{fathers}$ =.89). Given previous research (Edwards et al., 2001) and weaker correlations than for parental trust and support and parental access (r = .27), separate indicators for mothers and fathers were used.

College Student Profile Indicators

Alcohol use initiation: To index the age at which participants began drinking, students were asked, "How old were you the first time you drank alcohol (that is, more than a few sips)?" (13 point scale: 1 = age 10 or younger, 12 = 21 or older, 13 = I have never drank alcohol,).

Alcohol use: Typical weekend drinking was measured as the sum of drinks consumed on a typical Friday and Saturday within the past 30 days (DDQ; Collins, Parks, & Marlatt, 1985). Heavy episodic drinking was measured as how often in the past two weeks participants consumed 5/4 (male/female) or more drinks in a two hour period (NIAAA, 2007).

Alcohol-related consequences: A subset of 26 items pertaining to the negative consequences of one's *own* use was adapted from the Young Adult Alcohol Problems Screening Test (YAAPST, Hurlbut & Sher, 1992). Participants responded about the frequency of occurrence in the past year of these consequences (0 = never, 9 = 40 or more times) (α=.85).

Risky alcohol-related practices: Eight items representing high risk behaviors engaged in while drinking were measured on a 5 point scale from 0 = *Never* to 4 = *Always* and included: "I play beer pong" and "I drink with the intention of getting drunk" (α = .87). Items were adapted, expanded, and recoded from the National College Health Assessment (ACHA, 2003).

Attitudes and beliefs toward alcohol use: Favorable attitudes and beliefs toward drinking utilized 12 items of attitudes and beliefs towards drinking (Turrisi et al., 2001) on a 5-point scale from 1 = *Strongly disagree* to 5 = *Strongly agree*. Examples include: "I would feel favorable toward (a) having a few drinks or (b) getting drunk at a school sponsored sporting event" or "Having a few drinks is a nice way to celebrate" (α = .93). Non-favorable attitudes and beliefs toward drinking were indexed by 8 items of attitudes towards drinking alternatives and non-favorable beliefs about drinking (Turrisi et al., 2001) on the same 5-point scale. For example: "I would feel favorable toward *not* drinking at a school sponsored sporting event" or "All things considered, I have a negative attitude toward drinking alcohol at this time in my life." (α = .87).

Alcohol self-regulation: Adapted from Wood and colleagues (2007), 10 items were used describing the extent to which students reported thinking about their alcohol use and its consequences. For example, "I have thought about how much I drink in comparison to other college students" (1 = *Not at all* to 5 = *Quite a bit*; α = .84).

Peer drinking norms: Descriptive peer norms were indexed by the total drinks participants believed their closest friends consumed on a typical Friday and Saturday during the past 30 days (DDQ; Collins, Parks, & Marlatt, 1985). Injunctive peer norms were indexed by participants' perceptions of the degree to which their friends approved of alcohol use using 4 items (Baer, 1994). Participants indicated on a 7-point scale from 1 = *Strong disapproval* to 7 = *Strong approval* how their closest friends would respond if the respondent drank alcohol every weekend, drank daily, drove a car after drinking, and drank enough to pass out (α = .76).

Plan of Analysis

The analyses were split into three *phases*, examining (1) perceived parenting profiles, (2) student alcohol-related profiles, and (3) associations between the parenting and student profiles.

Phase 1—A series of latent profile analyses were performed using the set of parenting indicator variables. Profiles were added one at a time until the most optimal solution was found. Both statistical and substantive criteria were utilized in making the decision of the number of profiles to retain (Lubke & Muthén, 2005). Statistically, the minimum Akaike Information Criteria (AIC; Akaike, 1987) and Bayesian Information Criteria (BIC; Schwartz, 1978) values across solutions were examined, in addition to the adjusted likelihood ratio test (aLRT; Lo, Mendell, & Rubin, 2001). Substantively, considerations included class sizes (i.e., profiles smaller than 3–5% are often artifacts of the method), distinguishability of profiles (i.e., additional profiles can be negligibly different from profiles in a more parsimonious model), and model interpretability (Lubke & Muthén, 2005). The resulting profiles were then described relative to each other, such that an "Average" level represented an average conditional mean (i.e., within-profile indicator mean) compared to the other profile conditional means.

Phase 2—The profile analytic plan for student correlates of alcohol use was identical to Phase 1.

Phase 3—Using latent transition analysis (LTA; Lanza & Collins, 2008), the final phase examined the association between the established parenting profiles and college student profiles. The current model provided probabilities of being a member in each of the student risk profiles given membership in the parenting profiles.

Results

Phase 1: Perceived Parenting Profiles

Sample-level descriptive statistics for the perceived parenting profile indicators are presented in Table 1. Results of the latent profile analyses indicated that a four profile model provided the best fit to the data. As indicated by the adjusted likelihood ratio test (aLRT), the four profile model provided a significantly better fit than a three profile model, while a five profile model did not improve upon the four profile model. The AIC and the BIC each showed large decreases up to the four profile model, indicating that the one, two, and three profile models did not fit as well as the four profile model.

Profile 1 (19%) was labeled the *High Quality* profile, as they reported the highest levels of parental trust and support, access, and alcohol communications and the lowest levels of mother-teen and father-teen conflict, across profiles (see Table 2). They also reported average levels of parent alcohol use modeling, approval of alcohol use, monitoring and knowledge.

Profile 2 (31%) was labeled the *High Monitoring* profile. Compared to other groups, students in this profile reported the highest levels of parental monitoring and knowledge. To a lesser extent, parents were perceived as exhibiting relatively low levels of approval of student drinking and relatively high communication about alcohol. Perceptions of maternal and paternal alcohol modeling, trust and support, parental access, and conflict were at average levels.

Profile 3 (30%) was labeled the *Anti-Alcohol* profile, as students perceived their parents to have the lowest levels of maternal and paternal alcohol modeling, as well as the lowest parental approval of alcohol use. Parental monitoring, knowledge, trust and support, parental access, and communications relating to alcohol were also perceived at the lowest levels by members of this profile, along with high levels of perceived mother-teen and father-teen conflict.

The fourth (21%) was labeled the *Pro-Alcohol* profile, as they perceived their parents to model markedly heavier maternal and paternal alcohol use, with levels more than one standard deviation unit greater than the nearest profile. They also perceived the highest levels of parental approval of alcohol use and parent-teen conflict. Further, students in this profile reported relatively low levels of perceived parental monitoring, knowledge, and trust and support.

Phase 2: Student Alcohol-Related Profiles

Sample-level descriptive statistics for the student alcohol-related profiles are presented in Table 3. Results indicated that a five profile model provided the best fit to the data. Statistically, the aLRT indicated that a five profile model provided better fit than a four profile model. In addition, the AIC and BIC each showed large decreases until the five profile model indicating that this number of profiles fit the data better than the one, two, three, and four profile models.

The first profile (30% of the sample) was labeled the *Abstainer* Profile, as they reported no typical weekend or heavy episodic drinking, alcohol-related consequences, or risky alcohol-related practices (see Table 4). These individuals had a greater tendency to have *never* initiated alcohol use than all other profiles (65%) and expressed the least favorable attitudes and beliefs toward drinking, as well as the most non-favorable attitudes and beliefs toward drinking. These students perceived their friends to drink the least and to approve of drinking the least across profiles. Finally, they reported thinking about their own alcohol use less than the other profiles.

The second profile (26%) was labeled the *Past Drinker* profile. These individuals were very similar to the *Abstainers*, in they reported no typical weekend and heavy episodic drinking. However, students in the *Past Drinker* profile initiated alcohol use much earlier than those in the *Abstainer* profile who had initiated drinking (35%; $M \sim$ 16–17 years-of-age) and had experienced low levels of alcohol-related consequences and risky alcohol-related practices.

The third profile (15%) was labeled the *Light Drinker* profile. *Light Drinkers* were characterized by similar average age of initiation of alcohol use to the *Past Drinker* profile, but individuals in the *Light Drinkers* profile were currently engaged in relatively low levels of weekend (~2.5 drinks) and binge drinking (little more than once a month). These individuals experienced relatively low levels of alcohol-related consequences and engaged in relative low levels of risky alcohol-related practices.

The fourth profile (22%) was labeled the *High Risk Drinkers* profile. These individuals initiated alcohol use at an average age of 15 or 16, and were currently engaged in higher levels of typical weekend drinking (~ 7 drinks) and binge drinking (~ 3 times a month). The experienced negative consequences for students in the *High Risk Drinkers* profile was much greater than those experienced by each of the first three alcohol-related profiles, with means separated by at least a standard deviation unit. *High Risk Drinkers* reported average-to-high levels of risky alcohol-related practices ("rarely" to "sometimes" engaging in these practices), favorable attitudes and beliefs toward drinking, and perceived descriptive norms (friends consume ~ 10 drinks/weekend). In terms of injunctive norms, while these students perceived their friends as mildly disapproving of use, this mean was high, when compared to the first three profiles.

The fifth profile (6%) was labeled the *Extreme Risk Drinker* profile. These individuals initiated alcohol use at the youngest average ages ($M \sim$ 14 to 15 years-of-age) and were currently engaged in the highest levels of weekend drinking and heavy episodic drinking. Their reported average number of drinks on a typical weekend was approximately 17, and

they binge drank on average more than four times in the prior two weeks; both levels are almost two standard deviations higher than the first three profiles. *Extreme Risk Drinkers* reported experiencing over a standard deviation unit more alcohol-related consequences than the *High Risk Drinker* profile. Students in the *Extreme Risk Drinker* also reported the highest levels of risky alcohol-related practices, favorable attitudes and beliefs toward drinking, alcohol self-regulation, descriptive (friends perceived to consume ~ 15 drinks on a typical weekend) and injunctive peer norms.

Phase 3: Examining Associations between Profiles using Latent Transition Analysis

In order to examine the extent to which perceived parenting profiles were associated with student alcohol-related profiles, latent transition analysis was used (Lanza & Collins, 2008). The probabilities in the resulting transition matrix indicated the probability of being in each of the student alcohol-related profiles given membership in each of the perceived parenting profiles[1].

The probability of being in the *Abstainer* profile was three or more times higher in the *High Quality*, *High Monitoring*, *or Anti-Alcohol* profiles than in the *Pro-Alcohol* profile (see Table 5). Membership in either the *Past Drinker* or *Light Drinker* profiles was also more likely in the *High Quality*, *High Monitoring*, and *Anti-Alcohol* profiles than in the *Pro-Alcohol* profile. The probability of *High Risk Drinker* profile membership was approximately three times greater in the *Pro-Alcohol* profile as in the *High Quality*, *High Monitoring*, and *Anti-Alcohol* profiles. Students were more than eight times as likely to be in the *Extreme Risk Drinker* profile if they were in the *Pro-Alcohol* profile than as if they were in the *High Quality* or *High Monitoring* profiles. The probability of *Extreme Risk Drinker* profile membership was also four times higher in the *Pro-Alcohol* profile than in the *Anti-Alcohol* profile.

Discussion

A growing body of literature has demonstrated that parents maintain influence on the alcohol and other substance using behaviors of their children, even as late as college (e.g., Patock-Peckham & Morgan Lopez, 2009; Windle et al., 2008; Wood et al., 2010). The use of a person-centered approach in the current study provided a different, more holistic, lens by which to examine parenting capable of identifying potentially influential combinations of behaviors.

Summary of Findings

The current study identified four distinct profiles of perceived parenting across the transition to college. The analytic approach was relatively novel when compared with the majority of person-centered research examining sub-groups of parents of adolescents/emerging adults (e.g., Jones & Houts, 1992; Miller-Day, 2008). Five distinct profiles of student alcohol-related correlates were also observed. While previous person-centered research has examined student alcohol-related risk using mixture models, the current study was relatively novel in that previous work has either clustered individuals based on cognitions (Coffman et al., 2007) *or* behaviors (Lanza et al., 2007), whereas the current study examined both. The final analysis explored the extent to which the type of parent students perceived was associated with the pattern of alcohol-related behaviors exhibited. By employing this approach, new understanding of student risk was established, in terms of probabilities of

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[1]Given the cross-sectional nature of the latent transition analysis, additional follow-up analyses were performed examining the probabilities of membership in the perceived parenting profiles given membership in the student alcohol-related profiles. The pattern of results was substantively identical to those detailed in the results section.

student risk given the presence of multiple patterns of relatively protective parenting behaviors. This approach also facilitated an intuitive, multivariate exploration of "good enough parenting" (Scarr, 1992; discussed below).

Perceived Parenting as a Latent Construct

This study suggests that a host of parenting characteristics can be modeled as a single categorical latent factor (i.e., four latent profiles). Research on parenting in childhood and earlier adolescence has recognized this fact and has theorized typologies in accord with person-centered conceptualizations (e.g., Baumrind, 1971, 1999; Maccoby & Martin, 1983). The most recognizable of these paradigms involves the examination of the parental warmth and behavioral control circumplex (Baumrind, 1971; Maccoby & Martin, 1983).

While the Baumrind typologies (1971 (1999) are an appealing four group classification scheme, there are several reasons why the profiles observed in the current study are not interpreted as corresponding to this paradigm. First, the indicators of parental behaviors used in the current study go well beyond warmth and control (e.g., parental modeling). Second, while a general pattern of warmth and control might be sufficient during childhood, the developing autonomy (Beck, Taylor, & Robbins, 2003) and diversification of contexts (Schulenberg et al., 2000) associated with the transition to college appears to necessitate more specific examination. Finally, much variable-centered research has highlighted the importance of non-warmth or -control indicators used in predicting student alcohol misuse.

Student Alcohol-Related Correlates as a Latent Construct

The current study added to existing literature examining student alcohol-related behaviors using a person-centered approach (e.g., Lanza & Collins, 2008; Muthén & Muthén, 2000; Power, Stewart, Hughes, & Arbona, 2005). Across these studies, one relatively consistent finding also illustrated in the current study was a highly-ordered set of student groups. Findings suggest that the set of student-alcohol related behaviors examined in the current sample represent a single, continuous underlying factor. Despite this continuous latent structure, there are several important conclusions that could be drawn. As pointed out by Muthén (2001), one advantage that an ordered pattern of profiles has over a continuous factor is that the person-centered approach helps identify relatively homogeneous sets of individuals, which can be difficult in factor analytic approaches. This provided for two important insights regarding the student alcohol-related profiles. First, the majority of individuals transitioning to college were not currently engaging in risky alcohol use (i.e., *Abstainers* and *Past Drinkers*). A variable-centered approach describing mean levels of alcohol use would misrepresent the normative trends in the sample. This may have implications for feedback based interventions in that using normative trends could potentially have negative consequences on individuals currently abstaining from alcohol use or drinking at levels below the trend. Second, the current study found only 6% of the sample was engaging in the type of extreme risk drinking characterized in popular media (e.g., "Animal House"). This is encouraging from a public health perspective, such that efforts to reduce this pattern are only required for a small sub-set of the population. This assertion is tempered, however, by the potential for this sub-group prevalence to change across college.

Disentangling Parental Influence across the Transition to College

The *High Quality* perceived parenting profile was associated with the most optimal alcohol-related profile membership, which may indicate a need to move beyond more traditional, alcohol-related parental influences. Aspects of relationship quality play an important role in classifying this profile, and this finding was surprising considering measures of parent-teen relationship quality are not often central in the discussion of parental influence on alcohol misuse. There are several potential reasons for this. The first is practical: Relationship

quality is a multi-dimensional construct fostered across the lifespan. Behaviors such as monitoring, limit setting, and modeling are more easily modifiable, making them attractive prevention program targets. The second reason is methodological: Indices of relationship quality might not have received as much attention because, in variable-centered research, they do not have a main effect on student outcomes. However, in person-centered work where higher-order interactions can be seen, relationship quality may emerge as contributing to profile differences. Future work should (a) examine the same set of parenting behaviors using a continuous latent variable framework and (b) examine the impact of commonly examined parenting characteristics (e.g., modeling, monitoring) when in the context of high and low relationship quality (e.g., interaction effects).

One finding that was somewhat surprising was the general lack of significant differences in student alcohol use between all but the *Pro-Alcohol* profile. These null findings may be due to the fact these profiles displayed differential combinations of both potentially risky and protective characteristics. To extrapolate further, this preponderance of similarities in outcomes across the *High Quality, High Monitoring,* and *Anti-Alcohol* profiles highlights the notion of "good enough parenting" (Scarr, 1992). This framework states that children and adolescents tend to develop in a relatively normal fashion given minimally acceptable parenting. In addition, the relatively similar patterns of use observed across these three profiles also highlight the related notion of equifinality (Cicchetti & Rogosch, 1996), meaning similar outcomes can occur as the result of differing patterns of antecedents. Specifically, this study highlights the association between acceptable/safe student outcomes and multiple differential patterns of parental behaviors.

Implications for Parents

Parents are often highly motivated to try to protect their children from substance misuse. Regrettably, there are no simple answers to the challenge of promoting healthy transitions to college. The current study, however, did provide some applicable information for parents. First, relationship quality was shown to potentially play an important role in limiting risk. It is possible that by establishing trust, displaying support, and being accessible to their teens, parents can enhance receptiveness to anti-alcohol messages. Second, it appeared the most successful parents modeled little alcohol use, while maintaining a high degree of knowledge about their adolescent's behavior. Whether the mechanisms for this observed relationship operate through shared values, credibility gained through non-hypocritical messages to teens, or some other indirect process remains to be explored in future research. Finally, appropriate domain specific limits and communications were common in profiles characterized by low student alcohol use.

Implications for Prevention

The results of the current study, if replicable, could be useful to prevention scientists and university health professionals as a screening tool for tailored prevention programs (Carey et al., 2009). Researchers seeking to improve program efficacy and efficiency might benefit from identifying, prior to college entry, parent profiles and tailoring intervention materials to coincide with the specific strengths and deficits associated with each profile. For example, handbook-based prevention programs (e.g., Ichiyama et al, 2009; Turrisi et al., 2001) could inexpensively design materials corresponding to each parent profile. Similarly, student alcohol-related profile membership could be used as a screening tool for identifying students more at risk for alcohol misuse. For example, students in the *Abstainer* and *Past Drinker* profiles would show little benefit from motivational interviewing programs aiming to decrease alcohol use (e.g., Walters et al., 2009) while potentially benefiting from programs aimed at maintaining this level of abstinence and/or safe use. Targeted/tailored interventions

have the potential to show greater benefits for participants and be less expensive than universal designs (Offord, 2000).

Another relevant finding for prevention scientists was the apparent importance of parent-teen relationship quality. This could potentially limit the efficacy of *brief*, prevention efforts, as parent-teen relationships are fostered over the lifespan and likely require substantial investment to modify. As such, these findings potentially imply the need for more intensive, long-term strategies that entail greater time, money, and effort to implement and sustain.

Limitations

There were several limitations to the current study. First, all measures were obtained exclusively from students at a single time point. Although literature exists stating adolescents can accurately and reliably report on their parents' practices (Golden, 1969; Moscowitz & Schwartz, 1982) and these reports are more predictive of outcomes (Latendresse et al., 2009), future studies might be strengthened by incorporating multiple corroborating methods of data collection and/or multiple reporters. This work might prove particularly useful in the replication of the current study, as it is possible that specific profiles of students (e.g., *Extreme Risk Drinkers*) might systematically misestimate parental behaviors. Multiple reporters could also limit associations that exist due to a shared method of data collection. Second, the measurement of several indicators of the perceived parenting profiles was relatively crude (e.g., monitoring on a 3-point scale). This may have limited the ability of the current study to more thoroughly distinguish profiles, potentially masking more profound differences. Future research should seek to use more expansive indices of monitoring and knowledge that allow for greater variability. Third, many of the perceived parenting profile indicators represented aggregate measurement across mothers and fathers, which might impact results (Chassin & Handley, 2006; Patock-Peckham & Morgan-Lopez, 2006). Future research with a larger sample should examine both mothers' and fathers' characteristics in latent profile construction. Fourth, the current study was purely associative, such that identifying specific mechanisms of the associations between the two sets of profiles was not addressed. Future work might benefit from linking person- and variable-centered approaches to identify mediators of this latent profile relationship. Fifth, some of the standard deviations within profiles were relatively large, which could indicate profile overlap. Work replicating the current study might benefit from additional examination of within-profile heterogeneity. Sixth, the current study only examined contemporaneous profile associations, such that future studies might benefit from exploring profile transitions over time and cross-time associations between perceived parenting and student alcohol-related risk profiles. Finally, the sample used was relatively homogeneous in terms of race/ethnicity. While representative of many large universities in the Northeast and Midwest US, the demographic composition of the current sample is not representative of the overarching population of college-age students across the country. In order to better understand the influence of parenting on the transition to college, a more representative sample should be examined.

Conclusion

Perhaps the most important lesson to be learned from the current study is parenting is complicated and necessitates principled and sophisticated examination. Latent profile and latent transition analyses represent person-centered methods suitable for this examination. The methodological approach employed was shown to be well suited to this task, as parenting was found to follow a categorical latent structure of four unobserved patterns of behaviors. Results also revealed that, in addition to alcohol-specific parenting behaviors highlighted in previous work, a focus on enhancing elements of parent-teen relationship quality may also play a role in preventing college alcohol misuse. Finally, the current study

found distinct profiles of parents and students, such that the use of a person-centered approach in the screening phase of prevention research may allow for efficient and efficacious targeted programming.

Acknowledgments

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Table 1

Correlations, means, and (standard deviations) of perceived parenting profile indicators

Parenting Indicators	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Maternal alcohol modeling	6.73 (7.03)									
2. Paternal alcohol modeling	.52**	10.55 (9.99)								
3. Approval of alcohol use	.25**	.23**	6.82 (2.64)							
4. Alcohol communications	.01	.03	.05	26.30 (10.23)						
5. Monitoring	−.04	−.02	−.16**	.22**	2.67 (.51)					
6. Knowledge	−.07*	−.09**	.00	.21**	.33**	2.51 (.60)				
7. Trust and support	−.04	−.08**	.04	.21**	.13**	.33**	13.24 (2.23)			
8. Parental Access	.01	−.05	.05	.16**	.09**	.19**	.43**	6.82 (1.28)		
9. Mother-teen conflict	.12**	.08**	−.03	−.08**	−.04	−.23**	−.44**	−.27**	3.73 (1.70)	
10. Father-teen conflict	.01	.08**	.03	−.21**	−.05	−.21**	−.43**	−.34**	.27**	3.41 (1.65)

*
$p < .05$,

**
$p < .01$.

Note: Variable means and (standard deviations) are placed on the diagonal of the table.

Table 2

Conditional means and (standard deviations) for perceived parenting profiles

	High Quality 19%	High Monitoring 31%	Anti-Alcohol 30%	Pro-Alcohol 21%
Maternal alcohol modeling	5.58 (4.80)	5.18 (4.28)	3.53 (3.04)	14.38 (9.75)
Paternal alcohol modeling	8.45 (7.83)	8.08 (6.60)	6.36 (4.85)	21.53 (12.89)
Approval of alcohol use	6.99 (.62)	6.28 (2.27)	6.22 (1.94)	8.32 (3.25)
Alcohol communications	28.78 (10.70)	28.38 (10.83)	22.91 (8.85)	25.85 (9.28)
Monitoring	2.68 (.54)	3.00 (.14)	2.44 (.54)	2.50 (.54)
Knowledge	2.75 (.53)	3.00 (.14)	2.07 (.53)	2.21 (.53)
Trust and Support	15.27 (.81)	13.48 (1.86)	12.27 (2.21)	12.42 (2.32)
Access	8.00 (.14)	6.70 (1.16)	6.39 (1.34)	6.54 (1.31)
Mother-teen conflict	2.37 (.62)	3.78 (1.62)	4.11 (1.73)	4.32 (1.74)
Father-teen conflict	2.00 (.14)	3.47 (1.53)	3.90 (1.75)	3.95 (1.68)

Table 3

Correlations, means, and (standard deviations) of student alcohol-related profile indicators

College Student Indicators	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Alcohol use initiation	8.11 (2.81)									
2. Typical weekend drinking	−.40**	2.94 (5.09)								
3. Heavy episodic drinking	−.31**	.67**	.68 (1.51)							
4. Alcohol-related consequences	−.52**	.78**	.63**	9.93 (12.29)						
5. Risky alcohol-related practices	−.39**	.73**	.57**	.78**	6.93 (5.95)					
6. Favorable attitudes and beliefs toward drinking	−.57**	.55**	.45**	.66**	.70**	33.36 (11.02)				
7. Non-favorable attitudes and beliefs toward drinking	.51**	−.48**	−.39**	−.54**	−.58**	−.68**	28.92 (6.31)			
8. Alcohol self-regulation	−.14**	.28**	.19**	.30**	.33**	.23**	−.05	23.97 (7.83)		
9. Descriptive peer norms	−.38**	.69**	.46**	.63**	.62**	.49**	−.39**	.28**	5.63 (5.53)	
10. Injunctive peer norms	−.31**	.45**	.34**	.45**	.46**	.45**	−.37**	.14**	.56**	8.62 (3.73)

*
$p < .05$,

**
$p < .01$

Note: Variable means and (standard deviations) are placed on the diagonal of the table.

Table 4

Conditional means and (standard deviations) for student alcohol-related profiles

	Abstainers	Past Drinkers	Light Drinkers	High Risk Drinkers	Extreme Risk Drinkers
	30%	26%	15%	22%	6%
Alcohol use initiation	11.07 (2.78)	7.27 (1.78)	7.38 (1.15)	6.30 (1.33)	5.53 (1.19)
Typical weekend drinking	.00 (.14)	.00 (.14)	2.48 (3.50)	6.82 (3.50)	16.94 (3.50)
Heavy episodic drinking	.00 (.14)	.00 (.14)	.61 (1.55)	1.43 (1.55)	4.35 (1.55)
Alcohol-related consequences	.00 (.14)	5.81 (5.46)	8.57 (5.60)	21.43 (8.43)	38.22 (11.97)
Risky alcohol-related practices	.00 (.14)	4.01 (3.57)	6.19 (3.20)	12.11 (3.46)	16.84 (4.30)
Favorable attitudes and beliefs toward drinking	22.46 (8.17)	32.60 (8.10)	36.48 (5.90)	43.28 (5.32)	47.01 (4.72)
Non-favorable attitudes and beliefs toward drinking	34.29 (5.03)	29.60 (4.98)	26.82 (4.58)	24.20 (4.10)	21.89 (4.40)
Alcohol self-regulation	19.75 (8.08)	22.60 (7.73)	24.36 (7.23)	26.74 (6.64)	27.85 (7.35)
Descriptive peer norms	2.29 (3.77)	3.62 (4.30)	5.11 (3.89)	10.25 (4.10)	15.19 (2.73)
Injunctive peer norms	7.02 (3.46)	7.88 (3.43)	7.90 (2.33)	10.74 (3.01)	13.68 (3.58)

Table 5

Probabilities of student alcohol-related profile membership given perceived parenting profiles

	Abstainers	Past Drinkers	Light Drinkers	High Risk Drinkers	Extreme Risk Drinkers	Marginal n[1]
(1) High Quality	.40	.25	.19	.13	.02	214
(2) High Monitoring	.36	.30	.15	.16	.02	353
(3) Anti-Alcohol	.36	.30	.17	.14	.04	296
(4) Pro-Alcohol	.12	.18	.11	.43	.17	290
Marginal n[1]	351	300	176	254	72	

[1] Marginal n's based on classification into most likely profile.